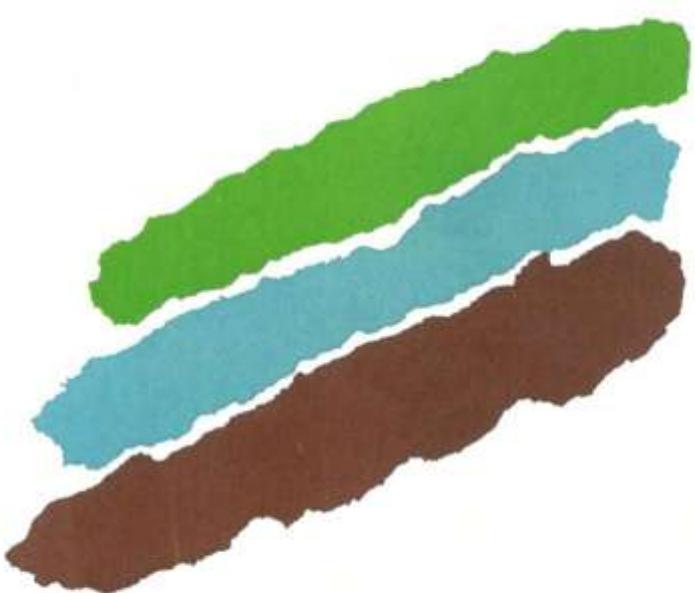


Assessment of impact of release of effluents on ecology of inshore and coastal areas of Maharashtra and their management

Part B: (Data)

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December 2018



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Assessment of impact of release of effluents on ecology of inshore and coastal areas of Maharashtra and their management

Part B: (Data)

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1 BACKGROUND

Maharashtra Pollution Control Board (MPCB) approached the CSIR-National Institute of Oceanography (CSIR-NIO), Mumbai to revisit the sites and find changes along the Maharashtra coast that might have occurred since 2007. The CSIR-NIO conducted these studies during November 2015-January 2016 (postmonsoon) and March-May 2016 (Premonsoon) with following objectives:

2 OBJECTIVES

- i) Ecological monitoring of inshore and coastal areas to identify changes, if any, in water quality, sediment quality and biological characteristics and utilize the findings to suggest corrective measures.
- ii) Monitor for indicator pollutants in areas identified to be contaminated with specific pollutants and assess recovery of the ecosystems or otherwise.

The findings of the present studies (Phase I) are presented in the following two parts:

Part A: The brief description of the study area, nature of wastewater influxes, prevailing environment, ecological assessment, results of analysis of industrial Effluent, bioaccumulation of different pollutants in different area, summary and conclusions and recommendations based on the studies conducted by CSIR- NIO and the data available with CSIR-NIO (Data base) are presented in this report.

Part B: The data that have emerged from field studies of monitoring is presented as Part B of the report.

3 Study area

During the present study the sampling stations along the open coast were selected, to represent inshore (0 to 0.5 Km), nearshore (2 to 3 Km) and offshore (5 to 7 Km) region. Estuaries/Creeks were sampled at their lower, middle and upper zones and in such cases the transect extended to open sea. At least one station on each transect was operated over a tidal cycle and the remaining stations were spot sampled in duplicate. Particular attention was given to sample marine and estuarine areas in the vicinity of significant urban, industrial or maritime establishment. The locations of sampling transects are illustrated in Figure 3.1 and stations operated in different transects are given in the Table 3.1. The geographic positions of sampling stations along with other details are given in Tables 3.2 and 3.3.

The station locations were plotted on satellite imageries as base maps and presented under respective section.

Nearly 26 environmental parameters were monitored at about 127 sampling locations with more than 1048 sampling events.

4 Parameters

Water quality

Temperature, pH, salinity, Suspended Solids (SS), turbidity, Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD), Nitrate (NO_3), Nitrite (NO_3), Ammonia (NH_4), Dissolved phosphate, Petroleum Hydrocarbons (PHc), Phenols.

Sediment quality

Texture, Organic Carbon (C_{org}), Phosphorous (P), Petroleum Hydrocarbon (PHc). Total Viable counts (TVC), Total coliforms (TC), Faecal coliforms (FC) etc.

Heavy metals

Aluminium (Al), Chromium (Cr), Manganese (Mn), Iron (Fe), Cobalt (Co), Nickel (Ni), Copper (Cu), Zinc (Zn), Cadmium (Cd), Lead (Pb) and Mercury (Hg).

Flora and Fauna

Microbiology -	Total Viable counts (TVC), Total coliforms (TC), Faecal coliforms (FC) etc.
Phytoplankton -	Phytopigments, cell counts and total genera
Zooplankton -	Biomass, population and total groups
Macrofauna -	Biomass, population and total groups
Meiobenthos -	Biomass, population and total groups

5 Wastewater influxes

The general nature of influxes received in different transects under study are as follows.

1. Dahanu- Industrial and domestic wastes
2. Tarapur- Industrial and domestic wastes
3. Bassein- Industrial and domestic wastes
4. Manori- Industrial and domestic wastes
5. Versova- Industrial and domestic wastes
6. Bandra-Domestic waste (D.P.)
7. Mahim- Industrial and domestic wastes
8. Worli- Domestic waste (D.P.)

9. Thane- Industrial, domestic and port base wastes
10. Patalganga- Industrial waste
11. Amba- Industrial and Port base wastes
12. Thal- Industrial waste (RCF, DP)
13. Kundalika- Industrial and domestic (minor) wastes
14. Murud- Domestic (minor) waste
15. Savitri- Industrial and domestic (minor) wastes
16. Vashishti- Industrial and domestic (minor) wastes
17. Jaigad- Domestic (minor) and Port base wastes
18. Ratnagiri-Industrial (minor) Port base and domestic wastes
19. Vijaydurg- Domestic (minor) and port base wastes
20. Deogad-Domestic (minor) waste
21. Achara-Domestic (minor) and fishing port
22. Malvan- Domestic (minor) and fishery harbour wastes

Individual stationwise/parameterwise data of all 22 transects for two seasons are given in this report. All tables given in this report are related with Chapter 4 of the marine report entitled “Prevailing Environment” and hence the table number start with series 4 and text number indicates transect code followed by table number.

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 - 4.10.20 Percentage composition of macrofauna off Patalganga during December 2015.
 - 4.10.21 Percentage composition of macrofauna off Patalganga during April 2016.
 - 4.10.22 Station-wise distribution of meiofauna parameters in Patalganga.
 - 4.10.23 Percentage composition meiofauna off Patalganga during December 2015.
 - 4.10.24 Percentage composition meiofauna off Patalganga during April 2016.
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- 4.11.1 Water quality off Amba during December 2015.
 - 4.11.2 Water quality off Amba during May 2016.
 - 4.11.3 Sediment quality off Amba during December 2015.
 - 4.11.4 Sediment quality off Amba during May 2016.
 - 4.11.5 Microbial counts (CFU/ml) in water off Amba Estuary during 2015-16.
 - 4.11.6 Microbial counts (CFU/g) in sediment off Amba Estuary during 2015-16.
 - 4.11.7 Range and average of phytopigments at different stations off Amba Estuary during December 2015.
 - 4.11.8 Range and average of phytopigments at different stations off Amba Estuary during May 2016.
 - 4.11.9 Range and average of phytoplankton at different stations off Amba Estuary during December 2015.
 - 4.11.10 Range and average of phytoplankton at different stations off Amba Estuary during May 2016.
 - 4.11.11 Percentage composition of phytoplankton population at different station off Amba Estuary during December 2015.

- 4.11.12 Percentage composition of phytoplankton population at different station off Amba Estuary during May 2016.
 - 4.11.13 Range and average (parenthesis) of zooplankton at different stations off Amba during December 2015.
 - 4.11.14 Range and average (parenthesis) of zooplankton at different stations off Amba during May 2016.
 - 4.11.15 Abundance of zooplanktons off Amba during December 2015.
 - 4.11.16 Abundance of zooplanktons off Amba during May 2016.
 - 4.11.17 Range and average (parenthesis) of macrofauna off Amba estuary during Postmonsoon and Premonsoon 2015-2016.
 - 4.11.18 Percentage composition of macrofauna off Amba estuary during December 2015.
 - 4.11.19 Percentage composition of macrofauna off Amba estuary during May 2016.
 - 4.11.20 Station-wise distribution of meiofauna parameters in Amba estuary.
 - 4.11.21 Percentage composition of meiofauna off Amba estuary during December 2015.
 - 4.11.22 Percentage composition of meiofauna off Amba estuary during May 2016.
- 4.12.1 Water quality at Thal DP during December 2015.
 - 4.12.2 Water quality at Thal DP during April 2016.
 - 4.12.3 Sediment quality at Thal DP during December 2015.
 - 4.12.4 Sediment quality at Thal DP during April 2016.
 - 4.12.5 Microbial counts (CFU/ml) in water at Thal DP during 2015-16.
 - 4.12.6 Microbial counts (CFU/g) in sediment at Thal DP during 2015-16.
 - 4.12.7 Range and average of phytopigments at Thal DP during December 2015.
 - 4.12.8 Range and average of phytopigments at Thal DP during April 2016.
 - 4.12.9 Range and average of phytoplankton at Thal DP during December 2015.
 - 4.12.10 Range and average of phytoplankton at Thal DP during April 2016.

- 4.12.11 Percentage composition of phytoplankton population at Thal DP during December 2015.
 - 4.12.12 Percentage composition of phytoplankton population at Thal DP during April 2016.
 - 4.12.13 Range and average (parenthesis) of zooplankton at Thal DP during December 2015.
 - 4.12.14 Range and Average (parenthesis) of Zooplankton at Thal DP during April 2016.
 - 4.12.15 Abundance of zooplankton at Thal DP during December 2015.
 - 4.12.16 Abundance of zooplanktons at Thal DP during April 2016.
 - 4.12.17 Range and average of macrofauna at Thal DP during Postmonsoon and Premonsoon 2015-2016.
 - 4.12.18 Percentage composition of macrofauna at Thal DP during December 2015.
 - 4.12.19 Percentage composition of macrofauna at Thal DP during April 2016.
 - 4.12.20 Station-wise distribution of meiofauna parameters at Thal DP.
 - 4.12.21 Percentage composition of meiofauna at Thal DP during December 2015.
 - 4.12.22 Percentage composition of meiofauna at Thal DP during April 2016.
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- 4.13.1 Water quality off Kundalika during December 2015.
 - 4.13.2 Water quality off Kundalika during April 2016.
 - 4.13.3 Sediment quality off Kundalika during December 2015.
 - 4.13.4 Sediment quality off Kundalika during April 2016.
 - 4.13.5 Microbial count (CFU/ml) in water off Kundalika during 2015-16.
 - 4.13.6 Microbial counts (CFU/g) in sediment off Kundalika during 2015-16.
 - 4.13.7 Range and average of phytopigments at different stations off Kundalika during December 2015.
 - 4.13.8 Range and average of phytopigments at different stations off Kundalika during April 2016.
 - 4.13.9 Range and average of phytoplankton at different stations off Kundalika during December 2015.

- 4.13.10 Range and average of phytoplankton at different stations off Kundalika during April 2016.
 - 4.13.11 Percentage composition of phytoplankton population at different station off Kundalika during December 2015.
 - 4.13.12 Percentage composition of phytoplankton population at different station off Kundalika during April 2016.
 - 4.13.13 Range and average (parenthesis) of zooplankton at different stations off Kundalika during December 2015.
 - 4.13.14 Range and Average (parenthesis) of Zooplankton at different stations off Kundalika during April 2016.
 - 4.13.15 Abundance of zooplankton off Kundalika during December 2015.
 - 4.13.16 Abundance of zooplanktons off Kundalika during April 2016.
 - 4.13.17 Range and average of macrofauna off Kundalika during Postmonsoon and Premonsoon 2015-2016.
 - 4.13.18 Percentage composition of macrofauna off Kundalika during December 2015.
 - 4.13.19 Percentage composition of macrofauna off Kundalika during April 2016.
 - 4.13.20 Station-wise distribution of meiofauna parameters in Kundalika.
 - 4.13.21 Percentage composition of meiofauna off Kundalika during December 2015.
 - 4.13.22 Percentage composition of meiofauna off Kundalika during April 2016.
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- 4.14.1 Water quality off Murud during December 2015.
 - 4.14.2 Water quality off Murud during April 2016.
 - 4.14.3 Sediment quality off Murud during December 2015.
 - 4.14.4 Sediment quality off Murud during April 2016.
 - 4.14.5 Microbial counts (CFU/ml) in water off Murud during 2015-16.
 - 4.14.6 Microbial counts (CFU/g) in sediment off Murud during 2015-16.
 - 4.14.7 Range and average of phytopigments at different stations off Murud during December 2015.
 - 4.14.8 Range and average of phytopigments at different stations off Murud during April 2016.

- 4.14.9 Range and average of phytoplankton at different stations off Murud during December 2015.
 - 4.14.10 Range and average of phytoplankton at different stations off Murud during April 2016.
 - 4.14.11 Percentage composition of phytoplankton population at different station off Murud during December 2015.
 - 4.14.12 Percentage composition of phytoplankton population at different station off Murud during April 2016.
 - 4.14.13 Range and average (parenthesis) of zooplankton at different stations off Murud during December 2015.
 - 4.14.14 Range and average (parenthesis) of zooplankton at different stations off Murud during April 2016.
 - 4.14.15 Abundance of zooplanktons off Murud during December 2015.
 - 4.14.16 Abundance of zooplankton off Murud during April 2016.
 - 4.14.17 Range and average of sub tidal macro benthos off Murud during Postmonsoon and Premonsoon 2015-2016.
 - 4.14.18 Percentage composition of macrofauna off Murud during December 2015.
 - 4.14.19 Percentage composition of macrofauna off Murud during April 2016.
 - 4.14.20 Station-wise distribution of meiofauna parameters in Murud.
 - 4.14.21 Percentage composition meiofauna off Murud during December 2015.
 - 4.14.22 Percentage composition meiofauna off Murud during April 2016.
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- 4.15.1 Water quality off Savitri during December 2015.
 - 4.15.2 Water quality off Savitri during March 2016.
 - 4.15.3 Sediment quality off Savitri during December 2015.
 - 4.15.4 Sediment quality off Savitri during March 2016.
 - 4.15.5 Microbial counts (CFU/ml) in water off Savitri during 2015-2016.
 - 4.15.6 Microbial counts (CFU /g) in sediments off Savitri during 2015-2016.
 - 4.15.7 Range and average of phytopigments at different stations off Savitri during December 2015.

- 4.15.8 Range and average of phytopigments at different stations off Savitri during March 2016.
 - 4.15.9 Range and average of phytoplankton at different stations off Savitri during December 2015.
 - 4.15.10 Range and average of phytoplankton at different stations off Savitri during March 2016.
 - 4.15.11 Percentage composition of phytoplankton population at different station off Savitri during December 2015.
 - 4.15.12 Percentage composition of phytoplankton population at different stations off Savitri during March 2016.
 - 4.15.13 Range and average (parenthesis) of zooplankton at different stations off Savitri during December 2015.
 - 4.15.14 Range and average (parenthesis) of zooplankton at different stations off Savitri during March 2016.
 - 4.15.15 Abundance of zooplanktons off Savitri during December 2015.
 - 4.15.16 Abundance of zooplanktons off Savitri during March 2016.
 - 4.15.17 Range and average of macrofauna off Savitri during Postmonsoon and Premonsoon 2015-2016.
 - 4.15.18 Percentage composition of macrofauna off Savitri during December 2015.
 - 4.15.19 Percentage composition of macrofauna off Savitri during March 2016.
 - 4.15.20 Station-wise distribution of meiofauna parameters in Savitri.
 - 4.15.21 Percentage composition of meiofauna off Savitri during December 2015.
 - 4.15.22 Percentage composition of meiofauna off Savitri during March 2016.
- 4.16.1 Water quality off Vashishti estuary during December 2015.
 - 4.16.2 Water quality off Vashishti estuary during March 2016.
 - 4.16.3 Sediment quality off Vashishti estuary during December 2015.
 - 4.16.4 Sediment quality off Vashishti estuary during March 2016.
 - 4.16.5 Microbial counts (CFU/ml) in water off Vashishti estuary during 2015- 2016.
 - 4.16.6 Microbial counts (CFU/g) in sediment off Vashishti estuary during 2015-2016.

- 4.16.7 Range and average of phytopigments at different stations off Vashishti estuary during December 2015.
 - 4.16.8 Range and average of phytopigments at different stations off Vashishti estuary during March 2016.
 - 4.16.9 Range and average of phytoplankton at different stations off Vashishti estuary during December 2015.
 - 4.16.10 Range and average of phytoplankton at different stations off Vashishti estuary during March 2016.
 - 4.16.11 Percentage composition of phytoplankton population at different station off Vashishti estuary during December 2015.
 - 4.16.12 Percentage composition of phytoplankton population at different station off Vashishti estuary during March 2016.
 - 4.16.13 Range and average (parenthesis) of zooplankton at different stations off Vashishti estuary during December 2015.
 - 4.16.14 Range and average (parenthesis) of zooplankton at different stations off Vashishti estuary during March 2016.
 - 4.16.15 Abundance of Zooplanktons off Vashishti estuary during December 2015.
 - 4.16.16 Abundance of zooplanktons off Vashishti estuary during March 2016.
 - 4.16.17 Range and average of macrofauna off Vashishti estuary during Postmonsoon and Premonsoon 2015-2016.
 - 4.16.18 Percentage composition of macrofauna off Vashishti estuary during December 2015.
 - 4.16.19 Percentage composition of macrofauna off Vashishti estuary during March 2016.
 - 4.16.20 Station-wise distribution of meiofauna parameters in Vashishthi estuary.
 - 4.16.21 Percentage composition of meiofauna off Vashishti estuary during December 2015.
 - 4.16.22 Percentage composition of meiofauna off Vashishti estuary during March 2016.
- 4.17.1 Water quality off Jaigad during January 2016.
 - 4.17.2 Water quality off Jaigad during March 2016.
 - 4.17.3 Sediment quality off Jaigad during January 2016.

- 4.17.4 Sediment quality off Jaigad during March 2016.
 - 4.17.5 Microbial count (CFU/ml) in water off Jaigad during 2016.
 - 4.17.6 Microbial counts (CFU/g) in sediment off Jaigad during 2016.
 - 4.17.7 Range and average of phytopigments at different stations off Jaigad during January 2016.
 - 4.17.8 Range and average of phytopigments at different stations off Jaigad during March 2016.
 - 4.17.9 Range and average of phytoplankton at different stations off Jaigad during January 2016.
 - 4.17.10 Range and average of phytoplankton at different stations off Jaigad during March 2016.
 - 4.17.11 Percentage composition of phytoplankton population at different station off Jaigad during January 2016.
 - 4.17.12 Percentage composition of phytoplankton population at different station off Jaigad during March 2016.
 - 4.17.13 Range and average (parenthesis) of zooplankton at different stations off Jaigad during January 2016.
 - 4.17.14 Range and average (parenthesis) of zooplankton at different stations off Jaigad during March 2016.
 - 4.17.15 Abundance of zooplanktons off Jaigad during January 2016.
 - 4.17.16 Abundance of zooplanktons off Jaigad during March 2016.
 - 4.17.17 Range and average of macrofauna off Jaigad during Postmonsoon and Premonsoon 2015-2016.
 - 4.17.18 Percentage composition of macrofauna off Jaigad during January 2016.
 - 4.17.19 Percentage composition of macrofauna off Jaigad during March 2016.
 - 4.17.20 Station-wise distribution of meiofauna parameters in Jaigad.
 - 4.17.21 Percentage composition of meiofauna off Jaigad during January 2016.
 - 4.17.22 Percentage composition of meiofauna off Jaigad during March 2016.
- 4.18.1 Water quality off Ratnagiri during January 2016.
 - 4.18.2 Water quality off Ratnagiri during March 2016.

- 4.18.3 Sediment quality off Ratnagiri during January 2016.
 - 4.18.4 Sediment quality off Ratnagiri during March 2016.
 - 4.18.5 Microbial counts (CFU/ml) in water off Ratnagiri during 2015-16.
 - 4.18.6 Microbial counts (CFU /g) in sediment off Ratnagiri during 2015-16.
 - 4.18.7 Range and average of phytopigments at different stations off Ratnagiri during January 2016.
 - 4.18.8 Range and average of phytopigments at different stations off Ratnagiri during March 2016.
 - 4.18.9 Range and average of phytoplankton at different stations off Ratnagiri during January 2016.
 - 4.18.10 Range and average of phytoplankton at different stations off Ratnagiri during March 2016.
 - 4.18.11 Percentage composition of phytoplankton population at different station off Ratnagiri during January 2016.
 - 4.18.12 Percentage composition of phytoplankton population at different station off Ratnagiri during March 2016.
 - 4.18.13 Range and average (parenthesis) of zooplankton at different stations off Ratnagiri during January 2016.
 - 4.18.14 Range and average (parenthesis) of zooplankton at different stations off Ratnagiri during March 2016.
 - 4.18.15 Abundance of zooplanktons off Ratnagiri during January 2016.
 - 4.18.16 Abundance of zooplanktons off Ratnagiri during March 2016.
 - 4.18.17 Range and average of macrofauna off Ratnagiri during Postmonsoon and Premonsoon 2015-2016.
 - 4.18.18 Percentage composition of macrofauna off Ratnagiri during January 2016.
 - 4.18.19 Percentage composition of macrofauna off Ratnagiri during March 2016.
 - 4.18.20 Station-wise distribution of meiofauna parameters in Ratnagiri.
 - 4.18.21 Percentage composition of meiofauna off Ratnagiri during January 2016.
 - 4.18.22 Percentage composition of meiofauna off Ratnagiri during March 2016.
- 4.19.1 Water quality off Vijaydurg during January 2016.

- 4.19.2 Water quality off Vijaydurg during March 2016.
- 4.19.3 Sediment quality off Vijaydurg during January 2016.
- 4.19.4 Sediment quality off Vijaydurg during March 2016.
- 4.19.5 Microbial counts (CFU/ml) in water off Vijaydurg during 2016.
- 4.19.6 Microbial counts (CFU/g) in sediment off Vijaydurg during 2016.
- 4.19.7 Range and average of phytopigments at different stations off Vijaydurg during January 2016.
- 4.19.8 Range and average of phytopigments at different stations off Vijaydurg during March 2016.
- 4.19.9 Range and average of phytoplankton at different stations off Vijaydurg during January 2016.
- 4.19.10 Range and average of phytoplankton at different stations off Vijaydurg during March 2016.
- 4.19.11 Percentage composition of phytoplankton population at different station off Vijaydurg during January 2016.
- 4.19.12 Percentage composition of phytoplankton population at different stations off Vijaydurg during March 2016.
- 4.19.13 Range and average (parenthesis) of zooplankton at different stations off Vijaydurg during January 2016.
- 4.19.14 Range and average (parenthesis) of zooplankton at different stations off Vijaydurg during March 2016.
- 4.19.15 Abundance of zooplanktons off Vijaydurg during January 2016.
- 4.19.16 Abundance of zooplanktons off Vijaydurg during March 2016.
- 4.19.17 Range and average of macrofauna off Vijaydurg during Postmonsoon and Premonsoon 2015-2016.
- 4.19.18 Percentage composition of macrofauna off Vijaydurg during January 2016.
- 4.19.19 Percentage composition of macrofauna off Vijaydurg during March 2016.
- 4.19.20 Station-wise distribution of meiofauna parameters in Vijaydurg.
- 4.19.21 Percentage composition of meiofauna off Vijaydurg during January 2016.

- 4.19.22 Percentage composition of meiofauna off Vijaydurg during March 2016.
- 4.20.1 Water quality off Deogad during January 2016.
- 4.20.2 Water quality off Deogad during March 2016.
- 4.20.3 Sediment quality off Deogad during January 2016.
- 4.20.4 Sediment quality off Deogad during March 2016.
- 4.20.5 Microbial counts (CFU/ml) in water off Deogad during 2016.
- 4.20.6 Microbial counts (CFU/g) in sediment off Deogad during 2016.
- 4.20.7 Range and average of phytopigments at different stations off Deogad during January 2016.
- 4.20.8 Range and average of phytopigments at different stations off Deogad during March 2016.
- 4.20.9 Range and average of phytoplankton at different stations off Deogad during January 2016.
- 4.20.10 Range and average of phytoplankton at different stations off Deogad during March 2016.
- 4.20.11 Range and average of phytoplankton population at different stations off Deogad during January 2016.
- 4.20.12 Percentage composition of phytoplankton population at different station off Deogad during March 2016.
- 4.20.13 Range and average (parenthesis) of zooplankton at different stations off Deogad during January 2016.
- 4.20.14 Range and average (parenthesis) of zooplankton at different stations off Deogad during March 2016.
- 4.20.15 Abundance of zooplankton off Deogad during January 2016.
- 4.20.16 Abundance of zooplankton off Deogad during March 2016.
- 4.20.17 Range and average of sub tidal macro benthos off Deogad during Postmonsoon and Premonsoon 2015-2016.
- 4.20.18 Percentage composition of macrofauna off Deogad during January 2016.
- 4.20.19 Percentage composition of macrofauna off Deogad during March 2016.
- 4.20.20 Station-wise distribution of meiofauna parameters in Deogad.

- 4.20.21 Percentage composition of meiofauna off Deogad during January 2016.
- 4.20.22 Percentage composition of meiofauna off Deogad during March 2016.
- 4.21.1 Water quality off Achara during January 2016.
- 4.21.2 Water quality off Achara during March 2016.
- 4.21.3 Sediment quality off Achara during January 2016.
- 4.21.4 Sediment quality off Achara during March 2016.
- 4.21.5 Microbial counts (CFU/ml) in water off Achara during 2015-2016.
- 4.21.6 Microbial counts (CFU/g) in sediment off Achara during 2015-2016.
- 4.21.7 Range and average of phytopigments at different stations off Achara during January 2016.
- 4.21.8 Range and average of phytopigments at different stations off Achara during March 2016.
- 4.21.9 Range and average of phytoplankton at different stations off Achara during January 2016.
- 4.21.10 Range and average of phytoplankton at different stations off Achara during March 2016.
- 4.21.11 Percentage composition of phytoplankton population at different station off Achara during January 2016.
- 4.21.12 Percentage composition of phytoplankton population at different station off Achara during March 2016.
- 4.21.13 Range and average (parenthesis) of zooplankton at different stations off Achara during January 2016.
- 4.21.14 Range and average (parenthesis) of zooplankton at different stations off Achara during March 2016.
- 4.21.15 Abundance of zooplanktons off Achara during January 2016.
- 4.21.16 Abundance of zooplanktons off Achara during March 2016.
- 4.21.17 Range and average of sub tidal macro benthos off Achara during Postmonsoon and Premonsoon 2015-2016.
- 4.21.18 Percentage composition of macrofauna off Achara during January 2016.
- 4.21.19 Percentage composition of macrofauna off Achara during March 2016.

- 4.21.20 Station-wise distribution of meiofauna parameters in Achara.
- 4.21.21 Percentage composition of meiofauna off Achara during January 2016.
- 4.21.22 Percentage composition of meiofauna off Achara during March 2016.
- 4.22.1 Water quality off Malvan during January 2016.
- 4.22.2 Water quality off Malvan during March 2016.
- 4.22.3 Sediment quality off Malvan during January 2016.
- 4.22.4 Sediment quality off Malvan during March 2016.
- 4.22.5 Microbial counts (CFU/ml) in water off Malvan during 2015-2016.
- 4.22.6 Microbial counts (CFU/g) in sediments off Malvan during 2015-2016.
- 4.22.7 Range and average of phytopigments at different stations off Malvan during January 2016.
- 4.22.8 Range and average of phytopigments at different stations off Malvan during March 2016.
- 4.22.9 Range and average of phytoplankton at different stations off Malvan during January 2016.
- 4.22.10 Range and average of phytoplankton at different stations off Malvan during March 2016.
- 4.22.11 Percentage composition of phytoplankton population at different station off Malvan during January 2016.
- 4.22.12 Percentage composition of phytoplankton population at different station off Malvan during March 2016.
- 4.22.13 Range and average (parenthesis) of zooplankton at different stations off Malvan during January 2016.
- 4.22.14 Range and average (parenthesis) of zooplankton at different stations off Malvan during March 2016.
- 4.22.15 Abundance of zooplanktons off Malvan during January 2016.
- 4.22.16 Abundance of zooplankton off Malvan during March 2016.
- 4.22.17 Range and average (parenthesis) of sub tidal macro benthos off Malvan during Postmonsoon and Premonsoon 2015-2016.
- 4.22.18 Percentage composition of macrofauna off Malvan during January 2016

- 4.22.19 Percentage composition of macrofauna off Malvan during March 2016.
- 4.22.20 Station-wise distribution of meiofauna parameters in Malvan.
- 4.22.21 Percentage composition of meiofauna off Malvan during January 2016.
- 4.22.22 Percentage composition of meiofauna off Malvan during March 2016.

EXPLANATORY NOTE

Av	-	Average
B	-	Bottom
BOD	-	Biological Oxygen Demand (mg/l)
COD	-	Chemical Oxygen Demand (mg/l)
C _{org}	-	Organic carbon (%)
DO	-	Dissolved Oxygen (mg/l)
Max	-	Maximum
Min	-	Minimum
ND	-	Not Detected
NH ₄ ⁺ -N	-	Ammonium nitrogen ($\mu\text{mol/l}$)
NO ₂ ⁻ -N	-	Nitrite nitrogen ($\mu\text{mol/l}$)
NO ₃ ⁻ -N	-	Nitrate nitrogen ($\mu\text{mol/l}$)
TN	-	Total nitrogen ($\mu\text{mol/l}$)
TP	-	Total phosphorus ($\mu\text{mol/l}$)
PHc	-	Petroleum hydrocarbons ($\mu\text{g/l}$)
PO ₄ ³⁻ -P	-	Reactive phosphate phosphorus ($\mu\text{mol/l}$)
S	-	Surface
SS	-	Suspended Solids (mg/l)
Temp	-	Temperature (°C)
TVC	-	Total viable count
TC	-	Total coliform
FC	-	Faecal coliform
ECLO	-	<i>Escherichia coli</i> like organism
SHLO	-	<i>Shigella</i> like organism
SLO	-	<i>Salmonella</i> like organism
PKLO	-	<i>Proteus, Klebsiella</i> like organism
VLO	-	<i>Vibrio</i> like organism
VPLO	-	<i>Vibrio parahaemolyticus</i> like organism
VCLO	-	<i>Vibrio cholerae</i> like organism
PALO	-	<i>Pseudomonas aeruginosa</i> like organism
SFLO	-	<i>Streptococcus faecalis</i> like organism

Coastal Water Monitoring

Survey Location

Sr.No	Location	Spot/Tidal	12Hrs	Total
1	Sindhudung Dist.			
1	malvan	3	1	4
2	Achera	4	1	5
3	Deogad	5	1	6
4	Vijaydurg	5	1	6
	Ratnagiri Dist.			
5	Ratnagiri	4	1	5
6	Jalgad (shastri river)	5	1	6
7	Dabhol Creek (Vashthi River,Lote Pershuram MIDC)	8	2	10
	Raigad Dist.			
8	Savitri River (Mahad MIDC)	7	2	9
9	Rajapuri Creek (Murud)	6	1	7
10	Kundalika River (Roha MIDC)	8	2	10
11	Thal	0	1	1
12	Amba River (Dharamtar Creek)	5	1	6
13	Patalganga River (Rasayani MIDC)	7	2	9
	Thane Dist.			
14	Dahanu	5	1	6
15	Tarapur	5	1	6
16	Mumbai Bassien	11	2	13
17	Thane Creek	4	2	6
	Mumbai Coast			
18	Versova	1	1	2
19	Manori	2	1	3
20	Mumbai Mahim Bay	2	1	3
21	Mumbai Harbour (Bandra,worli)	2	2	4
	Total	99	28	127



Maharashtra Pollution Control Board
महाराष्ट्र प्रदूषण नियंत्रण मंडळ

0 5 10 20 30 40



Figure 3.1: Transect monitored along Maharashtra Coast

Table 3.1: Sampling Locations

Table 3.2 Sampling details during postmonsoon

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Dahanu	DH1	1	19° 58' 51.19" N	72° 38' 11.72"E	19.11.15	1030	E	10.5
		2				1045	E	
	DH2	1	19° 58' 53.10" N	72° 39' 56.60" E	19.11.15	0930	E	9.0
		2				0945	E	
	DH3	1	19° 58' 15.50" N	72° 42' 50.20" E	19.11.15	0700	F	8.5
		2				1500	E	4.5
	DH4	1	19° 57' 35.0" N	72° 43' 51.70" E	19.11.15	0600	F	5.5
		2				0700	E	5.3
		3				0800	E	5.0
		4				0900	E	4.8
		5				1000	E	4.5
		6				1100	E	4.3
		7				1200	E	4.0
		8				1300	E	3.5
		9				1400	E	2.5
		10				1500	F	2.8
		11				1600	F	3.5
		12				1700	F	4.5
	DH5	1	19° 57' 48.30" N	72° 44' 23.50" E	19.11.15	0615	F	3.0
		2				1218	F	1.5
	DH6	1	19° 56' 31.60" N	72° 44' 27.0" E	18.11.15	1200	E	2.0
		2				1300	F	2.3
		3				1400	F	2.6
		4				1500	F	3.0
		5				1600	F	3.5
		6				1700	F	4.0
Tarapur	TP1	1	19° 48' 00.3" N	72° 36' 00.80" E	21.11.15	1130	F	18.0
		2				1145	F	
	TP2	1	19° 48' 10.90" N	72° 37' 51.20" E	21.11.15	1030	E	12.0
		2				1045	E	
	TP3	1	19° 47' 00.50" N	72° 41' 06.75" E	21.11.15	0915	E	1.8
		2				1515	F	3.0

Table 3.2 (contd.1)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Tarapur	TP4	1	19° 47' 15.64" N	72° 41' 08.37" E	21.11.15	0900	F	3.0
		2				1500	E	1.8
	TP5	1				0700	E	3.3
		2				0800	F	3.5
		3				0900	F	4.0
		4				1000	E	3.8
		5				1100	E	3.5
		6				1200	E	3.0
		7				1300	E	2.5
		8				1400	E	1.7
		9				1500	E	1.5
		10				1600	E	1.0
		11				1700	F	1.5
		12				1800	F	1.8
Bassein/ Ulhas Estary	TP6	1	19° 48' 09.13" N	72° 41' 17.42" E	22.11.15	0915	F	3.0
		2				1620	E	1.0
	BS1	1	19° 18' 25.60" N	72° 44' 32.90" E	30.11.15	1305	F	9.0
		2				1320	F	
	BS2	1	19° 19' 01.0" N	72° 49' 02.0" E	30.11.15	1000	E	5.0
		2				1015	E	
	BS3	1	19° 19' 27.0" N	72° 49' 06.0" E	30.11.15	1015	E	4.0
		2				1600	F	9.0
	BS4	1	19° 19' 11.0"N	72° 50' 57.0"E	01.12.15	0800	F	8.0
		2				0900	E	7.5
		3				1000	E	7.3
		4				1100	E	7.0
		5				1200	F	7.5
		6				1300	F	8.0
		7				1400	F	8.5
		8				1500	F	9.0
		9				1600	F	9.5
		10				1700	E	9.0
		11				1800	E	8.5
		12				1900	E	8.0

Table 3.2 (contd.2)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Bassein/ Ulhas Estary	BS5	1	19° 17' 18.0" N	72° 54' 18.0" N	01.12.15	1230	E	8.0
		2				1900	F	10.5
	BS6	1	19° 16' 21.50" N	72° 59'33.21" E	27.11.15	1145	F	14.0
		2				1200	F	
	BS7	1	19° 14' 18.0" N	73° 00' 12.0" N	27.11.15	0950	E	7.0
		2				1520	F	10.0
	BS8	1	19° 12'02.30" N	73° 01'33.99" E	27.11.15	1300	E	14.0
		2				1315	E	
	BS9	1	19° 14' 16.0" N	73° 04' 21.0" N	26.11.15	0800	F	7.0
		2				0900	F	8.0
		3				1000	F	8.5
		4				1100	F	9.0
		5				1200	F	11.0
		6				1300	F	11.5
		7				1400	F	12.0
		8				1500	E	11.0
		9				1600	E	9.5
		10				1700	E	9.0
		11				1800	E	8.0
		12				1900	E	7.0
	BS10	1	19° 14' 04.10" N	73° 05' 56.90" E	26.11.15	0900	E	9.5
		2				1500	F	12.0
	BS11	1	19° 15'27.71" N	73° 06' 28.40" E	25.11.15	0830	E	6.5
		2				1345	F	7.5
	BS12	1	19° 16' 04.90" N	73° 08' 30.00" E	25.11.15	1000	E	6.0
		2				1415	F	9.0
	BS13	1	19° 15' 33.80" N	73° 09' 28.42" E	25.11.15	1030	E	4.0
		2				1230	F	6.0

Table 3.2 (contd.3)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Manori	BYMa4	1	19° 12' 15.00"N	72° 47' 44.00"E	11.12.15	0830	F	4.2
		2				0930	F	4.5
		3				1030	F	5.0
		4				1130	F	5.5
		5				1230	E	5.2
		6				1330	E	5.0
		7				1430	E	4.5
		8				1530	E	4.0
		9				1630	E	3.5
		10				1730	E	3.0
		11				1830	F	3.0
		12				1930	F	3.0
Versova	BYMa5	1	19° 13' 42.00"N	72° 48' 54.00"E	11.12.15	1130	F	4.0
		2				1145	F	
	BYMa6	1	19° 14' 36.00"N	72° 49' 19.00"E	11.12.15	1150	E	3.5
		2				1205	E	
Mahim	BYV4	1	19° 07' 12.00"N	72° 47' 44.00"E	10.12.15	1120	F	10.0
		2				1720	E	7.0
	BYV5	1	19° 08' 41.00"N	72° 48' 12.00"E	10.12.15	0800	F	6.0
		2				0900	F	6.0
		3				1000	F	6.5
		4				1100	F	7.0
		5				1200	E	7.0
		6				1300	E	6.0
		7				1400	E	5.5
		8				1500	E	5.0
		9				1600	E	4.5
		10				1700	E	4.0
		11				1800	F	4.5
		12				1900	F	4.5
Mahim	BYM4	1	19° 02' 20.00" N	72° 48' 56.00" E	07.12.15	0930	F	8.0
		2				1530	E	6.0
	BYM5	1	19° 02' 27.00" N	72° 49' 32.50"E	07.12.15	0945	E	5.0
		2				1000	E	5.0

Table 3.2 (contd.4)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Mahim	BYM6	1	19° 02' 38.50" N	72° 49' 58.70"E	07.12.15	0800	F	8.0
		2				0900	F	9.0
		3				1000	E	8.0
		4				1100	E	8.0
		5				1200	E	7.0
		6				1300	E	7.0
		7				1400	E	6.5
		8				1500	E	6.0
		9				1600	F	6.5
		10				1700	F	7.0
		11				1800	F	7.0
		12				1900	F	7.5
Bandra	BYB1	1	19° 03' 33.10"N	72° 45' 19.80"E	08.12.15	1020	F	12.0
		2				1620	E	10.0
	BYB2	1	19° 02' 47.40"N	72° 47' 34.70"E	09.12.15	0715	F	9.0
		2				0815	F	9.0
		3				0915	F	10.0
		4				1015	F	11.0
		5				1115	E	11.0
		6				1215	E	9.0
		7				1315	E	9.0
		8				1415	E	8.5
		9				1515	E	8.0
		10				1615	E	7.5
		11				1715	F	8.0
		12				1815	F	8.5
Worli	BYW1	1	19° 00'13.00"N	72° 45' 52"E	08.12.15	1430	E	11.0
		2				1445	E	

Table 3.2 (contd.5)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Worli	BYW2	1	19° 00' 11.80"N	72° 47' 02.00" E	08.12.15	0700	F	8.0
		2				0800	F	8.5
		3				0900	F	9.0
		4				1000	F	10.5
		5				1030	E	10.0
		6				1100	E	10.5
		7				1200	E	10.0
		8				1300	E	9.5
		9				1400	E	8.5
		10				1500	E	8.0
		11				1600	E	8.0
		12				1700	F	7.0
		13				1800	F	8.0
Thane Creek	BY1	1	18° 52' 04.00"N	72° 46' 16.50" E	05.12.15	1030	E	7.0
		2				1045	E	
	BY2	1	18° 52' 00.17"N	72° 47' 3.80" E	06.12.15	1130	E	7.0
		2				1145	E	
	BY3	1	18° 52' 00.80 "N	72° 48' 59.00 " E	06.12.15	0900	F	7.0
		2				1400	E	5.0
	BY4	1	18° 52' 04.00"N	72° 50' 38.00" E	04.12.15	0830	F	9.0
		2				0930	E	9.0
		3				1030	E	8.5
		4				1130	E	8.0
		5				1230	E	7.0
		6				1300	E	7.0
		7				1330	F	7.0
		8				1430	F	8.0
		9				1530	F	9.0
		10				1630	F	9.0
		11				1730	F	10.0
		12				1830	F	10.5
		13				1930	F	10.5

Table 3.2 (contd.6)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Thane Creek	BY5	1	19° 00' 23.40"N	72° 57' 23.60" E	03.12.15	0845	E	7.0
		2				1745	F	10.0
	BY6	1	19° 02' 37.00 "N	72° 58' 38.00 " E	03.12.15	1000	E	3.5
		2				1100	E	3.5
		3				1200	E	3.5
		4				1300	E	3.0
		5				1400	F	3.5
		6				1500	F	4.0
		7				1600	F	4.5
		8				1700	F	5.0
		9				1800	F	4.0
		10				1900	E	4.0
Patalganga Estuary	PT4	1	18° 48' 14.50" N	72° 59' 35.10" E	04.12.15	0630	F	6.0
		2				0730	E	5.5
		3				0830	E	5.0
		4				0930	E	44.5
		5				1030	E	4.0
		6				1130	E	3.5
		7				1230	E	3.0
		8				1330	F	3.5
		9				1430	F	4.0
		10				1530	F	4.5
		11				1630	F	5.0
		12				1730	F	5.5

Table 3.2 (contd.7)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Patalganga Estuary	PT4A	1	18° 48' 53.80" N	73° 01' 08.98" E	03.12.15	0850	E	4.0
		2				0950	E	4.0
		3				1050	E	3.5
		4				1150	E	3.0
		5				1250	F	4.0
		6				1350	F	5.0
		7				1450	F	5.0
		8				1550	F	5.5
		9				1650	F	5.5
		10				1750	F	6.0
	PT5	1	18° 48' 42.90" N	72° 03' 17.19" E	07.12.15	0930	F	4.5
		2				1520	E	2.0
	PT6	1	18° 48' 35.80" N	73° 04' 17.20" E	07.12.15	1000	F	4.0
		2				1100	E	3.7
		3				1200	E	3.5
		4				1300	E	3.0
		5				1400	E	2.5
		6				1500	E	2.0
	PT7	1	18° 50' 19.20" N	73° 05' 31.40" E	08.12.15	0930	F	Shore collection
		2				1530	E	
	PT8	1	18° 50' 30.80" N	73° 06' 50.60" E	08.12.15	1000	F	Shore collection
		2				1500	E	
	PT9	1	18° 50' 34.80" N	73° 07' 10.40" E	08.12.15	1030	F	Shore collection
		2				1445	E	
	PT10	1	18° 50' 32.80" N	73° 09' 24.90" E	11.12.15	1030	F	Shore collection
		2				1145	F	
	PT11	1	18° 53' 17.90" N	73° 11' 23.90" E	11.12.15	1230	F	Shore collection
		2				1245	F	

Table 3.2 (contd.8)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Amba Estuary	AB4	1	18° 47' 46.45"N	72° 58' 16.57"E	06.12.15	0700	F	5.5
		2				0800	F	6.0
		3				0900	E	5.5
		4				1000	E	5.5
		5				1100	E	5.0
		6				1200	E	4.0
		7				1300	E	4.0
		8				1400	E	3.0
		9				1500	F	3.0
		10				1600	F	4.0
		11				1700	F	4.0
		12				1800	F	5.0
Thal	DP	1	18° 46' 09.42"N	72° 59' 35.34"E	04.12.15	0655	F	6.0
		2				1400	E	3.5
		1	18° 45' 11.10"N	72° 59' 04.20"E	09.12.15	1040	F	9.0
		2				1700	E	5.5
		1	18° 38' 01.23"N	73° 01' 42.12"E	09.12.15	1015	F	7.0
		2				1730	E	5.0
		1	18° 38' 27.40"N	73° 03' 44.40"E	09.12.15	1030	F	3.5
		2				1700	E	2.0
		1	18° 36' 10.20"N	73° 05' 08.82"E	07.12.15	1000	F	5.0
		2				1550	E	3.8
		1	18° 43' 03.48"N	72° 50' 04.50"E	15.12.15	1000	E	5.5
		2				1100	F	6.0
		3				1200	F	6.5
		4				1300	F	7.0
		5				1400	F	7.5
		6				1500	F	8.0
		7				1600	E	7.5

Table 3.2 (contd.9)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Kundalika Estuary	K1	1	18° 32' 58.80"N	72° 51' 36.20"E	16.12.15	0930	E	7.5
		2				1415	F	15
	K2	1	18° 32' 53.50"N	72° 52' 49.30"E	16.12.15	0900	E	7.0
		2				1445	F	12
	K3	1	18° 32' 40.40"N	72° 54' 22.00"E	16.12.15	0830	E	3.5
		2				1515	F	7.0
	K4	1	18° 32' 34.30"N	72° 56' 0.11"E	14.12.15	0715	E	4.0
		2				0815	F	4.0
		3				0915	F	6.0
		4				1015	F	6.5
		5				1115	F	7.5
		6				1215	F	9.0
		7				1315	F	10.0
		8				1415	E	10.0
		9				1515	E	9.0
		10				1615	E	8.5
		11				1715	E	6.0
		12				1815	E	5.5
	K5	1	18° 32' 24.66"N	72° 57' 49.67"E	14.12.15	0745	E	5.5
		2				1330	F	7.0
	K6	1	18° 29' 58.55"N	73° 59' 07.87"E	14.12.15	1000	E	2.5
		2				1515	F	3.5
	K7	1	18° 27' 25.12"N	73° 00' 36.91"E	17.12.15	0945	E	3.8
		2				1515	F	6.0

Table 3.2 (contd.10)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Kundalika Estuary	K8	1	18° 28' 46.00"N	73° 02' 17.60"E	17.12.15	1000	E	5.5
		2				1100	F	6.0
		3				1200	F	6.5
		4				1300	F	7.0
		5				1400	F	7.5
		6				1500	F	8.0
		7				1600	E	7.5
	K9	1	18° 27' 52.60"N	73° 05' 14.90"E	17.12.15	1000	E	2.5
		2				1515	F	3.5
	K10	1	18° 26' 32.47"N	73° 07' 05.81"E	15.12.15	1330	E	1.5
		2				1930	F	2.0
Murud	MR1	1	18° 18' 03.0"N	72° 53' 49.3"E	19.12.15	0530	F	12.0
		2				1140	E	9.0
	MR2	1	18° 17' 51.10"N	72° 55' 23.50"E	19.12.15	0515	F	12.0
		2				1155	E	9.0
	MR3	1	18° 17' 35.50"N	72° 56' 53.90"E	19.12.15	0500	F	12.0
		2				1205	E	8.5
	MR4	1	18° 15' 52.90"N	72° 59' 35.70"E	20.12.15	0600	F	5.5
		2				0700	E	5.0
		3				0800	E	4.5
		4				0900	E	4.5
		5				1000	E	4.0
		6				1100	E	4.0
		7				1200	E	3.8
		8				1300	E	3.5
		9				1400	F	3.5
		10				1500	F	3.8
		11				1600	F	4.0
		12				1700	F	4.5

Table 3.2 (contd.11)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Murud	MR5	1	18° 15' 01.30"N	73° 02' 18.70"E	20.12.15	0610	F	4.5
		2				1310	E	3.2
	MR6	1	18° 14' 17.1"N	73° 03' 51.8"E	21.12.15	0700	F	6.0
		2				1350	E	3.0
	MR7	1	18° 15' 49.3"N	73° 03' 28.7"E	21.12.15	0720	F	4.0
		2				1405	E	2.5
	S1	1	17° 58' 23.20"N	72° 58' 23.50"E	23.12.15	1325	E	12.0
		2				1340	E	
	S2	1	17° 58' 32.30"N	72° 59' 27.60"E	23.12.15	1220	E	10.0
		2				1235	E	
	S3	1	17° 58' 32.10"N	73° 00' 51.60"E	23.12.15	1115	E	8.0
		2				1130	E	
Savitri Estuary	S4	1	17° 59' 04.10"N	73° 03' 39.00"E	23.12.15	0900	F	7.0
		2				1000	E	6.8
		3				1100	E	6.5
		4				1200	E	6.0
		5				1300	E	5.8
		6				1400	E	5.5
		7				1500	E	5.0
		8				1600	F	5.2
		9				1700	F	5.5
		10				1800	F	5.8
		11				1900	F	6.2
		12				2000	F	6.5

Table 3.2 (contd.12)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Savitri Estuary	S5	1	17° 59' 29.81"N	73° 07'18.53"E	24.12.15	1230	F	10.0
		2				1550	E	8.0
	S6	1	18° 03' 24.0"N	73° 10' 20.10"E	24.12.15	1130	F	18.0
		2				1630	E	6.5
	S7	1	18° 04' 00.1"N	73° 16'37.50"E	24.12.15	1000	F	15.0
		2				1700	E	11.5
	S8	1	18° 04' 21.6"N	73° 19'46.90"E	25.12.15	0700	F	4.0
		2				0800	F	4.5
		3				0900	F	5.0
		4				1000	F	5.5
		5				1100	F	6.0
		6				1200	E	5.8
		7				1300	F	5.5
		8				1400	F	5.2
		9				1500	F	5.0
		10				1600	F	4.5
		11				1700	F	4.0
		12				1800	F	4.2
	S9	1	18° 04' 57.10"N	73° 23'33.60"E	25.12.15	1020	E	4.0
		2				1035	E	4.0
Vashishti Estuary	VS1	1	17° 34' 52.64" N	73° 05' 15.77" E	28.12.15	1220	E	15.0
		2				1235	E	
	VS2	1	17° 34'50.81" N	73° 06' 21.10" E	28.12.15	1120	E	13.0
		2				1135	E	
	VS3	1	17° 34' 50.85" N	73° 07' 55.64" E	28.12.15	1015	E	12.0
		2				1030	E	
	VS4	1	17° 34' 52.28" N	73° 10' 38.28" E	28.12.15	0600	E	6.8
		2				0700	F	7.0
		3				0800	F	7.5
		4				0900	F	8.0
		5				1000	F	8.5
		6				1100	F	9.0
		7				1200	F	9.5
		8				1300	F	10.0
		9				1400	E	9.5
		10				1500	E	9.0
		11				1600	E	8.5

Table 3.2 (contd.13)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)	
Vashishti Estuary		12				1700	E	8.0	
	VS5	1	17° 34' 08.10" N	73° 14' 01.10" E	29.12.15	0800	E	12.0	
		2				1400	F	13.5	
	VS6	1	17° 34' 44.10" N	73° 18' 20.40" E		0820	E	12.0	
		2				1330	F	13.3	
	VS7	1	17° 34' 05.90" N	73° 21' 32.30" E	29.12.15	0855	E	11.5	
		2				1310	F	13.0	
	VS8	1	17° 35' 02.70" N	73° 24' 19.80" E	30.12.15	1100	E	18.0	
		2				1615	F	6.5	
	VS9	1	17° 34' 55.80" N	73° 25' 56.70" E	30.12.15	0600	E	10.5	
		2				0700	E	10.0	
		3				0800	E	9.7	
		4				0900	E	9.3	
		5				1000	E	9.0	
		6				1100	F	9.3	
		7				1200	F	10.0	
		8				1300	F	10.5	
		9				1400	F	10.8	
		10				1500	F	11.4	
		11				1600	F	12.0	
		12				1700	E	11.8	
Jaigad	VS10	1	17° 34' 36.80" N	73° 27' 33.40" E	30.12.15	1035	E	4.0	
		2				1630	F	5.5	
	J1	1	17° 18' 56.7"N	73° 08' 13.8"E	04.01.16	0940	F	20.0	
		2				0955	F		
	J2	1	17° 18' 59.9"N	73° 09' 43.3"E	04.01.16	0915	F	17.0	
		2				0930	F		
	J3	1	17° 18' 58. 6"N	73° 11' 16.2"E	04.01.16	0845	F	14.0	
		2				0900	F		

Table 3.2 (contd.14)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Jaigad	J4	1	17° 17' 27.2"N	73° 13' 29.8"E	03.01.16	1050	E	11.0
		2				1515	F	14.0
	J5	1	17° 17'20.04"N	73° 14'05.76"E	03.01.16	0630	E	12.0
		2				0730	E	11.5
		3				0830	E	11.0
		4				0930	E	10.5
		5				1030	E	10.0
		6				1130	F	10.5
		7				1230	F	11.0
		8				1330	F	11.5
		9				1430	F	12.0
		10				1530	F	12.5
		11				1630	F	13.0
		12				1730	F	13.5
Ratnagiri	J6	1	17° 17'17.63"N	73°16'20.40"E	03.01.16	1035	E	7.0
		2				1630	F	10.0
	R1	1	17° 00 '42.8" N	73° 13'09.2" E	08.01.16	1020	F	20.0
		2				1035	F	
	R2	1	17° 00' 16.0"N	73° 14' 35.0"E	08.01.16	0830	F	17.0
		2				1550	E	14.0
R3		1	17° 00' 28.0"N	73° 15' 43.0"E	06.01.16	0730	F	17.0
		2				1230	E	14.0

Table 3.2 (contd.15)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Ratnagiri	R4	1	17° 00' 25.0"N	73° 16'35.0"E	06.01.16	0700	F	11.0
		2				0800	E	11.0
		3				0900	E	10.5
		4				1000	E	10.0
		5				1100	E	10.0
		6				1200	E	9.0
		7				1300	E	9.0
		8				1400	E	8.0
		9				1500	F	8.0
		10				1600	F	8.0
		11				1700	F	9.0
		12				1800	F	10.0
Vijaydurg	R5	1	17° 00' 12.60"N	73° 16' 43.30"E	06.01.16	0715	F	3.0
		2				1215	E	2.0
	VJ1	1	16° 34' 46.02" N	73° 17' 40.92" E	11.01.16	1015	F	18.0
		2				1030	F	
	VJ2	1	16° 34' 27.78" N	73° 19' 03.90" E	11.01.16	1045	F	14.0
		2				1100	F	
	VJ3	1	16° 34' 10.92" N	73° 19' 54.30" E	11.01.16	1130	F	11.0
		2				1145	F	
	VJ4	1	16° 33' 23.22" N	73°20' 24.30" E	15.01.16	0500	E	5.5
		2				0600	E	5.5
		3				0700	F	6.0
		4				0800	F	6.0
		5				0900	F	6.0
		6				1000	F	6.0
		7				1100	F	7.0
		8				1200	F	7.0
		9				1300	E	7.0
		10				1400	E	6.0
		11				1500	E	5.5
		12				1600	E	5.0

Table 3.2 (contd.16)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Vijaydurg	VJ5	1	16° 32' 20.40" N	73° 20' 51.50" E	18.11.16	0610	E	4.0
		2				1220	F	5.0
	VJ6	1	16° 31' 33.60" N	73° 21' 22.14" E	18.11.16	0635	E	3.5
		2				1240	F	6.0
Deogad	D1	1	16° 23' 32.94" N	73° 19' 29.10" E	13.01.16	1000	E	21.0
		2				1015	E	
	D2	1	16° 23' 24.66" N	73° 20' 44.10" E	13.01.16	1045	E	17.0
		2				11.0	E	
	D3	1	16° 23' 29.22" N	73° 22' 22.02" E	13.01.16	1130	E	7.0
		2				1145	E	
	D4	1	16° 22' 58.44" N	73° 22' 35.22" E	14.01.16	0340	E	3.5
		2				0440	E	3.0
		3				0540	E	2.7
		4				0640	E	2.5
		5				0745	E	2.0
		6				0840	F	2.5
		7				0940	F	3.0
		8				1040	F	4.0
		9				1140	F	4.5
		10				1240	F	4.8
		11				1335	F	5.5
		12				1435	E	5.0
	D5	1	16° 24' 15.80" N	73° 24' 13.4" E	14.01.16	0750	E	3.5
		2				1340	F	7.0
	D6	1	16° 24' 28.70" N	73° 24' 26.40" E	14.01.16	0810	E	1.0
		2				1400	F	3.5

Table 3.2 (contd.17)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Achara	ACH1	1	16° 11' 10.13 "N	73° 23'42.61"E	18.01.16	0900	F	22.0
		2				0915	F	
	ACH2	1	16° 11' 30.95"N	73° 25' 09.74"E	17.01.16	0940	F	17.0
		2				0955	F	
	ACH3	1	16° 11' 59.23"N	73° 25' 59.54"E	18.01.16	0840	E	2.5
		2				1445	F	4.0
	ACH4	1	16° 12' 19.23"N	73° 26' 19.93"E	17.01.16	0600	E	3.0
		2				0700	E	2.5
		3				0800	E	2.1
		4				0900	E	2.0
		5				1000	E	2.0
		6				1100	F	2.2
		7				1200	F	2.2
		8				1300	F	2.5
		9				1400	F	2.8
		10				1500	F	3.0
		11				1600	F	3.5
		12				1700	E	3.0
	ACH5	1	16° 13' 03.76"N	73° 26' 45.19"E	19.01.16	0900	F	0.7
		2				0915	F	1.5

Table 3.2 (contd.18)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Malvan	M1	1	16° 02' 50.35" N	73° 25' 11.30" E	17.01.16	1240	F	18.5
		2				1255	F	
	M2	1	16° 03' 21.60" N	73° 26' 26.30" E	17.01.16	1315	F	13.5
		2				1330	F	
	M3	1	16° 02' 52.20" N	73° 27' 17.80" E	17.01.16	1010	E	13.0
		2				1725	F	15.5
	M4	1	16° 02' 36.24" N	73° 28' 01.24" E	17.01.16	0630	E	4.5
		2				0730	E	4.0
		3				0830	E	3.5
		4				0930	E	3.2
		5				1030	E	3.0
		6				1130	F	3.5
		7				1230	F	3.8
		8				1330	F	4.0
		9				1430	F	4.2
		10				1530	F	4.5
		11				1630	F	5.0
		12				1730	F	5.5

Table 3.3: Sampling details during Premonsoon

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Dahanu	DH1	1	19° 58' 51.19" N	72° 38' 11.72" E	15.05.16	0810	F	10.0
		2				0825	F	
	DH2	1	19° 58' 53.10" N	72° 39' 56.60" E	15.05.16	0845	F	8.0
		2				0900	F	
	DH3	1	19° 58' 15.50" N	72° 42' 50.20" E	15.05.16	0935	F	6.0
		2				1530	E	4.0
	DH4	1	19° 57' 35.0" N	72° 43' 51.70" E	16.05.16	0630	F	7.0
		2				0730	F	7.0
		3				0830	F	8.0
		4				0930	F	9.0
		5				1030	F	10.0
		6				1130	E	9.0
		7				1230	E	8.0
		8				1330	E	7.0
		9				1430	E	6.0
		10				1530	E	6.0
		11				1630	E	5.5
		12				1730	F	6.0
Tarapur	DH5	1	19° 57' 48.30" N	72° 44' 23.50" E	16.05.16	1015	F	5.5
		2				1615	E	4.0
	DH6	1	19° 56' 31.60" N	72° 44' 27.0" E	18.05.16	1000	F	4.5
		2				1100	E	4.0
		3				1200	E	3.5
		4				1300	E	3.0
		5				1400	E	2.5
		6				1500	E	2.3
	TP1	1	19° 48' 00.3" N	72° 36' 00.80" E	14.05.16	0950	E	18.0
		2				1005	E	
	TP2	1	19° 48' 10.90" N	72° 37' 51.20" E	14.05.16	0850	E	16.0
		2				0905	E	

Table 3.3 (contd.1)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Tarapur	TP3	1	19° 47' 00.50" N	72° 41' 06.75" E	14.05.16	0720	F	5.5
		2				1320	E	3.5
	TP4	1	19° 47' 15.64" N	72° 41' 08.37" E	14.05.16	0700	F	5.0
		2				1300	E	3.0
	TP5	1	19° 47' 48.78" N	72° 41' 18.37" E	13.05.16	0800	E	3.0
		2				0900	E	2.8
		3				1000	E	2.0
		4				1100	E	1.5
		5				1200	E	1.0
		6				1300	F	1.5
		7				1400	F	2.0
		8				1500	F	2.5
		9				1600	F	3.0
		10				1700	F	3.5
		11				1800	F	4.0
		12				1900	E	5.0
	TP6	1	19° 48' 09.13" N	72° 41' 17.42" E	13.05.16	1215	E	2.0
		2				1815	F	5.0
Bassein/ Ulhas Estary	BS1	1	19° 18' 25.60"N	72° 44' 32.90"E	04.05.16	1215	E	9.0
		2				1300	E	
	BS2	1	19° 19' 01.0" N	72° 49' 02.0" E	04.05.16	1130	E	12.0
		2				1145	E	
	BS3	1	19° 19' 27.0" N	72° 49' 06.0" E	04.05.16	1100	F	14.0
		2				1700	E	
	BS4	1	19° 18' 11.0"N	72° 50' 57.0"E	05.05.16	0715	F	7.5
		2				0815	F	8.0
		3				0915	F	8.5
		4				1015	F	9.0
		5				1115	F	10.0
		6				1215	E	9.5
		7				1315	E	9.0
		8				1415	E	8.5

Table 3.3 (contd.2)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Bassein/ Ulhas Estary		9				1515	E	8.0
		10				1700	E	9.0
		11				1800	E	8.0
		12				1900	E	7.0
		1	19° 17' 18.0" N	72° 54' 18.0" N	05.05.16	0630	E	10.0
		2				1130	F	14.0
		1	19° 16' 21.50"N	72° 59'33.21" E	05.05.16	0730	E	11.0
		2				1435	F	19.0
		1	19° 14' 18.0" N	73° 00' 12.0" N	05.05.16	0800	E	9.0
		2				1400	F	14.0
		1	19° 12'02.30" N	73° 01'33.99" E	05.05.16	0825	E	18.0
		2				1330	F	21.0
		1	19° 14' 16.0" N	73° 04' 21.0" N	07.05.16	0700	E	14.0
		2				0800	E	13.0
		3				0900	E	12.0
		4				1000	F	13.0
		5				1100	F	14.0
		6				1200	F	15.0
		7				1300	F	16.0
		8				1400	F	17.0
		9				1500	F	18.0
		10				1600	E	17.0
		11				1700	E	16.0
		12				1800	E	15.0
		1	19° 14' 04.10" N	73° 05' 56.90" E	07.05.16	0930	E	14.0
		2				1530	F	8.0
		1	19° 15'27.71" N	73° 06' 28.40" E	10.05.16	0530	F	11.0
		2				0630	E	10.5
		3				0730	E	10.0
		4				0830	E	9.0
		5				0930	E	9.0
		6				1030	E	8.0

Table 3.3 (contd.3)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Bassein/ Ulhas Estary	BS12	1	19° 16' 04.90" N	73° 08' 30.00" E	09.05.16	1000	E	5.0
		2				1700	F	7.0
	BS13	1	19° 15' 33.80" N	73° 09' 28.42" E	10.05.16	1030	E	2.0
		2				1630	F	4.5
Manori	BYMa4	1	19° 12' 15.00"N	72° 47' 44.00"E	03.05.16	0730	F	5.5
		2				0830	E	5.5
		3				0930	E	5.0
		4				1030	E	5.0
		5				1130	E	4.5
		6				1230	E	4.0
		7				1330	E	3.0
		8				1430	F	3.0
		9				1530	F	3.0
		10				1630	F	3.5
		11				1730	F	3.5
		12				1830	F	3.5
Versova	BYMa5	1	19° 13' 42.00"N	72° 48' 54.00"E	01.05.16	0700	F	5.0
		2				0715	F	
	BYMa6	1	19° 14' 36.00"N	72° 49' 19.00"E	01.05.16	0630	F	3.0
		2				0645	F	
	BYV4	1	19° 07' 12.00"N	72° 47' 44.00"E	02.05.16	0820	F	11.0
		2				1420	E	8.0
	BYV5	1	19° 08' 41.00"N	72° 48' 12.00"E	02.05.16	0600	F	12.5
		2				0700	F	13.0
		3				0800	F	14.0
		4				0900	E	13.5
		5				1000	E	13.0
		6				1100	E	12.5
		7				1200	E	12.0
		8				1300	E	11.5

Table 3.3 (contd.4)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Versova		9			30.04.16	1400	E	11.0
		10				1500	F	11.5
		11				1600	F	12.0
		12				1700	F	12.5
	BYM4	1				0900	E	6.0
		2				1400	F	8.0
	BYM5	1				0615	E	6.0
		2				0630	E	
Mahim	BYM6	1	19° 02' 38.50" N	72° 49' 58.70"E	30.04.16	0645	E	4.5
		2				0745	E	4.0
		3				0845	E	3.5
		4				0945	F	3.8
		5				1045	F	4.0
		6				1145	F	4.3
		7				1245	F	4.5
		8				1345	F	4.8
		9				1445	F	5.0
		10				1545	F	5.5
		11				1645	E	5.0
		12				1745	E	4.5
Bandra	BYB1	1	19° 03' 33.10"N	72° 45' 19.80"E	01.05.16	1020	F	12.0
		2				16.20	E	10.0
	BYB2	1	19° 02' 47.40"N	72° 47' 34.70"E	01.05.16	0715	F	9.0
		2				0815	F	9.0
		3				0915	F	10.0
		4				1015	F	11.0
		5				1115	E	11.0
		6				1215	E	9.0
		7				1315	E	9.0
		8				1415	E	8.5
		9				1515	E	8.0
		10				1615	E	7.5
		11				1715	F	8.0

Table 3.3 (contd.5)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
		12				1815	F	8.5
Worli	BYW1	1	19° 00'13.00"N	72° 45' 52.00"E	29.04.16	1200	F	10.0
		2				1215	F	
		1				1230	F	9.0
	BYW2	2	19° 00' 11.80"N	72° 47' 02.00" E	29.04.16	1330	F	9.5
		3				1430	F	10.0
		4				1530	F	10.5
		5				1630	F	11.0
		6				1730	E	10.5
		7				1830	E	9.5
	BY1	1	19° 52' 04.00"N	72° 46' 16.50" E	25.04.16	1615	E	20.0
		2				1630	E	
Thane Creek	BY2	1	18° 52' 00.17"N	72° 47' 3.80" E	25.04.16	1700	E	16.0
		2				1715	E	
	BY3	1	18° 52' 00.80 "N	72° 48' 59.00 " E	25.04.16	0820	E	9.5
		2				1410	F	14.0
	BY4	1	18° 52' 04.00"N	72° 50' 38.00" E	24.04.16	0715	E	8.0
		2				0815	F	8.5
		3				0915	F	9.0
		4				1015	F	9.8
		5				1115	F	10.5
		6				1215	F	11.0
		7				1315	F	12.0
		8				1415	E	11.5
		9				1515	E	11.0
		10				1615	E	10.5
		11				1715	E	10.0
		12				1815	E	9.3
		13				1915	E	8.0
	BY5	1	19° 00' 23.40"N	72° 57' 23.60" E	24.04.16	0645	E	9.0
		2				1245	F	13.0
	BY6	1	19° 02' 37.00 "N	72° 58' 38.00 " E	23.04.16	0700	E	8.0
		2				0800	F	8.5
		3				0900	F	9.0

Table 3.3 (contd.6)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Thane Creek		4				1000	F	9.5
		5				1100	F	10.0
		6				1200	F	11.0
		7				1300	F	11.5
		8				1400	E	11.0
		9				1500	E	10.5
		10				1600	E	10.0
		11				1700	E	9.5
		12				1800	E	9.0
Patalganga Estuary	PT4	1	18° 48' 14.50" N	72° 59' 35.10" E	14.04.16	0700	E	4.0
		2				0800	E	4.0
		3				0900	E	3.5
		4				1000	E	3.5
		5				1100	E	3.0
		6				1200	F	3.0
		7				1300	F	3.5
		8				1400	F	3.5
		9				1500	F	4.0
		10				1600	F	4.0
		11				1700	F	5.0
		12				1800	F	5.5
Patalganga Estuary	PT4A	1	18° 48' 53.80" N	73° 01' 08.98" E	14.04.16	1100	E	3.5
		2				1620	F	6.0
	PT5	1	18° 48' 42.90" N	72° 03' 17.19" E	15.04.16	1100	E	2.8
		2				1630	F	3.5
	PT6	1	18° 48' 35.80" N	73° 04' 17.20" E	15.04.16	1040	F	3.5
		2				1140	E	2.8
		3				1240	E	2.5
		4				1340	F	2.0
		5				1440	F	2.5
		6				1540	F	3.0
		7				1640	F	3.5
		8				1740	F	4.0
Patalganga Estuary	PT7	1	18° 50' 19.20" N	73° 05' 31.40" E	17.04.16	0940	F	Shore collection
		2				1530	E	

Table 3.3 (contd.7)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Patalganga Estuary	PT8	1	18° 50' 30.80" N	73° 06' 50.60" E	17.04.16	1030	F	Shore collection
		2				1600	E	
	PT9	1	18° 50' 34.80" N	73° 07' 10.40" E	17.04.16	1100	E	Shore collection
		2				1115	E	
	PT10	1	18° 50' 32.80" N	73° 09' 24.90" E	17.04.16	1030	E	Shore collection
		2				1055	E	
	PT11	1	18° 53' 17.90" N	73° 11' 23.90" E	17.04.16	1130	E	Shore collection
		2				1145	E	
Amba Estuary	AB4	1	18° 47' 46.45"N	72° 58' 16.57"E	06.05.16	0730	F	5.5
		2				0830	F	6.0
		3				0930	F	6.2
		4				1030	F	6.5
		5				1130	F	6.5
		6				1230	E	6.2
		7				1330	E	6.0
		8				1430	E	5.5
		9				1530	E	5.0
		10				1630	E	4.5
		11				1730	E	4.0
		12				1830	E	3.0
	AB5	1	18° 46' 09.42"N	72° 59' 35.34"E	06.05.16	0630	F	8.5
		2				1200	E	5.0
	AB6	1	18° 45' 11.10"N	72° 59' 04.20"E	07.05.16	0630	E	4.5
		2				0730	F	5.0
		3				0830	F	6.0
		4				0930	F	7.0
		5				1030	F	7.0
		6				1130	F	10.5
		7				1230	F	10.0
		8				1330	E	9.5
		9				1430	E	9.0
		10				1530	E	8.0
		11				1630	E	7.0
		12				1730	E	6.0
	AB7	1	18° 38' 01.23"N	73° 01' 42.12"E	05.05.16	1100	F	10.0

Table 3.3 (contd.8)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Amба Estuary		2			05.05.16	1200	E	9.0
		3				1300	E	9.0
		4				1400	E	8.0
		5				1500	E	6.5
		6				1600	E	6.0
		7				1700	E	4.0
	AB8	1				0930	F	6.0
		2	18° 38' 27.40"N	73° 03' 44.40"E		1710	E	4.5
	AB9	1	18° 36' 10.20"N	73° 05' 08.82"E	08.05.16	1045	F	9.5
		2				1710	E	2.5
Thal	DP	1	18° 43' 03.28"N	72° 07' 46.26"E	04.09.16	1300	F	10.0
		2				1400	E	10.0
		3				1500	E	9.0
		4				1600	E	9.0
		5				1700	E	8.0
		6				1800	E	7.0
Kundalika estuary	K1	1	18° 32' 58.80"N	72° 51' 36.20"E	04.04.16	0935	F	12.0
		2				0950	F	
	K2	1	18° 32' 53.50"N	72° 52' 49.30"E	08.04.16	0850	E	11.0
		2				0915	F	
	K3	1	18° 32' 40.40"N	72° 54' 22.00"E	08.04.16	0815	E	10.0
		2				0830	F	
	K4	1	18° 32' 34.3"N	72° 56' 0.11"E	08.04.16	0600	E	2.5
		2				0700	F	2.8
		3				0800	F	3.5
		4				0900	F	4.0
		5				1000	F	5.0
		6				1100	F	6.0
		7				1200	F	7.5
		8				1300	E	7.0
		9				1400	E	6.0
		10				1500	E	5.0
		11				1600	E	4.5
		12				1700	E	3.0
	K5	1	18° 32' 24.66"N	72° 57' 49.67"E	04.09.16	0620	E	2.0

Table 3.3 (contd.9)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)	
Kundalika estuary	K6	2				1215	F	5.0	
		1	$18^{\circ} 29' 58.55''\text{N}$	$73^{\circ} 59' 07.87''\text{E}$	10.04.16	0830	E	5.5	
		2				1415	F	7.0	
	K7	1	$18^{\circ} 27' 25.12''\text{N}$	$73^{\circ} 00' 36.91''\text{E}$		0830	E	4.0	
		2				1430	F	8.0	
	K8	1	$18^{\circ} 28' 46.00''\text{N}$	$73^{\circ} 02' 17.60''\text{E}$	09.04.16	1330	F	12.0	
		2				1430	E	11.0	
		3				1530	E	10.0	
		4				1630	E	9.0	
		5				1730	E	8.0	
		6				1830	E	8.0	
		7				1930	E	7.0	
	K9	1	$18^{\circ} 27' 50.60''\text{N}$	$73^{\circ} 05' 14.90''\text{E}$	09.04.16	0700	F	4.0	
		2				1330	E	2.8	
	K10	1	$18^{\circ} 26' 32.47''\text{N}$	$73^{\circ} 07' 05.81''\text{E}$	10.04.16	1330	E	2.0	
		2				1930	F	2.6	
Murud	MR1	1	$18^{\circ} 18' 03.0''\text{N}$	$72^{\circ} 53' 49.3''\text{E}$	05.04.16	0855	F	12.5	
		2				1445	E	9.0	
	MR2	1	$18^{\circ} 17' 51.10''\text{N}$	$72^{\circ} 55' 23.50''\text{E}$	05.04.16	0835	F	12.0	
		2				1500	E	8.0	
	MR3	1	$18^{\circ} 17' 35.50''\text{N}$	$72^{\circ} 56' 53.90''\text{E}$	05.04.16	0815	F	10.5	
		2				1515	E	8.0	
	MR4	1	$18^{\circ} 15' 52.90''\text{N}$	$72^{\circ} 59' 35.70''\text{E}$	04.04.16	0640	F	8.0	
		2				0740	F	9.0	
		3				0840	E	8.5	
		4				0940	E	8.0	
		5				1040	E	7.4	
		6				1140	E	7.0	
		7				1240	E	7.0	
		8				1340	E	6.5	
		9				1440	F	7.0	
		10				1540	F	7.5	
		11				1640	F	7.5	
		12				1740	F	8.0	

Table 3.3 (contd.10)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Murud	MR5	1	18° 15' 01.30"N	73° 02' 18.70"E	04.04.16	0755	F	9.0
		2				1410	E	7.0
	MR6	1	18° 14' 17.1"N	73° 03' 51.8"E	04.04.16	0810	F	3.5
		2				1410	E	2.5
	MR7	1	18° 15' 49.3"N	73° 03' 28.7"E	04.04.16	0745	F	4.0
		2				1350	E	2.8
	S1	1	17° 58' 23.20"N	72° 58' 23.50"E	29.03.16	1230	F	16.0
		2				1245	F	
	S2	1	17° 58' 32.30"N	72° 59' 27.60"E	29.03.16	1330	F	12.0
		2				1345	F	
	S3	1	17° 58' 32.10"N	73° 00' 51.60"E	29.03.16	1100	F	8.0
		2				1115	F	
Savitri estuary	S4	1	17° 59' 04.10"N	73° 03' 39.00"E	29.03.16	0700	E	4.5
		2				0800	E	4.0
		3				0900	F	4.5
		4				1000	F	5.0
		5				1100	F	5.5
		6				1200	F	6.0
		7				1300	F	7.5
		8				1400	F	8.0
		9				1500	F	8.5
		10				1600	E	7.5
		11				1700	E	7.0
		12				1800	E	7.0
	S5	1	17° 59' 29.81"N	73° 07'18.53"E	30.03.16	0935	E	9.0
		2				1500	F	11.0
	S6	1	18° 03' 24.0"N	73° 10' 20.10"E	30.03.16	0855	E	8.0
		2				1540	F	10.5
	S7	1	18° 04' 00.1"N	73° 16'37.50"E	30.03.16	0815	E	7.5
		2				1410	F	9.0
	S8	1	18° 04' 21.6"N	73° 19'46.90"E	31.03.16	0700	E	9.5
		2				0800	E	9.0
		3				0900	E	8.5
		4				1000	E	8.0
		5				1100	F	8.5

Table 3.3 (contd.11)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Savitri estuary		6				1200	E	9.0
		7				1300	F	9.3
		8				1400	F	9.5
		9				1500	F	10.0
		10				1600	F	10.5
		11				1700	F	11.0
		12				1800	E	10.5
	S9	1	$18^{\circ} 04' 57.10''\text{N}$	$73^{\circ} 23'33.60''\text{E}$	31.03.16	1030	E	2.4
		2				1730	F	3.5
Vashishti Estuary	VS1	1	$17^{\circ} 34' 52.64''\text{ N}$	$73^{\circ} 05' 15.77''\text{ E}$	23.03.16	1050	F	15.0
		2				1105	F	
	VS2	1	$17^{\circ} 34'50.81''\text{ N}$	$73^{\circ} 06' 21.10''\text{ E}$	23.03.16	1015	F	13.5
		2				1030	F	
	VS3	1	$17^{\circ} 34' 50.85''\text{ N}$	$73^{\circ} 07' 55.64''\text{ E}$	23.03.16	0930	F	9.0
		2				0945	F	
	VS4	1	$17^{\circ} 34'52.28''\text{N}$	$73^{\circ} 10' 38.28''\text{ E}$	22.03.16	0700	F	12.0
		2				0800	F	12.3
		3				0900	F	13.0
		4				1000	F	13.5
		5				1100	F	14.0
		6				1200	E	13.5
		7				1300	E	13.0
		8				1400	E	12.5
		9				1500	E	12.0
		10				1600	E	11.5
		11				1700	E	11.0
		12				1800	F	11.3

Table 3.3 (contd.12)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Vashishti Estuary	VS5	1	17° 34'08.10"N	73° 14' 01.10" E	24.03.16	0945	E	9.0
		2				1530	F	9.5
	VS6	1	17° 34'44.10"N	73° 18' 20.40" E	24.03.16	1015	F	12.0
		2				1550	E	10.0
	VS7	1	17° 34'05.90"N	73° 21' 32.30" E	24.03.16	1055	F	9.0
		2				1630	E	7.5
	VS8	1	17° 35'02.70"N	73° 24' 19.80" E	25.03.16	0715	E	9.0
		2				1245	F	11.5
	VS9	1	17° 34'55.80"N	73° 25' 56.70" E	25.03.16	0700	E	10.0
		2				0800	F	11.0
		3				0900	F	11.5
		4				1000	F	12.0
		5				1100	F	12.5
		6				1200	F	13.5
		7				1300	F	15.0
		8				1400	E	14.5
		9				1500	E	14.0
		10				1600	E	13.5
		11				1700	E	13.0
		12				1800	E	12.5
	VS10	1	17° 34'36.80"N	73° 27' 33.40" E	30.12.15	0730	E	5.0
		2				1320	F	6.5

Table 3.3 (contd.13)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Jaigad	J1	1	17° 18' 56.70"N	73° 08' 13.80"E	19.03.16	1030	E	21.0
		2				1045	E	
	J2	1	17° 18' 59.90"N	73° 09' 43.30"E	19.03.16	0935	E	18.5
		2				0950	E	
	J3	1	17° 18' 58. 60"N	73°11' 16.20"E	18.03.16	0850	E	18.0
		2				0905	E	
	J4	1	17° 17' 27.20"N	73°13' 29.80"E	18.03.16	0700	F	13.0
		2				1330	E	9.5
	J5	1	17° 17' 20.04"N	73°14' 05.76"E	18.03.16	0715	F	8.0
		2				0815	E	7.5
		3				0915	E	7.5
		4				1015	E	7.0
		5				1115	E	6.5
		6				1215	E	6.5
		7				1315	E	6.0
		8				1415	F	6.5
		9				1515	F	7.0
		10				1615	F	7.5
		11				1715	F	7.5
		12				1815	F	8.0
	J6	1	17° 17'17.63"N	73°16'20.40"E	18.03.16	0745	F	12.0
		2				1345	E	8.5

Table 3.3 (contd.14)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Ratnagiri	R1	1	17° 00' 42.80" N	73° 13'09.20" E	16.03.16	0745	F	19.0
		2				1345	F	
	R2	1	17° 00' 16.00"N	73° 14' 35.00"E	15.03.16	0900	F	16.0
		2				0915	E	13.5
	R3	1	17° 00' 28.00"N	73° 15' 43.00"E	14.03.16	0920	E	9.0
		2				1615	F	11.5
	R4	1	17° 00' 25.00"N	73° 16'35.00"E	14.03.16	0845	E	7.0
		2				1545	F	7.0
		3				0930	F	8.0
		4				1030	F	9.0
		5				1130	F	9.0
		6				1230	F	9.5
		7				1330	F	9.5
		8				1430	F	10.0
		9				1530	F	11.0
		10				1630	E	10.0
		11				1730	E	9.0
		12				1830	E	
	R5	1	17° 00' 12.60"N	73° 16' 43.30"E	14.03.16	1530	F	3.5
		2				2030	E	1.5

Table 3.3 (contd.15)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Vijaydurg	VJ1	1	16° 34' 46.02" N	73° 17' 40.92" E	10.03.16	0930	F	18.5
		2				0945	F	
	VJ2	1	16° 34' 27.78" N	73° 19' 03.90" E	10.03.16	1015	F	13.5
		2				1030	F	
	VJ3	1	16° 34' 10.92" N	73° 19' 54.30" E	10.03.16	1050	F	9.5
		2				1105	F	
	VJ4	1	16° 33' 23.22" N	73° 20' 24.30" E	11.03.16	0600	E	5.0
		2				0700	F	5.5
		3				0800	F	5.7
		4				0900	F	6.0
		5				1000	F	6.4
		6				1100	F	6.8
		7				1200	F	7.0
		8				1300	F	7.0
		9				1400	E	6.5
		10				1500	E	6.3
		11				1600	E	6.0
		12				1700	E	5.5
	VJ5	1	16° 32' 20.40" N	73° 20' 51.50" E	11.03.16	0615	E	3.5
		2				1335	F	5.0
	VJ6	1	16° 31' 33.60" N	73° 21' 22.14" E	11.03.16	0635	E	3.5
		2				1240	F	6.0
Deogad	D1	1	16° 23' 32.94" N	73° 19' 29.10" E	08.03.16	1015	E	21.0
		2				1030	E	
	D2	1	16° 23' 24.66" N	73° 20' 44.10" E	08.03.16	0935	E	17.0
		2				0945	E	
	D3	1	16° 23' 29.22" N	73° 22' 22.02" E	08.03.16	0935	F	13.0
		2				0945	F	
	D4	1	16° 22' 58.44" N	73° 22' 35.22" E	09.03.16	0500	E	2.0
		2				0600	F	2.5
		3				0700	F	3.0

Table 3.3 (contd.16)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)	
Deogad		4			09.03.16	0800	F	3.5	
		5				0900	F	4.0	
		6				1000	F	4.5	
		7				1100	F	5.5	
		8				1200	E	5.0	
		9				1300	E	3.8	
		10				1400	E	3.8	
		11				1500	E	3.0	
		12				1600	E	3.0	
	D5	1	16°24' 15.80"N	73° 24' 13.40" E		1100	F	6.0	
		2				1640	E	3.0	
	D6	1	16°24' 28.70"N	73° 24' 26.40" E	09.03.16	1115	F	3.5	
		2				1645	E	1.0	
Achara	ACH1	1	16°11' 10.13"N	73° 23'42.61"E	07.03.16	1045	E	18.0	
		2				1100	E		
	ACH2	1	16° 11'30.95"N	73° 25' 09.74"E	07.03.16	1000	E	14.0	
		2				1015	E		
	ACH3	1	16° 11'59.23"N	73° 25' 59.54"E	07.03.16	0930	F	8.0	
		2				1530	E	5.0	
	ACH4	1	16° 12'19.23"N	73° 26' 19.93"E	06.03.16	0600	F	2.5	
		2				0700	F	3.0	
		3				0800	F	3.5	
		4				0900	F	4.0	
		5				1000	F	4.0	
		6				1100	E	4.0	
		7				1200	E	3.0	
		8				1300	E	2.5	
		9				1400	E	2.5	
		10				1500	E	2.5	
		11				1600	E	2.7	
		12				1700	E	3.0	
	ACH5	1	16° 13'03.76"N	73° 26' 45.19"E	19.01.16	0830	F	1.0	
		2				1300	E	0.5	

Table 3.3 (contd.17)

Transect	Station code	Sample No.	Latitude	Longitude	Date	Time	Tide	Depth (m)
Malvan	M1	1	16° 02' 50.35" N	73° 25' 11.30" E	04.03.16	0915	E	15.0
		2				0930	E	
	M2	1	16° 03' 21.60" N	73° 26' 26.30" E	04.03.16	1015	E	18.0
		2				1045	E	
	M3	1	16° 02' 52.20" N	73° 27' 17.80" E	03.03.16	1110	E	14.0
		2				1810	F	17.0
	M4	1	16° 02' 36.24" N	73° 28' 01.24" E	03.03.16	0745	E	5.5
		2				0845	E	5.0
		3				0945	E	4.5
		4				1045	E	4.0
		5				1145	E	3.5
		6				1245	F	4.0
		7				1345	F	4.5
		8				1445	F	5.0
		9				1545	F	5.5
		10				1645	F	6.0
		11				1745	F	6.5

Table 4.1.1: Water quality off Dahanu during November 2015

Parameter	Level	DH1	DH2	DH3			DH4			DH5			DH6		
		Avg*	Avg*	Min	Max	Avg									
Temperature(°C)	S	28.8	28.5	27.0	30.5	28.8	26.0	31.5	29.5	26.0	32.0	29.0	30.0	32.5	31.5
	B	28.3	28.0	26.0	30.0	28.0	26.5	31.0	28.7	27.0	27.0	27.0	29.5	31.0	30.2
		(30.5)	(30.0)	(25.0)	(38.0)	(31.5)	(24.0)	(33.4)	(29.8)	(25.0)	(32.5)	(28.8)	(31.0)	(35.0)	(33.3)
SS(mg/l)	S	93	33	57	59	58	21	61	41	34	38	36	43	69	56
	B	109	134	60	61	61	77	77	77	54	54	54	55	56	55
Turbidity(NTU)	S	5.2	7.8	18.0	22.2	20.1	21.4	49.6	34.1	21.7	54.4	38.1	24.6	37.0	31.5
	B	3.1	9.1	19.6	20.3	19.9	26.9	51.1	39.3	36.7	45.6	41.2	24.1	29.3	26.4
pH	S	8.0	8.0	7.7	7.9	7.8	7.5	7.9	7.7	7.6	8.0	7.8	7.6	7.7	7.6
	B	8.1	8.0	7.7	7.9	7.8	7.6	8.0	7.7	8.0	8.0	8.0	7.7	7.7	7.7
Salinity(ppt)	S	35.5	35.5	35.0	36.5	35.8	35.3	36.2	35.7	35.0	35.5	35.3	35.5	36.4	35.9
	B	35.6	35.5	35.7	36.5	36.1	35.4	36.2	35.7	35.7	35.7	35.7	35.5	36.7	36.3
DO (mg/l)	S	6.2	6.7	4.8	6.4	5.6	5.8	7.0	6.4	6.4	6.7	6.6	4.8	6.1	5.5
	B	6.1	6.4	5.1	6.4	5.8	4.5	7.0	6.3	6.4	6.4	6.4	5.1	5.4	5.2
BOD (mg/l)	S	3.2	2.6	1.0	2.9	1.9	2.9	3.2	3.0	2.2	3.2	2.7	1.9	2.6	2.2
	B	2.2	3.5	1.6	2.6	2.1	1.9	1.9	1.9	3.8	3.8	3.8	2.6	2.6	2.6
PO ₄ ³⁻ -P (μmol/l)	S	0.7	1.0	1.3	1.3	1.3	1.5	2.2	1.9	1.9	1.9	1.9	2.0	2.7	2.3
	B	1.6	1.7	2.1	2.3	2.2	1.7	2.5	2.1	1.7	1.7	1.7	2.7	2.9	2.8
TP(μmol/l)	S	1.4	2.2	2.2	2.5	2.3	2.7	3.3	3.0	3.0	3.1	3.0	3.3	4.1	3.7
	B	2.3	3.0	3.0	3.1	3.0	3.1	3.1	3.1	3.0	3.0	3.0	4.1	4.3	4.1
NO ₃ ⁻ -N (μmol/l)	S	13.2	13.8	12.8	14.2	13.5	9.7	15.3	13.2	11.1	13.8	12.4	2.0	6.7	4.4
	B	12.2	13.1	12.9	17.8	15.3	9.6	16.3	13.5	12.8	12.8	12.8	7.5	12.6	9.7
NO ₂ ⁻ -N(μmol/l)	S	0.5	0.3	0.6	0.6	0.6	0.4	1.3	0.9	0.5	1.1	0.8	0.7	0.8	0.7
	B	0.3	0.4	0.8	1.2	1.0	0.3	1.1	0.8	0.6	0.6	0.6	0.5	0.8	0.7
NH ₄ ⁺ -N(μmol/l)	S	1.3	0.8	1.0	1.2	1.1	0.6	5.3	1.8	0.7	3.6	2.2	2.0	4.8	3.8
	B	1.4	1.1	0.8	2.4	1.6	0.8	3.5	2.0	0.7	0.7	0.7	2.3	7.3	4.2
TN(μmol/l)	S	32.5	37.9	33.2	37.1	35.2	26.6	29.5	28.0	32.0	32.5	32.2	29.5	31.0	30.2
	B	28.9	32.2	39.3	43.5	41.4	25.6	28.6	27.1	33.6	35.8	34.7	33.3	35.0	34.1
PHc(μg/l)	1m	7.9	3.0	3.9	4.1	4.0	4.8	5.0	4.9	4.9	15.9	10.4	4.9	5.8	5.4
Phenol (μg/l)	S	49.9	64.1	121.0	125.5	123.2	131.3	135.4	133.3	57.6	64.1	60.8	77.0	106.8	91.9

*Average of two readings

Air temperature given in parenthesis

Table 4.1.2: Water quality off Dahanu during May 2016

Parameter	Level	DH1	DH2	DH3			DH4			DH5			DH6		
		Avg*	Avg*	Min	Max	Avg									
Temperature(°C)	S	33.0	33.5	33.5	34.0	33.8	34.0	38.0	36.0	35.0	36.5	35.8	33.0	37.0	35.1
	B	32.5	33.0	33.0	33.5	33.5	33.5	36.5	35.1	34.5	36.0	35.3	34.0	37.0	35.5
		(32.0)	(33.0)	(33.0)	(35.0)	(34.0)	(29.0)	(35.0)	(32.0)	(32.0)	(33.0)	(32.5)	(33.0)	(37.0)	(35.1)
SS(mg/l)	S	25	20	77	121	99	77	96	87	85	93	89	100	118	109
	B	58	68	101	210	156	82	191	137	97	98	98	173	173	173
Turbidity(NTU)	S	5.3	9.1	19.2	19.8	19.5	27.2	48.1	35.7	21.2	54.4	37.8	25.4	37.3	30.8
	B	5.7	8.7	20.2	22.2	21.2	30.9	65.0	40.0	21.0	46.0	33.0	24.1	37.2	29.5
pH	S	8.1	8.1	8.0	8.0	8.0	7.8	8.1	8.0	7.6	8.0	7.8	7.7	7.9	7.8
	B	8.2	8.2	8.0	8.0	8.0	7.9	8.2	8.1	7.6	8.0	7.8	7.7	7.8	7.8
Salinity(ppt)	S	36.1	36.6	36.5	37.3	36.9	36.1	37.2	36.5	34.0	35.5	34.8	32.7	34.9	33.7
	B	36.5	36.6	37.1	37.2	37.1	36.3	37.2	36.8	34.2	35.7	35.0	33.7	35.0	34.4
DO (mg/l)	S	6.1	5.4	3.5	5.1	4.3	5.8	7.4	6.5	6.4	6.9	6.6	4.8	7.0	6.3
	B	5.8	5.1	3.8	4.5	4.2	5.4	7.0	6.3	6.4	6.7	6.6	4.8	5.4	5.0
BOD (mg/l)	S	1.9	2.9	1.0	1.9	1.4	2.6	3.5	3.0	2.2	3.2	2.7	1.9	4.2	3.0
	B	1.0	2.9	1.6	1.9	1.8	2.6	3.8	3.2	2.2	3.8	3.0	2.6	2.6	2.6
PO ₄ ³⁻ -P (μmol/l)	S	0.8	0.9	0.6	0.7	0.7	1.6	2.8	2.1	1.9	1.9	1.9	0.5	1.8	1.0
	B	1.1	1.5	1.9	2.0	1.9	1.6	3.2	2.2	1.7	1.9	1.8	1.4	2.4	2.0
TP(μmol/l)	S	2.0	1.6	2.4	2.4	2.4	2.8	3.0	2.9	3.0	3.3	3.2	2.8	2.9	2.8
	B	2.5	2.7	3.6	3.9	3.8	3.1	3.9	3.5	3.3	3.6	3.5	3.4	3.4	3.4
NO ₃ ⁻ -N (μmol/l)	S	12.6	14.1	15.3	21.5	18.4	11.4	19.6	15.7	11.7	14.6	13.1	9.8	17.2	13.3
	B	13.3	14.5	22.4	34.3	28.4	11.9	20.3	16.4	11.7	13.5	12.6	12.4	17.8	15.8
NO ₂ ⁻ -N(μmol/l)	S	0.3	0.4	0.4	0.7	0.5	0.2	0.7	0.4	0.5	1.1	0.8	0.1	0.5	0.3
	B	0.5	0.6	0.9	1.3	1.1	0.2	0.7	0.4	0.6	1.1	0.8	0.5	0.6	0.6
NH ₄ ⁺ -N(μmol/l)	S	0.8	0.8	1.9	2.4	2.2	1.0	1.7	1.3	0.8	3.7	2.3	1.1	2.4	1.6
	B	1.2	1.2	2.5	3.3	2.9	0.9	1.8	1.3	0.8	3.7	2.2	0.9	1.9	1.3
TN(μmol/l)	S	30.8	36.9	45.4	52.5	48.9	40.4	46.0	43.2	41.7	46.0	43.8	35.4	35.4	35.4
	B	39.5	47.5	48.2	54.7	51.4	41.7	44.7	43.2	47.5	50.3	48.9	32.1	38.2	35.2
PHc(μg/l)	1m	2.0	3.0	3.9	4.1	4.0	3.0	4.5	3.8	4.9	17.0	11.0	4.0	4.6	4.3
Phenol (μg/l)	S	64.3	68.9	127.0	134.3	130.3	109.7	145.0	127.3	68.4	68.9	68.6	78.5	109.2	93.8

*Average of two readings

Air temperature given in parenthesis

Table 4.1.3: Sediment quality off Dahanu during November 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
DH2	3.4	87.6	9.0	7.3	127	1078	7.2	40	57	92	96	0.16	0.14	16.7	1.0	803	1.8
DH3	7.4	60.0	32.6	6.9	151	1076	7.2	43	61	91	104	0.28	0.18	15.7	1.5	667	1.2
DH5	34.0	48.6	17.4	6.5	159	1084	7.3	48	64	76	91	0.25	0.11	16.2	0.9	777	2.6
DH6	1.7	83.5	14.8	7.1	130	1094	6.6	29	60	95	101	0.22	0.07	19.4	1.2	177	3.2

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.1.4: Sediment quality off Dahanu during May 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
DH2	0.0	95	5.0	6.9	141	939	6.7	50	68	102	80	0.10	0.11	11.4	1.0	820	1.6
DH3	0.3	89.7	8.9	6.9	165	941	7.1	55	75	104	84	0.15	0.20	8.6	0.9	813	0.6
DH4	85.3	6.3	8.4	3.1	118	2153	5.1	49	58	58	42	0.14	0.05	19.0	0.2	897	1.1
DH5	60.6	33.8	5.6	7.2	158	899	7.1	50	76	110	87	0.12	0.01	14.1	1.2	1020	2.2
DH6	2.0	80.2	17.8	7.1	130	1094	6.6	29	60	95	101	0.11	0.1	15.8	1.2	176	2.4

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.1.5: Microbial counts in surface water (CFU/ml) off Dahanu during 2015-16

Type of Bacteria	Population in surface water (CFU/ml)																			
	Postmonsoon (November 2015)												Premonsoon (May 2016)							
	DH1	DH2	DH3		DH4		DH5		DH6		DH1	DH2	DH3		DH4		DH5		DH6	
			Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl			Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb
TVC	11 X10 ³	1 X10 ³	37 X10 ³	2 X10 ³	60 X10 ³	10 X10 ³	2 X10 ³	1 X10 ³	2 X10 ³	1 X10 ³	36 X10 ³	45 X10 ³	16 X10 ³	21 X10 ³	4 X10 ³	16 X10 ³	48 X10 ³	21 X10 ³	18 X10 ³	11 X10 ³
TC	20	ND	230	10	10	20	70	30	40	ND	NG	30	370	300	40	600	ND	ND	NG	ND
FC	20	ND	200	10	ND	10	60	30	20	ND	ND	20	120	200	40	600	ND	ND	20	ND
ECLO	ND	ND	90	10	ND	ND	20	10	ND	ND	ND	10	ND	200	30	500	ND	ND	ND	ND
SHLO	ND	ND	ND	10	ND	ND	ND	10	ND	ND	ND	ND	140	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	10	ND	180	ND	30	10	ND	ND	20	450	600	100	10	20	ND	ND	ND	ND
VLO	560	110	1880	640	220	150	740	90	70	40	10	NG	130	150	120	10000	330	ND	540	ND
VPLO	150	10	ND	180	ND	ND	ND	10	ND	10	ND	ND	50	ND	ND	ND	ND	ND	ND	530
VCLO	410	100	1880	460	220	150	740	80	70	30	10	ND	80	150	120	10000	330	ND	10	ND
PALO	ND	40	40	60	80	40	ND	ND	ND	ND	ND	10	700	800	ND	ND	ND	ND	NG	ND
SFLO	ND	ND	110	ND	160	ND	30	ND	ND	ND	ND	20	330	800	ND	300	ND	ND	50	ND

ND – Below Detectable Level

Table 4.1.6: Microbial counts in sediments (CFU/g) off Dahanu during 2015-16

Type of Bacteria	Population in sediment (CFU/g; dry wt)											
	Postmonsoon (November 2015)						Premonsoon (May 2016)					
	DH1	DH2	DH3	DH4	DH5	DH6	DH1	DH2	DH3	DH4	DH5	DH6
TVC	Hard Substratum	5 x 10 ³	37 x 10 ³	Hard Substratum	7 x 10 ³	2 x 10 ³	Hard Substratum	2800 x 10 ³	200 x 10 ³	300 x 10 ³	300 x 10 ³	400 x 10 ³
TC		40	230		70	10		3000	NG	3000	NG	NG
FC		30	200		60	10		2600	NG	2500	NG	NG
ECLO		20	90		20	10		1000	NG	2100	NG	NG
SHLO		ND	ND		ND	ND		NG	NG	NG	NG	NG
SLO		ND	ND		ND	ND		NG	NG	NG	NG	NG
PKLO		ND	ND		30	ND		7000	2000	600	1000	NG
VLO		50	150		740	50		NG	NG	2000	2000	NG
VPLO		ND	50		ND	ND		NG	NG	NG	NG	NG
VCLO		50	100		740	50		NG	NG	2000	2000	NG
PALO		ND	10		ND	ND		5000	1000	NG	NG	NG
SFLO		ND	ND		ND	ND		NG	3000	NG	NG	NG

ND – Below Detectable Level

Table 4.1.7: Range and average of Phytopigments at different stations off Dahanu during November 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
DH1	20/11/2015	0.7	0.9	0.5	0.9	0.3	0.7	0.7	1.2	1.4	2.3	0.7	0.8
		0.8		0.7		0.5		1.0		1.8		0.7	
DH2	20/11/2015	1.1	1.2	0.9	0.9	0.3	0.3	0.7	0.8	3.9	4.7	1.1	1.3
		1.1		0.9		0.3		0.8		4.3		1.2	
DH3	20/11/2015	2.8	25.4	1.4	3.6	0.9	9.8	0.7	1.1	2.6	3.3	2.2	3.3
		14.1		2.5		5.3		0.9		2.9		2.7	
DH4	19/11/2015	1.6	3.7	1.5	3.3	0.3	0.9	0.3	0.8	2.4	11.7	2.8	7.3
		2.4		2.1		0.6		0.5		5.1		4.0	
DH5	19/11/2015	1.9	3.1	1.3	1.3	0.2	0.7	0.4	0.4	4.8	7.8	3.5	3.5
		2.5		1.3		0.4		0.4		6.3		3.5	
DH6	18/11/2015	2.4	4.1	1.3	3.7	0.6	1.2	0.4	1.3	2.5	4.5	2.3	3.1
		2.9		2.5		0.9		0.9		3.4		2.8	

Table 4.1.8: Range and average of Phytopigments at different stations off Dahanu during May 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
DH1	15/05/2016	2.5	2.9	1.9	2.1	0.4	0.5	0.6	0.8	6.3	6.9	2.4	3.8
		2.7		2.0		0.4		0.7		6.6		3.1	
DH2	15/05/2016	2.1	2.4	2.4	2.7	0.1	0.4	0.3	1.9	6.7	19.2	1.4	7.1
		2.3		2.6		0.2		1.1		12.9		4.3	
DH3	15/05/2016	4.5	21.5	3.7	11.1	0.2	1.0	0.4	0.9	4.4	102.3	8.4	11.9
		13.0		7.4		0.6		0.7		53.3		10.1	
DH4	16/05/2016	4.9	22.6	2.8	18.0	0.3	2.5	0.2	2.4	3.9	77.9	3.4	70.4
		15.6		11.4		1.2		1.1		24.9		16.6	
DH5	16/05/2016	13.3	18.7	9.3	30.6	1.2	3.7	1.5	14.8	5.0	10.8	2.1	6.3
		16.0		20.0		2.5		8.2		7.9		4.2	
DH6	15/05/2016	7.2	21.0	2.5	18.3	0.0	0.9	0.2	0.9	19.5	278.8	2.9	86.0
		13.1		9.7		0.4		0.5		66.9		31.6	

Table 4.1.9: Range and average of phytoplankton at different stations off Dahanu during November 2015

Station	Date	Cell count				Total genera				Major genera					
		(no x 10 ³ Cells/ l)				(nos.)									
		S		B		S		B		S	B				
		Min	Max	Min	Max	Min	Max	Min	Max						
		Avg		Avg		Avg		Avg							
DH1	20/11/2015	146.0		18.8		14.0		10.0		<i>Skeletonema</i>	<i>Cymatosira</i>				
DH1										<i>Thalassiosira</i>	<i>Thalassiosira</i>				
DH1										<i>Rhizosolenia</i>	<i>Odontella</i>				
DH1										<i>Guinardia</i>	<i>Guinardia</i>				
DH2	20/11/2015	10.4		4.4		7.0		4.0		<i>Synedra</i>	<i>Cyclotella</i>				
DH2										<i>Prorocentrum</i>	<i>Thalassiosira</i>				
DH2										<i>Lithodesmium</i>	<i>Odontella</i>				
DH2										<i>Gyrodinium</i>	<i>Surirella</i>				
DH3	20/11/2015	25.8	78.2	22.4	82.2	6.0	11.0	8.0	12.0	<i>Nitzschia</i>	<i>Nitzschia</i>				
DH3		52.0		52.3		8.5		10.0		<i>Prorocentrum</i>	<i>Guinardia</i>				
DH4	19/11/2015	3.2	47.2	11.6	11.6	7.0	10.0	10.0	10.0	<i>Pleurosigma</i>	<i>Pleurosigma</i>				
DH4		25.2				8.5				<i>Navicula</i>	<i>Prorocentrum</i>				
DH4		70.2		76.4		11.0		12.0		<i>Peridinium</i>	<i>Nitzschia</i>				
DH5	19/11/2015	73.3		21.4	21.4	11.5		12.0		<i>Pleurosigma</i>	<i>Prorocentrum</i>				
DH5		10.0				11.0		12.0		<i>Nitzschia</i>	<i>Guinardia</i>				
DH5		41.1				11.5		12.0		<i>Cymatosira</i>	<i>Lithodesmium</i>				
DH6	18/11/2015	10.0		9.4	9.4	5.0	9.0	8.0	8.0	<i>Pleurosigma</i>	<i>Peridinium</i>				
DH6		41.1				7.0				<i>Surirella</i>	<i>Guinardia</i>				
DH6		72.2				7.0				<i>Navicula</i>	<i>Thalassionema</i>				

Table 4.1.10: Range and average of phytoplankton at different stations off Dahanu during May 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg		
DH1	15/5/2016	118.0		22.0		7.0		4		<i>Peridinium</i>	<i>Thalassiosira</i>
										<i>Cylindrotheca</i>	<i>Nitzschia</i>
										<i>Gyrodinium</i>	<i>Amphora</i>
										<i>Euglena</i>	<i>Lithodesmium</i>
DH2	15/5/2016	90.6		32.0		11.0		7.0		<i>Peridinium</i>	<i>Thalassiosira</i>
										<i>Nitzschia</i>	<i>Fragillaria</i>
										<i>Gyrodinium</i>	<i>Nitzschia</i>
										<i>Prorocentrum</i>	<i>Navicula</i>
DH3	15/5/2016	144.0	22340.0	110.6	5396.2	9.0	13.0	8.0	8.0	<i>Chaetoceros</i>	<i>Chaetoceros</i>
		11242.0		2753.4		11.0		8.0		<i>Thalassiosira</i>	<i>Fragillaria</i>
DH4	16/5/2016	2334.6	9544.6	143.2	940.6	10.0	12.0	9.0	9.0	<i>Peridinium</i>	<i>Thalassiosira</i>
		5939.6		541.9		11.0		9.0		<i>Nitzschia</i>	<i>Nitzschia</i>
DH5	16/5/2016	2518.8	9452.4	1702.4	5480.0	8.0	10.0	7.0	11.0	<i>Chaetoceros</i>	<i>Chaetoceros</i>
		5985.6		3591.2		9.0		9.0		<i>Thalassiosira</i>	<i>Peridinium</i>
DH6	15/5/2016	4916.4	7828.0	85.8	85.8	3.0	8.0	8.0	8.0	<i>Peridinium</i>	<i>Fragillaria</i>
		6372.2		85.8		5.5		8.0		<i>Thalassiosira</i>	<i>Thalassiosira</i>
										<i>Navicula</i>	<i>Cylindrotheca</i>

Table 4.1.11: Percentage composition of phytoplankton population at different station off Dahanu during November 2015

Table 4.1.12: Percentage composition of phytoplankton population at different station off Dahanu during May 2016

Table 4.1.13: Range and average (parenthesis) of zooplankton at different stations off Dahanu during November 2015

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
DH1 (20.11.2015)	0.1-0.2 (0.2)	0.3	11-14 (13)	Decapod larvae (52.3), copepods (34.5), lamellibranchs (2.6), foraminiferans (2.3), polychaetes (1.7), chaetognaths (1.6), gastropods (1.3), ostracods (0.8), siphonophores (0.7), fish eggs (0.5), mysids (0.4), stomatopods (0.4), isopods (0.3), marine insects (0.2), others(0.1).
DH2 (20.11.2015)	0.5-1 (0.8)	1.3-1.5 (1.4)	14	Decapod larvae (52.3), copepods (49.8), lamelleibranchs (2.2), foraminifera (1.6), chaetognaths (1.4), fish larvae (0.9). mysids (0.6), gastropods (0.6), polychaetes (0.5), stomatopods (0.2), fish eggs (0.1), ostracods (0.1), medusae (0.1), siphonophores (0.1), amphipods (0.1), others (0.1).
DH3 (20.11.2015)	0.6-1.5 (1.1)	4.9-6 (5.5)	11-17 (14)	Decapod larvae (54.9), copepods (33.3), polychaetes (2.4), lamelleibranchs (2.3), appendicularians (2.1), foraminifera (1.2), chaetognaths (1), fish larvae (0.7). fish eggs (0.6), mysids (0.6), gastropods (0.4), siphonophores (0.3), stomatopods (0.1), others (0.1).
DH4 (19.11.2015)	2.7-6.9 (5.7)	8.2-68.3 (30.6)	4-18 (11)	Copepods (47.5), decapod larvae (43.5), lamelleibranchs (3.4), mysids (1.9), appendicularians (1.3), polychaetes (0.9), fish eggs (0.5), fish larvae (0.4), chaetognaths (0.2), gastropods (0.2), others (0.1).

DH5 (19.11.2015)	9.9	72.2	18	Copepods (61), decapod larvae (31.7), lamellibranchs (2.4), mysids (2.1), fish eggs (0.8), polychaetes (0.7), chaetognaths (0.4), appendicularians (0.4), gastropods (0.3), fish larvae (0.1), others (0.1).
DH6 (18.11.2015)	1-2.5 (1.8)	4.3-22.9 (13.6)	13-14 (14)	Copepods (63.1), decapod larvae (21.7), lamellibranchs (11.6), gastropods (1.5), appendicularians (1.4), fish eggs (0.2), fish larvae (0.1), chaetognaths (0.1), polychaetes (0.1), mysids (0.1), isopods (0.1), others (0.1).

Table 4.1.14: Range and average (parenthesis) of zooplankton at different stations off Dahanu during May 2016

Station (Date)	Biomass (ml/100m ³)	Population (no x 10 ³ /100m ³)	Total Groups (no)	Major group (%)
DH1 (15/05/2016)	2.2-3.3 (2.8)	10.2-73.1 (41.7)	14-16 (15)	Copepods (90.1), chaetognaths (4.3), lamellibranchs (2.6), decapod larvae (2.4), gastropods (0.3), amphipods (0.2), fish larvae(0.1), others (0.1).
DH2 (15/05/2016)	1.8-4.8 (3.3)	11.0-13.8 (12.4)	12-14 (13)	Copepods (74.6), mysids (12.7), decapod larvae (6.2), chaetognaths (5.3), lamellibranchs (0.4), fish larvae(0.3), gastropods (0.2), polychaetes (0.1), ostracods (0.1), others (0.1).
DH3 (15/05/2016)	0.3-18.2 (9.3)	3.1-24.0 (13.5)	9-12 (11)	Copepods (45.6), mysids (36.8), gastropods (8.0), decapod larvae (5.9), chaetognaths (0.3), fish larvae(0.3), others (0.1).
DH4 (16/05/2016)	0.2-9.1 (2.9)	1.7-223.6 (45.5)	6-11 (9)	Decapod larvae (87.1), gastropods (7.6), copepods (3.9), lamellibranchs (1.0), mysids (0.2),

				fish larvae(0.1), others (0.1).
DH5 (16/05/2016)	0.3-1.7 (1.0)	2.5-18.1 (10.3)	7-8 (8)	Decapod larvae (30.9), copepods (26.6), gastropods (25.8), lamellibranchs (15.6), mysids (0.8), fish larvae(0.2), isopods (0.1), others (0.1).
DH6 (15/05/2016)	0.8-1.4 (1.1)	8.5-12.9 (10.7)	12-13 (13)	Copepods (57.7), gastropods (16.5), chaetognaths (12.2), decapod larvae (11.0), lamellibranchs (1.8), mysids (0.4), fish larvae(0.2), siphonophores (0.1), amphipods (0.1), others (0.1).

Table 4.1.15: Abundance of Zooplanktons off Dahanu during November 2015

Faunal groups	DH1	DH2	DH3	DH4	DH5	DH6
Foraminiferans	-	-	+	+	-	+
Siphonophores	+	+	-	-	-	+
Medusae	+	+	-	+	-	-
Chaetognaths	+	+	+	+	-	+
Polychaetes	+	+	+	+	+	-
Cladocerans	-	-	-	-	-	-
Ostracods	+	+	-	-	-	-
Copepods	+	+	+	+	+	+
Cumaceans	-	-	-	-	-	-
Amphipods	+	+	+	-	-	+
Mysids	+	+	+	+	+	+
Lucifer sp.	+	-	-	-	-	+
Decapod larvae	+	+	+	+	+	+
Stomatopods	+	+	-	+	-	+
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Appendicularians	-	+	+	+	-	-
Fish Eggs	+	+	+	+	-	+
Fish Larvae	+	+	+	+	+	+
Isopods	+	-	+	+	+	+
Acetes sp.	-	+	-	-	-	-

Table 4.1.16: Abundance of Zooplanktons off Dahanu during May 2016

Faunal Groups	DH1	DH2	DH3	DH4	DH5	DH6
Foraminiferans	+	+	+	+	+	+
Siphonophores	+	+	+	+	+	+
Medusae	-	+	-	+	+	+
Ctenophores	-	-	+	+	+	-
Chaetognaths	+	+	+	+	+	+
Polychaetes	+	+	+	+	+	+
Ostracods	+	+	-	-	-	-
Copepods	+	+	+	+	+	+
Amphipods	-	+	+	+	-	-
Mysids	+	+	+	+	+	+
Lucifer sp.	-	-	+	-	+	-
Decapod larvae	+	+	+	+	+	+
Stomatopods	+	+	+	+	+	-
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Appendicularians	-	+	+	+	+	+
Fish Eggs	+	+	+	+	+	+
Fish Larvae	-	+	+	+	+	+
Isopods	+	+	+	+	+	+
Acetes sp.	-	-	-	+	+	-
Marine Insects	+	+	+	-	-	-
Pycnogonids	-	-	+	-	-	-

Table 4.1.17: Range and average of macrofauna off Dahanu during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (November 2015)									
DH1	Rocky bottom								
DH2	0.03	0.21	0.10	25	100	56	1	2	2
DH3	0.04	0.41	0.22	25	1325	650	1	2	1
DH4	Rocky bottom								
DH5	1.21	3.07	1.75	975	1525	1281	2	4	3
DH6	0.03	0.34	0.18	25	725	281	1	5	3
Overall	0.03	3.07	0.56	25	1525	567	1	5	2
Premonsoon (May 2016)									
DH1	Rocky bottom								
DH2	0.01	0.37	0.11	25	75	38	1	1	1
DH3	0.12	0.33	0.25	100	350	200	1	2	2
DH4	Rocky bottom								
DH5	0.26	0.49	0.35	500	1550	863	3	5	4
DH6	0.20	2.65	0.95	125	350	200	2	4	3
Overall	0.01	2.65	0.41	25	1550	325	1	5	2

Table 4.1.18: Percentage composition of macrofauna off Dahanu during November 2015

Phylum	Groups	Stations						Average
		DH1	DH2	DH3	DH4	DH5	DH6	
Annelida	Polychaeta	Rocky bottom	77.78	99.04	Rocky bottom	94.15	65.91	91.71
Annelida	Oligochaeta		0.00	0.96		1.46	0.00	1.10
Arthropoda	Caprelidae		0.00	0.00		0.00	15.91	1.93
Arthropoda	Decapoda Larvae		0.00	0.00		0.98	2.27	0.83
Arthropoda	Mysida		0.00	0.00		0.49	2.27	0.55
Arthropoda	Copepoda		0.00	0.00		0.49	0.00	0.28
Mollusca	Gastropoda		0.00	0.00		1.95	0.00	1.10
Mollusca	Pelecypoda		22.22	0.00		0.00	4.55	1.10
Phoronida	Phoronida		0.00	0.00		0.49	9.09	1.38

Table 4.1.19: Percentage composition off macrofauna of Dahanu during May 2016

Phylum	Groups	Stations						Average
		DH1	DH2	DH3	DH4	DH5	DH6	
Annelida	Polychaeta	Rocky bottom	66.67	90.63	Rocky bottom	23.91	62.50	41.35
Annelida	Oligochaeta		0.00	0.00		55.80	0.00	37.02
Arthropoda	Copepoda		0.00	9.38		0.00	9.38	2.88
Arthropoda	Insecta		0.00	0.00		0.00	3.13	0.48
Mollusca	Pelecypoda		33.33	0.00		0.00	12.50	2.88
Mollusca	Gastropoda		0.00	0.00		0.72	3.13	0.96
Nematoda	Nematoda		0.00	0.00		14.49	0.00	9.62
Nemertea	Nemertea		0.00	0.00		5.07	9.38	4.81

Table 4.1.20: Station-wise distribution of meiofauna parameters in Dahanu

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (November 2015)									
DH1	Rocky bottom								
DH2	3.41	5.05	4.23	7	11	9	1	1	1
DH3	87.93	96.63	92.28	23	57	40	4	4	4
DH4	Rocky bottom								
DH5	30.15	37.95	34.05	38	62	50	2	4	3
DH6	84.62	218.22	151.42	10	265	137	3	6	4
Premonsoon (May 2016)									
DH1	Rocky bottom								
DH2	16.68	29.04	22.86	13	112	62	2	5	3
DH3	98.49	131.51	111.5	17	47	32	4	5	4
DH4	Rocky bottom								
DH5	9.66	20.24	15.45	25	79	52	2	4	3
DH6	238.38	921.08	579.73	187	1901	1044	7	8	7

Table 4.1.21: Percentage composition off meiofauna of Dahanu during November 2015

Groups	Stations						Average
	DH1	DH2	DH3	DH4	DH5	DH6	
Foraminiferans	Rocky Bottom	0.00	8.93	Rocky Bottom	2.82	7.73	6.59
Halacaroids		0.00	0.00		1.41	1.03	0.90
Harpacticoids		0.00	25.00		4.22	3.61	7.18
Nauplius		0.00	0.00		0.00	0.52	0.30
Nematodes		100.00	58.93		90.15	85.05	82.34
Oligochaetes		0.00	0.00		1.41	2.06	1.50
Ostracods		0.00	7.14		0.00	0.00	1.20

Table 4.1.22: Percentage composition off meiofauna of Dahanu during May 2016

Groups	Stations						Average
	DH1	DH2	DH3	DH4	DH5	DH6	
Foraminiferans	Rocky Bottom	6.98	22.22	Rocky Bottom	20.27	2.59	4.12
Halacaroids		1.16	0.00		0.00	0.00	0.06
Harpacticoids		0.00	0.00		1.35	1.16	1.08
Insects		0.00	0.00		0.00	0.34	0.30
Nauplius		0.00	0.00		0.00	0.48	0.42
Nematodes		89.53	17.78		56.76	92.31	88.59
Nemerteans		0.00	13.33		14.86	0.00	1.02
Oligochaetes		0.00	0.00		6.76	0.07	0.36
Polychaetes		2.33	13.33		0.00	2.72	2.87
Turbellarians		0.00	33.33		0.00	0.34	1.19

Table 4.2.1: Water quality off Tarapur during November 2015

Parameter	Level	TP1		TP2		TP3			TP4			TP5			TP6		
		Avg*	Avg*	Min	Max	Avg	Min	Max									
Temperature(°C)	S	30.5	29.5	29.5	30.0	29.8	29.0	30.0	29.5	28.5	29.5	29.2	29.0	29.5	29.3		
	B	29.8	29.0	29.5	29.5	29.5	29.5	29.5	29.5	28.0	29.0	28.6	28.5	28.5	28.5		
		(31.5)	(31.0)	(31.0)	(32.0)	(31.5)	(31.0)	(31.0)	(31.0)	(26.5)	(30.0)	(29.3)	(29.5)	(30.0)	(29.8)		
SS(mg/l)	S	27	29	25	33	29	26	37	32	21	27	24	22	26	24		
	B	31	30	20	20	20	27	27	27	22	22	22	21	21	21		
Turbidity(NTU)	S	6.1	5.4	5.2	7.0	6.1	4.5	6.1	5.3	1.5	11.3	5.9	9.1	11.0	10.0		
	B	6.2	4.8	5.5	5.5	5.5	4.2	4.2	4.2	3.5	8.3	6.0	10.3	10.3	10.3		
pH	S	8.0	7.9	7.4	8.0	7.7	7.8	8.0	7.9	7.8	8.0	7.9	7.9	7.9	7.9		
	B	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.9	7.9	7.9		
Salinity(ppt)	S	35.0	35.0	34.2	35.0	34.6	35.0	35.2	35.1	32.1	35.2	34.1	32.9	34.9	33.9		
	B	35.1	34.6	35.0	35.0	35.0	35.2	35.2	35.2	35.0	35.2	35.1	35.1	35.1	35.1		
DO (mg/l)	S	7.0	6.6	4.5	4.8	4.6	4.8	5.8	5.3	4.5	9.0	6.9	5.8	8.3	7.0		
	B	6.4	6.7	4.8	4.8	4.8	5.4	5.4	5.4	5.1	7.4	5.7	5.1	5.1	5.1		
BOD (mg/l)	S	4.0	2.7	2.2	2.9	2.6	2.6	3.2	2.9	2.6	7.4	5.0	2.6	3.8	3.2		
	B	1.9	2.9	1.6	1.6	1.6	2.2	2.2	2.2	3.8	3.8	3.8	2.6	2.6	2.6		
PO ₄ ³⁻ -P (μmol/l)	S	1.3	0.6	1.2	1.6	1.4	0.7	1.2	0.9	0.5	2.0	1.2	1.3	1.6	1.4		
	B	1.6	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.9	1.8	1.5	1.5	1.5		
TP(μmol/l)	S	1.9	1.1	2.1	2.6	2.4	1.1	1.7	1.4	1.9	2.1	2.0	2.3	2.6	2.4		
	B	2.1	1.6	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.3		
NO ₃ ⁻ -N (μmol/l)	S	10.2	14.6	9.5	16.9	13.2	8.4	13.5	11.0	6.2	19.3	12.1	8.9	11.8	10.4		
	B	11.2	15.7	9.5	9.5	9.5	11.6	11.6	11.6	10.5	17.0	14.5	10.9	10.9	10.9		
NO ₂ ⁻ -N(μmol/l)	S	0.1	0.1	0.1	0.3	0.2	0.5	0.9	0.7	0.5	3.4	1.9	0.7	3.7	2.2		
	B	0.1	0.1	0.3	0.3	0.3	0.4	0.4	0.4	0.7	1.2	0.7	0.3	0.3	0.3		
NH ₄ ⁺ -N(μmol/l)	S	0.6	0.6	7.1	26.9	17.0	9.5	16.5	13.0	8.6	27.9	20.4	9.9	27.8	18.8		
	B	0.9	0.6	5.2	5.2	5.2	12.3	12.3	12.3	8.2	20.6	14.1	12.4	12.4	12.4		
TN(μmol/l)	S	17.2	24.4	33.8	46.4	40.1	23.5	27.5	25.5	50.3	54.5	52.4	25.8	29.6	27.7		
	B	21.7	27.5	21.4	21.4	21.4	36.8	36.8	36.8	57.9	57.9	57.9	29.2	29.2	29.2		
PHc(μg/l)	1m	4.7	3.7	18.7	25.3	22.0	6.2	6.4	6.3	14.1	14.6	14.4	7.1	8.2	7.7		
Phenol (μg/l)	S	82.8	87.6	97.2	98.2	97.7	82.8	97.4	90.1	134.6	142.1	138.4	95.0	100.6	97.8		

* Average of two readings

Air temperature given in parenthesis

Table 4.2.2: Water quality off Tarapur during May 2016

Parameter	Level	TP1		TP2		TP3			TP4			TP5			TP6		
		Avg*	Avg*	Min	Max	Avg	Min	Max									
Temperature(°C)	S	33.0	33.0	32.0	34.5	33.3	29.0	30.0	29.5	30.0	34.5	32.3	29.0	29.5	29.3		
	B	32.5	32.0	31.5	33.5	32.5	29.5	29.5	29.5	29.5	32.5	31.4	29.5	29.5	29.5		
		(33.5)	(33.0)	(31.0)	(35.5)	(33.3)	(31.0)	(31.0)	(31.0)	(31.0)	(34.0)	(33.0)	(30.0)	(31.0)	(30.5)		
SS(mg/l)	S	24	53	14	17	15	19	20	19	12	83	47	35	67	51		
	B	53	70	23	31	27	28	31	30	14	14	14	74	74	74		
Turbidity (NTU)	S	6.1	5.0	6.9	8.2	7.6	5.6	7.3	6.4	2.9	5.1	3.5	9.3	10.2	9.8		
	B	6.2	4.6	7.0	9.2	8.1	4.8	6.8	5.8	3.4	4.6	4.2	11.3	11.3	11.3		
pH	S	8.0	8.0	7.9	8.0	8.0	7.9	8.0	8.0	7.4	7.8	7.6	7.5	7.6	7.6		
	B	8.1	8.1	8.0	8.0	8.0	7.8	8.1	8.0	7.5	7.7	7.7	7.7	7.7	7.7		
Salinity(ppt)	S	36.8	36.8	35.1	37.1	36.1	34.0	35.2	34.6	34.8	36.5	35.4	35.2	36.7	36.0		
	B	36.8	36.8	35.2	36.9	36.1	34.0	35.2	34.6	35.3	36.8	35.9	36.8	36.8	36.8		
DO (mg/l)	S	6.1	5.4	1.6	3.2	2.4	1.9	2.6	2.2	0.6	3.2	2.4	1.9	3.2	2.6		
	B	5.8	5.1	1.9	2.6	2.2	2.2	2.3	2.3	1.6	3.8	2.6	1.6	1.6	1.6		
BOD (mg/l)	S	2.2	1.9	19.0	25.3	22.2	12.7	19.0	15.9	6.3	12.7	9.5	9.5	14.2	11.9		
	B	2.2	2.2	22.2	28.5	25.4	15.8	25.3	20.6	9.5	9.5	9.5	12.7	12.7	12.7		
PO ₄ ³⁻ (μmol/l)	S	1.2	0.4	1.0	1.5	1.2	0.6	1.8	1.2	1.1	3.1	2.2	1.7	2.5	2.1		
	B	1.8	1.4	1.5	2.3	1.9	1.5	2.5	2.0	1.8	3.3	2.6	2.4	2.4	2.4		
TP(μmol/l)	S	2.1	1.2	1.5	2.9	2.2	1.5	2.5	2.0	2.2	4.2	3.2	2.4	3.6	3.0		
	B	3.4	2.6	2.8	3.7	3.2	2.4	3.6	3.0	3.9	3.9	3.9	3.3	3.3	3.3		
NO ₃ ⁻ -N (μmol/l)	S	1.4	4.6	2.9	3.9	3.4	3.6	3.8	3.7	2.0	6.3	4.3	1.5	5.0	3.3		
	B	2.2	0.7	1.1	5.5	3.3	1.1	4.5	2.8	0.7	5.9	3.9	3.6	3.6	3.6		
NO ₂ ⁻ -N(μmol/l)	S	0.5	0.4	1.2	1.9	1.6	1.3	3.3	2.3	4.7	7.5	5.6	4.9	9.8	7.3		
	B	0.3	0.4	0.6	1.2	0.9	0.7	3.5	2.1	4.0	7.4	5.5	3.4	3.4	3.4		
NH ₄ ⁺ -N(μmol/l)	S	1.0	1.7	19.2	19.3	19.3	16.5	36.3	26.4	19.8	50.7	35.4	43.2	47.7	45.4		
	B	0.8	1.5	18.6	20.2	19.4	15.9	36.9	26.4	30.7	47.8	39.6	32.6	32.6	32.6		
TN(μmol/l)	S	21.8	31.7	36.0	36.9	36.5	40.4	52.5	46.4	42.5	81.6	62.1	73.6	85.1	79.3		
	B	28.0	17.1	39.5	41.7	40.6	44.7	55.6	50.1	75.1	75.1	75.1	67.5	67.5	67.5		
PHC(μg/l)	1m	3.0	3.4	7.5	9.3	8.4	9.2	10.3	9.8	10.2	19.1	14.7	7.4	8.8	8.1		
Phenol (μg/l)	S	87.6	99.4	115.7	118.1	116.9	113.0	115.0	114.0	142.1	206.9	174.5	131.8	135.8	133.8		

* Average of two readings

Air temperature given in parenthesis

Table 4.2.3: Sediment quality off Tarapur during November 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
TP1	8.2	56.4	35.4	7.1	125	1049	6.8	40	57	88	98	0.18	0.17	9.2	0.7	769	1.5
TP2	0.1	88.6	11.3	7.1	126	941	6.9	38	57	88	97	0.21	0.20	10.4	0.8	762	1.8
TP3	72.4	9.6	18	3.1	520	1473	10.0	63	83	87	139	0.28	0.18	15.6	0.1	250	2.1
TP4	89.4	6.6	4.0	3.6	295	939	7.0	70	76	56	100	0.32	0.11	7.9	0.1	530	2.9
TP5	94.4	1.6	4.0	1.4	184	821	2.4	17	26	19	137	0.32	0.10	4.2	ND	486	4.5
TP6	82.8	8.8	8.4	4.1	228	1147	7.8	41	68	86	189	0.75	0.25	5.1	0.6	156	0.8
SHORE	92.2	5.4	2.4	4.4	191	838	6.4	47	71	35	124	0.22	0.03	11.4	0.1	909	3.9

Remark:-

*On dry weight basis except PHc which is in wet wt.

ND- Not Detectable

Table 4.2.4: Sediment quality off Tarapur during May 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
TP1	16.4	38.8	44.8	6.7	139	887	6.6	50	68	101	86	0.11	ND	14.2	1.1	1224	0.3
TP2	86.1	4.7	9.2	6.9	144	840	6.7	49	71	102	82	0.17	0.09	15.8	1.2	879	0.3
TP3	62.4	21.8	15.8	3.6	522	1464	10.8	76	94	89	148	0.29	0.01	13.0	0.2	1220	2.0
TP4	74.4	25.4	0.2	6.4	238	937	7.5	59	78	105	196	0.30	ND	15.1	1.1	1092	2.3
TP5	0.6	94.8	4.6	4.0	279	971	7.4	75	79	217	253	0.36	0.07	20.1	1.3	1327	4.3
TP6	3.3	77.9	18.8	4.6	272	1006	8.0	85	81	94	121	0.36	ND	16.4	0.4	1106	0.9
SHORE	0.1	73.3	26.6	3.4	503	1390	10.2	102	90	69	142	0.14	ND	28.4	0.2	2209	3.5

Remark:-

*On dry weight basis except PHc which is in wet wt.

ND- Not Detectable

Table 4.2.5: Microbial counts in surface water (CFU/ml) off Tarapur during 2015-16

Type of Bacteria	Population in surface water (CFU/ml)																			
	Postmonsoon (November 2015)										Premonsoon (May 2016)									
	TP1	TP2	TP3		TP4		TP5		TP6		TP1	TP2	TP3		TP4		TP5		TP6	
			Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl			Fl	Eb	Fl	Eb	Fl	Eb	Fl	
TVC	5 x 10 ³	12 x 10 ³	308 x 10 ³	13 x 10 ³	51 x 10 ³	17 x 10 ³	800 x 10 ³	88 x 10 ³	36 x 10 ³	20 x 10 ³	4 x 10 ³	17 x 10 ³	14 x 10 ³	4 x 10 ³	4 x 10 ³	12 x 10 ³	12 x 10 ³	30 x 10 ³	15 x 10 ³	12 x 10 ³
TC	20	20	2500	50	490	260	200	110	210	190	200	ND	30	20	30	20	150	200	80	180
FC	10	10	2080	10	440	190	170	20	110	90	200	ND	20	10	20	10	140	190	40	120
ECLO	ND	ND	1800	ND	ND	40	400	ND	100	80	100	ND	20	ND	10	10	120	150	30	80
SHLO	ND	ND	270	10	60	40	130	ND	120	ND	ND	ND	ND	ND	ND	ND	200	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	40	90	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	10	ND	2400	ND	80	110	20	40	30	20	10	400	70	200	70	600	800	300	400	700
VLO	30	80	920	30	340	190	320	240	250	160	400	ND	300	50	30	900	1200	1000	300	460
VPLO	ND	20	ND	ND	40	50	80	30	20	ND	ND	ND	ND	30	10	ND	ND	ND	ND	ND
VCLO	30	60	920	30	300	140	240	210	230	160	400	ND	300	20	20	900	1200	1000	300	460
PALO	ND	ND	50	ND	30	ND	20	ND	20	ND	ND	ND	20	ND	50	ND	100	ND	ND	ND
SFLO	ND	ND	30	ND	ND	ND	10	ND	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.2.6: Microbial counts in sediments (CFU/g) off Tarapur during 2015-16

Type of Bacteria	Population in sediment (CFU/g; dry wt)											
	Postmonsoon (November 2015)						Premonsoon (May 2016)					
	TP1	TP2	TP3	TP4	TP5	TP6	TP1	TP2	TP3	TP4	TP5	TP6
TVC	10 x 10 ³	50 x 10 ³	70 x 10 ³	30 x 10 ³	66 x 10 ³	35 x 10 ³	200 x 10 ³	5 x 10 ³	200 x 10 ³	300 x 10 ³	5000 x 10 ³	4000 x 10 ³
TC	10	ND	220	50	40	90	ND	ND	ND	ND	200	4000
FC	10	ND	120	20	20	40	ND	ND	ND	ND	200	4000
ECLO	ND	ND	ND	30	30	60	ND	ND	ND	ND	150	2000
SHLO	ND	ND	ND	ND	ND	20	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	60	30	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	140	80	40	120	ND	ND	ND	ND	300	2000
VLO	30	ND	490	240	ND	480	ND	ND	ND	ND	900	8000
VPLO	ND	ND	10	ND	ND	240	ND	ND	ND	ND	ND	ND
VCLO	30	ND	490	240	ND	480	ND	ND	ND	ND	900	8000
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	200	5000
SFLO	ND	ND	10	ND	10	90	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.2.7: Range and average of phytopigments at different stations off Tarapur during November 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
TP1	21-11-2015	1.4	2.8	1.1	1.4	0.2	0.4	0.4	0.4	6.6	9.2	2.7	3.7
		2.1		1.2		0.3		0.4		7.9		3.2	
TP2	21-11-2015	1.3	1.5	0.8	0.9	0.3	0.3	0.4	0.6	4.8	5.4	1.6	2.2
		1.4		0.9		0.3		0.5		5.1		1.9	
TP3	21-11-2015	13.1	31.5	12.7	12.7	0.9	5.3	1.2	1.2	6.0	14.4	10.7	10.7
		22.3		12.7		3.1		1.2		10.2		10.7	
TP4	21-11-2015	15.0	37.6	16.4	16.4	0.7	2.1	1.1	1.1	18.3	22.8	15.5	15.5
		26.3		16.4		1.4		1.1		20.5		15.5	
TP5	22-11-2015	14.0	43.6	10.4	23.4	0.1	12.7	1.5	2.5	2.7	545.0	6.6	10.7
		31.9		16.3		2.7		1.9		68.9		8.3	
TP6	22-11-2015	22.6	39.5	17.1	17.1	1.0	4.4	1.6	1.6	8.9	22.3	10.5	10.5
		31.0		17.1		2.7		1.6		15.6		10.5	

Table 4.2.8: Range and average of phytopigments at different stations off Tarapur during May 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
TP1	14-05-2016	1.8	2.4	1.0	1.4	0.4	0.8	0.4	0.4	2.2	6.8	2.5	3.1
		2.1		1.2		0.6		0.4		4.5		2.8	
TP2	14-05-2016	1.6	1.6	1.5	1.6	0.4	0.5	0.5	0.5	3.1	3.7	3.1	3.3
		1.6		1.5		0.5		0.5		3.4		3.2	
TP3	14-05-2016	2.7	3.4	3.6	3.9	0.4	0.7	1.2	1.3	4.1	8.1	2.9	3.1
		3.1		3.7		0.5		1.2		6.1		3.0	
TP4	14-05-2016	3.8	5.7	1.6	9.3	0.3	0.6	0.5	0.8	6.0	20.3	3.2	11.9
		4.8		5.4		0.5		0.6		13.1		7.5	
TP5	13-05-2016	3.3	26.3	2.4	13.7	0.3	1.8	0.8	1.8	2.9	79.6	2.1	12.4
		13.7		6.4		1.3		1.2		14.7		5.2	
TP6	13-05-2016	5.0	17.3	4.6	4.6	0.9	2.6	1.1	1.1	5.5	6.8	4.3	4.3
		11.1		4.6		1.7		1.1		6.1		4.3	

Table 4.2.9: Range and average of phytoplankton at different stations off Tarapur during November 2015

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
TP1	21-11-2015	39.6		36.6		15.0		14.0		<i>Prorocentrum</i>	<i>Pleurosigma</i>
TP2	21-11-2015	59.2		28.6		20.0		11.0		<i>Nitzschia</i>	<i>Thalassiosira</i>
TP3	21-11-2015	487.8	955.0	219.8	17.0	23.0	16.0	15.0	15.0	<i>Thalassiosira</i>	<i>Thalassiosira</i>
		721.4			20.0					<i>Lithodesmium</i>	<i>Bellorachea</i>
TP4	21-11-2015	381.4	759.8	425.4	17.0	25.0	20.0	20.0	20.0	<i>Rhizosolenia</i>	<i>Pseudo-nitzschia</i>
		570.6			21.0					<i>Chaetoceros</i>	<i>Lithodesmium</i>
TP5	22-11-2015	551.2	1088.2	833.2	18.0	23.0	20.5	20.5	20.0	<i>Thalassiosira</i>	<i>Thalassiosira</i>
		819.7			21.0					<i>Coscinodiscus</i>	<i>Alexandrium</i>
TP6	22-11-2015	926.0	1374.6	833.6	18.0	19.0	18.5	18.5	21.0	<i>Skeletonema</i>	<i>Chaetoceros</i>
		1150.3			21.0					<i>Chaetoceros</i>	<i>Lithodesmium</i>
										<i>Thalassiosira</i>	<i>Thalassiosira</i>
										<i>Alexandrium</i>	<i>Alexandrium</i>
										<i>Coscinodiscus</i>	<i>Coscinodiscus</i>
										<i>Skeletonema</i>	<i>Rhizosolenia</i>

Table 4.2.10: Range and average of phytoplankton at different stations off Tarapur during May 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg		
TP1	14-05-2016	48.6		18.8		13		10		<i>Gymnodium</i>	<i>Thalassiosira</i>
TP2	14-05-2016	44.6		39.2		10		11		<i>Thalassiosira</i>	<i>Prorocentrum</i>
TP3	14-05-2016	49.2	103.4	76.6	82.4	10	13	7	12	<i>Cylindrotheca</i>	<i>Cylindrotheca</i>
		76.3		79.5		12		10		<i>Coscinodiscus</i>	<i>Cyclotella</i>
TP4	13-05-2016	165.2	306.6	48.6	420.6	13	15	12	20	<i>Gymnodium</i>	<i>Gymnodium</i>
		235.9		234.6		14		16		<i>Coscinodiscus</i>	<i>Coscinodiscus</i>
TP5	13-05-2016	87.8	2561.2	95.8		15	17	13		<i>Thalassiosira</i>	<i>Thalassiosira</i>
		1324.5				16				<i>Cyclotella</i>	<i>Cyclotella</i>
TP6	13-05-2016	252.0	1706.8	260.2		8	7	7		<i>Gymnodium</i>	<i>Cyclotella</i>
		979.4				8				<i>Coscinodiscus</i>	<i>Gymnodium</i>
										<i>Thalassiosira</i>	<i>Coscinodiscus</i>
										<i>Lauderia</i>	<i>Lauderia</i>
										<i>Peridinium</i>	<i>Thalassiosira</i>
										<i>Thalassiosira</i>	<i>Peridinium</i>
										<i>Navicula</i>	<i>Navicula</i>
										<i>Teleaulax</i>	<i>Chaetoceros</i>

Table 4.2.11: Percentage composition of phytoplankton population at different stations off Tarapur during November 2015

Table 4.2.12: Percentage composition of phytoplankton population at different stations off Tarapur during May 2016

Name of the genera	TP1	TP2	TP3	TP4	TP5	TP6	Total %
<i>Amphora</i>	-	-	2.57	3.40	-	0.18	1.02
<i>Anabaena</i>	-	-	-	-	<0.1	<0.1	<0.1
<i>Bacillaria</i>	-	-	0.26	-	-	-	<0.1
<i>Bacteriastrum</i>	-	-	-	-	0.30	0.81	0.18
<i>Ceratium</i>	0.30	2.39	0.71	<0.1	-	-	0.57
<i>Chaetoceros</i>	-	-	-	-	-	0.90	0.15
<i>Coscinodiscus</i>	6.23	2.39	20.54	22.95	24.40	-	12.75
<i>Cyclotella</i>	5.93	0.48	12.84	13.82	2.46	0.18	5.95
<i>Cylindrotheca</i>	11.87	11.93	-	-	<0.1	-	3.98
<i>Dactyliosolen</i>	-	-	-	-	0.15	-	<0.1
<i>Diploneis</i>	-	2.39	-	<0.1	-	-	0.40
<i>Dityocha</i>	0.30	2.63	-	1.70	0.22	-	0.81
<i>Eucampia</i>	-	-	1.28	-	0.12	-	0.23
<i>Eutreptiella</i>	-	-	-	-	-	0.38	<0.1
<i>Guinardia</i>	-	-	-	0.85	<0.1	-	0.15
<i>Gymnodium</i>	20.77	-	10.27	27.21	68.55	-	21.13
<i>Gyrodinium</i>	-	2.39	-	-	<0.1	-	0.40
<i>Gyrosigma</i>	3.56	0.24	4.49	0.45	<0.1	-	1.47
<i>Leptocylindrus</i>	-	-	0.77	0.43	0.11	-	0.22
<i>Lithodesmium</i>	-	-	-	0.43	0.22	-	0.11
<i>Navicula</i>	5.93	-	0.13	1.28	0.52	5.05	2.15
<i>Neodenticula</i>	0.30	4.77	-	1.51	-	-	1.10
<i>Noctiluca</i>	-	-	2.05	2.76	<0.1	-	0.81
<i>Oscillatoria</i>	-	-	-	1.70	0.15	<0.1	0.31
<i>Peridinium</i>	-	-	7.70	-	<0.1	43.80	8.59
<i>Plagiotropis</i>	5.93	2.39	0.83	0.21	<0.1	-	1.56
<i>Pleurosigma</i>	5.93	-	0.64	1.15	<0.1	<0.1	1.30
<i>Prorocentrum</i>	-	-	0.64	1.06	<0.1	-	0.30
<i>Pseudo-nitzschia</i>	-	14.80	-	0.26	-	-	2.51
<i>Rabdonema</i>	-	7.16	0.64	<0.1	-	-	1.30
<i>Striatella</i>	-	-	-	0.38	-	-	<0.1
<i>Surirella</i>	5.93	0.24	0.64	0.64	<0.1	-	1.24
<i>Synedra</i>	-	-	0.64	-	-	-	0.11
<i>Teleaulax</i>	-	-	-	-	-	0.72	0.12
<i>Thalassionema</i>	3.26	0.48	0.83	-	-	-	0.76
<i>Thalassiosira</i>	17.80	42.96	30.81	17.22	2.21	47.86	26.48
<i>Thalassiothrix</i>	-	-	0.71	0.47	<0.1	<0.1	0.20
<i>Triceratium</i>	-	2.39	-	-	-	-	0.40
<i>Trichodesmum</i>	-	-	-	-	<0.1	-	<0.1
<i>Tropidoneis</i>	5.93	-	-	<0.1	<0.1	-	1.01
Total	100	100	100	100	99	100	100

Table 4.2.13: Range and average (parenthesis) of zooplankton at different stations off Tarapur during November 2015

Station (Date)	Biomass (ml/100m ³)	Population (no ^x 10 ³ /100m ³)	Total Groups (no)	Major group (%)
TP1 (21/11/2015)	0.5-0.7 (0.6)	8.7-15.9 (12.3)	11-15 (13)	Copepods (84.6), decapod larvae (13.4), chaetognaths (0.4), lamellibranchs (0.2), siphonophores (0.1), <i>Lucifer sp.</i> (0.1), others (0.1).
TP2 (21/11/2015)	0.1-2.5 (1.3)	0.5-17.4 (8.9)	9-16 (13)	Copepods (67.9), decapod larvae (29.4), fish larvae(1.4), <i>Lucifer sp.</i> (0.4), marine insects (0.4), chaetognaths (0.3), stomatopods (0.2), foraminifera (0.1), polychaetes (0.1), stomatopods (0.1), fish eggs (0.1), others (0.1). others (0.1).
TP3 (21/11/2015)	0.3	2.5	14	Copepods (81.5), lamellibranchs (7.8), decapod larvae (3.5), polychaetes (2.5), isopods (2.1), gastropod (0.9), foraminifera (0.6), chaetognaths (0.4), fish larvae (0.3), ostracods (0.1), cumaceans (0.1), mysids (0.1), <i>Lucifer sp.</i> (0.1), marine insects (0.1), others (0.1).
TP4 (21/11/2015)	0.1	1.8	12	Copepods (88), decapod larvae (7.4), lamellibranchs (1.3), foraminifera (1.2), isopods (0.6), gastropod (0.5), siphonophores (0.3), polychaetes (0.2), <i>Lucifer sp.</i> (0.1), fish larvae (0.1), others (0.1).
TP5 (22/11/2015)	0.4-0.9 (0.6)	1.5-4.3 (2.7)	10-14 (13)	Copepods (70.2), foraminifera (10), lamellibranchs (7.5), gastropod (4.9), polychaetes (2.2), decapod larvae (1.9), appendicularians (1.8), medusae (0.7), mysids (0.2), isopods (0.2), chaetognaths (0.1),

				fish larvae (0.1), others (0.1).
TP6 (22/11/2015)	0.4	5	12	Copepods (49.3), foraminifera (38.3), lamellibranchs (9.1), gastropod (0.8), medusae (0.6), appendicularians (0.6), polychaetes (0.4), decapod larvae (0.3), isopods (0.2), siphonophores (0.1), chaetognaths (0.1), others (0.1).

Table 4.2.14: Range and average (parenthesis) of zooplankton at different stations off Tarapur during May 2016

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
TP1 (14/05/2016)	2.4-3.7 (3.1)	30.5-74.9 (52.7)	13-14 (14)	Copepods (81.4), decapod larvae (15.5), lamellibranchs (1.9), chaetognaths (0.6), fish larvae(0.3), gastropods (0.1), others (0.1).
TP2 (14/05/2016)	0.5-1.2 (0.9)	5.8-21.4 (13.6)	(13)	Decapod larvae (57.7), copepods (34.0), lamellibranchs (7.6), fish larvae(0.3), chaetognaths (0.2), foraminifera (0.1), others (0.1).
TP3 (14/05/2016)	0.3-0.8 (0.6)	2.7-4.5 (3.6)	8-11 (10)	Copepods (45.5), decapod larvae (38.5), lamellibranchs (9.2), chaetognaths (3.0), gastropods (2.7), polychaetes (0.7), isopods (0.3), mysids (0.1), fish eggs (0.1), others (0.1).
TP4 (14/05/2016)	0.5-1.4 (1.0)	6.9-8.3 (7.6)	10-13 (12)	Copepods (43.0), decapod larvae (42.3), lamellibranchs (9.1), gastropods (3.9), chaetognaths (1.2), fish larvae(0.2), foraminifera (0.1), stomatopods (0.1), isopods (0.1), others (0.1).
TP5 (13/05/2016)	0.8-1.8 (1.8)	4.9-101.7 (36.1)	7-11 (9)	Decapod larvae (75.7), copepods (22.1), gastropods (1.0), foraminifera (0.7), lamellibranchs (0.3), polychaetes (0.1), others (0.1).
TP6 (13/05/2016)	(1.2)	(16.0)	(8)	Decapod larvae (88.0), copepods (8.7), foraminifera (1.8), gastropods (1.1), lamellibranchs (0.4), others (0.1).

Table 4.2.15: Abundance of zooplankton off Tarapur during November 2015

Faunal groups	TP1	TP2	TP3	TP4	TP5	TP6
Foraminiferans	+	+	-	+	+	+
Siphonophores	+	+	-	+	+	+
Medusae	+	+	-	-	+	+
Ctenophores	+	+	-	-	-	-
Chaetognaths	+	+	+	-	+	+
Polychaetes	+	+	+	+	+	+
Ostracods	-	+	+	-	-	-
Copepods	+	+	+	+	+	+
Cumaceans	-	-	+	+	-	-
Amphipods	-	-	-	-	+	-
Mysids	-	+	+	-	+	+
<i>Lucifer</i> sp.	+	+	+	+	-	-
Decapod larvae	+	+	+	+	+	+
Stomatopods	+	+	-	-	-	-
Cephalopods	-	-	-	-	+	-
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Appendicularians	-	-	-	+	+	+
Fish Eggs	+	+	-	-	-	-
Fish Larvae	+	+	+	+	+	-
Isopods	+	-	+	+	+	-
Marine Insects	-	-	+	-	-	-

Table 4.2.16: Abundance of zooplanktons off Tarapur during May 2016

Faunal groups	TP1	TP2	TP3	TP4	TP5	TP6
Foraminiferans	+	+	-	+	+	+
Siphonophores	+	+	-	+	-	-
Medusae	+	-	+	-	+	-
Chaetognaths	+	+	+	+	+	-
Polychaetes	+	+	+	+	+	+
Cladocerans	-	-	-	+	-	-
Copepods	+	+	+	+	+	+
Cumaceans	-	+	-	+	-	-
Amphipods	+	-	-	-	-	-
Mysids	-	+	+	+	-	+
<i>Lucifer</i> sp.	-	+	-	-	-	-
Decapod larvae	+	+	+	+	+	+
Stomatopods	+	+	-	+	-	-
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Fish Eggs	+	+	+	+	-	-
Fish Larvae	+	+	+	+	+	-
Isopods	-	+	+	+	+	+

Table 4.2.17: Range and average of macrofauna off Tarapur during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² wet weight)			(Ind./ m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon November 2015									
TP1	0.00	0.14	0.04	0	175	63	0	2	1
TP2	0.29	2.42	0.84	25	200	119	1	5	3
TP3	0.00	0.44	0.23	0	700	281	0	3	2
TP4	0.02	0.62	0.40	50	200	94	1	2	2
TP5	0.01	0.90	0.43	100	300	188	1	2	2
TP6	3.29	37.83	13.02	1075	3350	1975	3	6	4
Overall	0.00	37.83	2.49	0	3350	453	0	6	2
Premonsoon May 2016									
TP1	0.00	0.02	0.01	0	25	19	0	1	1
TP2	0.03	0.12	0.08	25	25	25	1	1	1
TP3	0.13	3.27	1.42	100	325	206	2	3	3
TP4	0.04	0.23	0.10	75	125	106	1	3	2
TP5	2.45	12.15	7.33	625	800	675	1	2	1
TP6	0.49	24.57	8.48	100	750	313	1	2	2
Overall	0.00	24.57	2.90	0	800	224	0	3	2

Table 4.2.18: Percentage composition of macrofauna off Tarapur during November 2015

Table 4.2.19: Percentage composition of macrofauna off Tarapur during May 2016

Phylum	Groups	Stations						Average
		TP1	TP2	TP3	TP4	TP5	TP6	
Annelida	Polychaeta	66.67	25.00	75.00	70.59	99.07	90.00	89.25
Arthropoda	Isopoda	0.00	25.00	12.50	5.88	0.93	0.00	3.27
Arthropoda	Amphipoda	0.00	25.00	9.38	11.76	0.00	0.00	2.80
Annelida	Oligochaeta	0.00	0.00	3.13	0.00	0.00	8.00	2.34
Mollusca	Pelecypoda	0.00	0.00	0.00	11.76	0.00	0.00	0.93
Arthropoda	Tanaidacea	33.33	25.00	0.00	0.00	0.00	0.00	0.93
Cnidaria	Anthozoa	0.00	0.00	0.00	0.00	0.00	2.00	0.47

Table 4.2.20: Station-wise distribution of meiofauna parameters in Tarapur

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon November 2015									
TP1	17.32	24.42	20.87	21	64	42	2	2	2
TP2	20.13	33.69	26.91	38	47	42	1	1	1
TP3	127.91	695.17	411.54	20	90	55	2	2	2
TP4	997.12	4663.64	2830.38	127	801	464	4	4	4
TP5	69.72	81.06	75.39	55	92	74	3	3	3
TP6	8094.32	11933.96	10014.14	4512	5248	4880	6	7	6
Premonsoon May 2016									
TP1	27.25	41.93	34.59	35	58	47	2	3	2
TP2	9.48	12.24	10.86	11	13	12	1	1	1
TP3	411.12	554.94	483.03	311	451	381	3	5	4
TP4	298.29	779.15	538.72	188	706	447	3	4	3
TP5	1052.36	1336.2	1194.28	109	283	196	7	8	7
TP6	718.91	3904.55	2311.73	274	2404	1340	5	6	5

Table 4.2.21: Percentage composition of meiofauna off Tarapur during November 2015

Groups	TP1	TP2	TP3	TP4	TP5	TP6	Average
Bivalves	1.67	0.00	0.00	0.00	0.00	0.00	0.01
Foraminiferans	11.66	0.00	0.00	0.15	52.87	3.13	3.25
Halacaroids	0.00	0.00	0.00	0.00	1.93	0.01	0.03
Harpacticoids	0.00	0.00	90.48	32.90	1.93	0.90	7.56
Nauplius	0.00	0.00	0.00	7.34	0.00	0.59	1.60
Nematodes	86.67	100.00	9.52	59.61	43.27	94.85	87.13
Oligochaetes	0.00	0.00	0.00	0.00	0.00	0.20	0.16
Polychaetes	0.00	0.00	0.00	0.00	0.00	0.30	0.24

Table 4.2.22: Percentage composition of meiofauna off Tarapur during May 2016

Groups	TP1	TP2	TP3	TP4	TP5	TP6	Average
Foraminiferans	1.52	0.00	0.37	0.79	5.42	3.33	2.51
Halacaroids	0.00	0.00	0.00	0.00	0.00	0.11	0.06
Harpacticoids	4.55	0.00	1.11	2.22	0.36	0.26	0.85
Nauplius	0.00	0.00	0.00	0.00	2.17	0.58	0.50
Nematodes	92.42	100.00	97.59	96.68	58.48	95.51	93.02
Nemerteans	0.00	0.00	0.00	0.00	1.81	0.00	0.15
Oligochaetes	0.00	0.00	0.37	0.00	0.72	0.16	0.20
Ostracods	1.52	0.00	0.00	0.00	0.36	0.05	0.09
Polychaetes	0.00	0.00	0.56	0.32	29.96	0.00	2.57
Turbellarians	0.00	0.00	0.00	0.00	0.36	0.00	0.03
Zoea	0.00	0.00	0.00	0.00	0.36	0.00	0.03

Table 4.3.1: Water quality off Bassein/Ulhas estuary during November 2015

Parameter	Level	BS1	BS2	BS3			BS4			BS5			BS6	BS7		
		Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Avg*	Min	Max	Avg
Temperature(°C)	S	28.0	28.0	27.0	28.0	27.5	25.0	29.0	27.4	27.0	28.0	27.5	29.0	29.1	29.5	29.3
	B	28.5	28.5	26.5	28.5	27.5	25.5	28.5	27.3	27.5	27.5	27.5	28.0	28.0	28.0	28.0
		(30.0)	(30.0)	(28.0)	(29.0)	(28.5)	(26.0)	(30.5)	(28.6)	(30.0)	(31.0)	(30.5)	32.5	(32.5)	(34.5)	(33.5)
SS(mg/l)	S	323	360	252	378	315	332	580	456	117	222	169	287	180	247	214
	B	378	505	256	424	340	427	620	524	161	266	214	427	205	268	236
Turbidity(NTU)	S	141.3	227.8	168.9	180.2	174.6	40.3	64.6	54.5	160.2	166.4	163.3	134.7	135.9	152.3	144.1
	B	155.0	226.8	177.8	185.6	181.7	45.8	65.5	56.8	169.7	170.8	170.3	135.1	142.5	159.4	151.0
pH	S	8.0	7.8	7.7	8.0	7.9	7.5	7.9	7.7	7.6	7.6	7.6	7.4	7.3	7.4	7.4
	B	8.0	7.9	7.7	8.0	7.9	7.5	7.8	7.6	7.6	7.6	7.6	7.3	7.3	7.3	7.3
Salinity(ppt)	S	34.6	27.8	24.3	34.1	29.2	23.7	30.5	26.7	25.5	30.5	28.0	15.7	11.2	15.9	13.6
	B	34.6	27.8	24.4	34.6	29.5	23.9	30.7	26.8	25.7	30.7	28.2	15.8	11.7	17.3	14.5
DO (mg/l)	S	5.1	4.4	2.5	4.8	3.6	0.6	7.0	2.5	0.6	1.3	1.0	1.0	<0.2	1.0	0.5
	B	3.8	3.2	3.8	5.1	4.4	1.3	3.8	2.4	1.3	2.2	1.7	0.6	0.3	1.3	0.8
BOD (mg/l)	S	1.5	2.5	1.3	4.4	2.9	1.0	2.3	1.6	1.0	19.0	10.0	38.0	25.4	31.7	28.5
	B	1.6	1.2	1.3	3.5	2.4	1.0	2.3	1.6	0.3	25.4	12.8	31.7	28.3	38.3	33.3
PO ₄ ³⁻ -P (μmol/l)	S	2.5	4.4	7.5	9.8	8.7	3.6	6.5	5.1	5.4	7.0	6.2	7.6	7.0	7.5	7.3
	B	1.4	16.1	7.6	11.2	9.4	3.6	7.1	5.3	0.8	5.6	3.2	7.8	7.7	8.2	8.0
TP(μmol/l)	S	3.9	11.3	15.6	17.2	16.4	9.0	13.5	11.3	10.3	12.2	11.3	13.2	8.5	12.2	10.4
	B	3.8	19.8	13.4	20.8	17.1	11.9	13.1	12.5	8.6	10.1	9.4	12.4	10.5	15.8	13.1
NO ₃ ⁻ -N (μmol/l)	S	23.4	35.7	44.8	62.1	53.4	47.4	67.3	56.3	46.7	58.2	52.4	38.8	25.7	40.6	33.1
	B	5.7	42.7	26.1	45.7	35.9	52.7	65.8	58.9	57.3	63.0	60.1	51.3	13.3	41.4	27.3
NO ₂ ⁻ -N(μmol/l)	S	0.3	0.3	1.5	3.1	2.3	0.6	7.6	2.7	3.5	4.9	4.2	11.0	8.6	14.7	11.7
	B	0.4	8.8	0.1	5.6	2.9	0.1	3.0	1.4	0.6	0.9	0.7	8.1	5.4	13.3	9.3
NH ₄ ⁺ -N(μmol/l)	S	1.4	3.7	2.4	4.2	3.3	0.9	24.5	5.9	1.6	1.7	1.6	28.9	24.1	33.5	28.8
	B	9.6	3.8	1.4	2.6	2.0	1.6	17.0	6.6	0.8	3.2	2.0	20.0	10.7	15.8	13.2
TN(μmol/l)	S	52.0	55.6	58.2	59.5	58.8	82.9	82.9	82.9	97.9	106.8	102.3	111.4	117.6	128.5	123.0
	B	43.3	77.9	55.5	56.9	56.2	70.3	80.5	75.4	89.6	101.1	95.4	82.8	82.0	99.0	90.5
PHc(μg/l)	1m	5.1	2.3	4.6	8.3	6.5	9.9	11.2	10.6	12.2	15.4	13.8	16.0	16.7	17.8	17.3
Phenol (μg/l)	S	80.9	88.1	59.3	109.2	84.2	57.8	81.1	69.5	97.7	120.2	109.0	70.1	55.4	64.3	59.9

* Average of two readings

Air temperature given in parenthesis

Table 4.3.1 (Contd 1)

Parameter	Level	BS8	BS9			BS10			BS11			BS12		
		Avg*	Min	Max	Avg									
Temperature(°C)	S	29.0	28.2	31.0	29.5	28.5	29.0	28.8	26.0	29.5	27.8	29.0	29.5	29.3
	B	28.0	28.0	30.5	29.2	28.0	28.0	28.0	25.0	29.0	27.0	28.0	29.2	28.6
		(33.0)	(26.5)	(33.5)	(30.6)	(29.0)	(32.0)	(30.5)	(30.0)	(30.5)	(30.3)	(31.0)	(32.0)	(31.5)
SS(mg/l)	S	221	177	282	230	81	105	93	196	278	237	189	317	253
	B	233	178	281	229	79	105	92	217	309	263	236	353	295
Turbidity(NTU)	S	213.6	60.2	70.9	66.1	34.7	38.3	36.5	59.7	63.3	61.5	109.8	110.5	110.2
	B	201.1	60.3	71.4	67.3	36.5	39.5	38.0	57.9	60.3	59.1	105.4	106.3	105.8
pH	S	7.3	7.3	7.5	7.4	7.3	7.4	7.4	7.3	7.4	7.4	7.3	7.3	7.3
	B	7.3	7.2	7.4	7.3	7.2	7.3	7.3	7.3	7.3	7.3	7.2	7.3	7.3
Salinity(ppt)	S	12.7	5.8	11.4	8.5	4.5	4.5	4.5	1.2	2.4	1.8	0.5	0.7	0.6
	B	13.1	5.9	11.6	8.7	4.6	10.8	7.7	1.3	2.4	1.8	0.4	0.8	0.6
DO (mg/l)	S	1.0	0.6	2.5	1.5	0.3	1.9	1.1	0.3	0.3	0.3	0.6	0.6	0.6
	B	0.3	0.3	1.9	1.0	<0.2	1.3	0.6	<0.2	<0.2	<0.2	0.6	0.6	0.6
BOD (mg/l)	S	31.7	28.5	38.0	33.3	19.0	25.4	22.2	34.9	38.0	36.4	50.7	62.2	56.4
	B	34.9	31.7	32.7	32.2	25.4	31.7	28.5	38.2	43.2	40.7	58.2	69.2	63.7
PO ₄ ³⁻ (μmol/l)	S	7.9	0.2	13.2	3.9	2.4	5.2	3.8	3.0	3.6	3.3	3.6	3.6	3.6
	B	12.9	0.5	7.7	4.3	4.4	7.0	5.7	3.7	5.8	4.7	2.8	3.7	3.3
TP(μmol/l)	S	14.5	2.4	6.3	4.4	7.9	12.2	10.0	4.5	4.9	4.7	4.1	4.5	4.3
	B	14.9	3.1	4.4	3.7	10.5	15.8	13.1	4.5	9.8	7.1	3.6	5.1	4.4
NO ₃ ⁻ -N (μmol/l)	S	25.7	22.6	67.5	41.2	28.1	68.4	48.2	10.5	11.8	11.2	12.5	15.5	14.0
	B	34.3	20.9	64.5	40.2	30.0	68.5	49.2	11.4	13.2	12.3	14.1	14.2	14.2
NO ₂ ⁻ -N(μmol/l)	S	14.9	1.2	6.2	3.8	2.8	3.2	3.0	0.7	0.7	0.7	0.6	1.3	1.0
	B	11.1	1.1	6.6	3.9	2.7	3.3	3.0	1.3	1.6	1.4	0.3	1.3	0.8
NH ₄ ⁺ -N(μmol/l)	S	27.0	41.9	89.4	57.6	38.9	69.5	54.2	77.4	88.1	82.7	78.4	87.5	83.0
	B	26.1	25.7	73.6	51.5	29.5	66.8	48.1	96.6	97.0	96.8	85.5	91.6	88.6
TN(μmol/l)	S	84.4	139.3	170.8	155.0	141.5	148.2	144.8	124.6	146.3	135.4	119.6	125.0	122.3
	B	101.7	125.0	154.9	140.0	143.9	153.0	148.4	168.0	184.5	176.2	122.0	142.1	132.0
PHe(μg/l)	1m	23.0	25.1	40.0	32.6	30.0	35.2	32.6	33.0	37.0	35.0	38.0	46.0	42.0
Phenol (μg/l)	S	88.3	85.2	107.8	96.5	53.8	59.5	56.6	183.1	207.6	195.4	89.0	126.7	107.9

*Average of two readings

Air temperature given in parenthesis

Table 4.3.1 (Contd 2)

Parameter	Level	BS13		
		Min	Max	Avg
Temperature(°C)	S	30.0	30.0	30.0
	B	29.0	29.0	29.0
		(31.0)	(31.5)	(31.3)
SS(mg/l)	S	224	263	243
	B	264	337	301
Turbidity(NTU)	S	55.3	63.4	59.4
	B	61.1	67.2	64.2
pH	S	7.2	7.2	7.2
	B	7.0	7.2	7.1
Salinity(ppt)	S	0.3	0.5	0.4
	B	0.3	0.5	0.4
DO (mg/l)	S	1.0	1.0	1.0
	B	<0.2	0.3	0.2
BOD (mg/l)	S	47.6	63.4	55.5
	B	90.3	95.1	92.7
PO ₄ ³⁻ (μmol/l)	S	2.8	7.6	5.2
	B	3.2	8.2	5.7
TP(μmol/l)	S	6.3	12.4	9.4
	B	8.0	13.9	10.9
NO ₃ ⁻ -N (μmol/l)	S	10.1	12.4	11.3
	B	8.1	10.6	9.3
NO ₂ ⁻ -N(μmol/l)	S	0.5	0.5	0.5
	B	0.8	2.2	1.5
NH ₄ ⁺ -N(μmol/l)	S	75.6	78.9	77.3
	B	81.3	90.6	86.0
TN(μmol/l)	S	119.6	178.4	149.0
	B	126.5	185.3	155.9
PHc(μg/l)	1m	49.8	53.0	51.4
Phenol (μg/l)	S	85.9	132.5	109.2

Air temperature given in parenthesis

Table 4.3.2: Water quality off Bassein/Ulhas estuary during May 2016

Parameter	Level	BS1		BS2		BS3			BS4			BS5			BS6		
		Avg*	Avg*	Min	Max	Avg	Min	Max									
Temperature(°C)	S	33.0	32.5	31.5	32	31.8	28.0	31.0	29.5	28.5	30.0	29.3	32.0	34.0	33.0		
	B	32.0	32.0	31.0	31.5	31.3	27.5	31.5	28.9	28.0	28.5	28.3	31.5	32.0	31.8		
		(36.0)	35.5	(33.0)	(35.0)	(34.0)	(29.0)	(34.0)	(31.7)	(30.0)	(33.0)	(31.5)	(29.0)	(32.5)	(30.8)		
SS(mg/l)	S	361	409	219	326	272	167	187	177	190	199	195	190	200	195		
	B	381	439	260	353	307	171	219	195	204	278	241	219	233	226		
Turbidity(NTU)	S	122.7	220.8	175.3	192.9	184.1	44.9	65.3	52.2	111.7	159.8	135.8	125.9	130.2	128.1		
	B	170.6	236.7	163.9	187.5	175.1	47.8	65.2	56.9	145.9	178.2	162.1	134.8	136.9	135.9		
pH	S	8.1	8.1	8.1	8.1	8.1	7.8	8.0	7.9	7.8	8.0	7.9	7.5	7.7	7.6		
	B	8.2	8.2	8.2	8.2	8.2	7.8	8.0	7.9	7.5	8.0	7.8	7.6	7.8	7.7		
Salinity(ppt)	S	36.7	36.2	34.5	35.5	35.0	30.2	35.4	33.3	27.2	32.3	29.8	21.1	26.7	23.9		
	B	36.8	36.3	34.5	35.6	35.1	30.3	35.7	33.4	27.2	33.4	30.3	21.9	28.2	25.1		
DO (mg/l)	S	6.2	5.5	4.4	5.7	5.1	1.9	6.1	3.2	3.2	3.8	3.5	0.6	1.0	0.8		
	B	5.2	5.7	4.1	5.1	4.6	1.9	5.4	3.1	2.9	4.1	3.5	0.6	1.3	1.0		
BOD (mg/l)	S	0.9	1.2	1.0	1.6	1.3	1.9	1.9	1.9	2.5	2.5	2.5	43.2	50.7	46.9		
	B	0.6	1.5	1.3	1.9	1.6	1.6	1.6	1.6	2.5	3.2	2.8	38.0	44.4	41.2		
PO ₄ ³⁻ -P (μmol/l)	S	1.2	2.3	2.8	6.0	4.4	3.3	7.5	5.3	4.1	9.4	6.7	6.2	7.4	6.8		
	B	1.9	2.7	3.1	6.2	4.6	3.3	7.6	5.4	4.7	10.5	7.6	7.4	13.0	10.2		
TP(μmol/l)	S	2.1	3.6	3.6	7.2	5.4	7.2	15.7	10.7	5.5	6.0	5.8	9.7	12.9	11.3		
	B	2.4	4.1	4.2	7.0	5.6	2.5	14.3	7.9	5.6	16.6	11.1	13.1	21.5	17.3		
NO ₃ ⁻ -N (μmol/l)	S	3.2	2.5	2.0	3.0	2.5	19.8	34.7	28.5	25.1	37.5	31.3	20.7	26.9	23.8		
	B	4.3	11.8	10.5	19.1	14.8	19.2	38.9	29.2	32.9	38.2	35.6	20.2	27.5	23.8		
NO ₂ ⁻ -N(μmol/l)	S	0.4	0.5	0.7	0.7	0.7	0.3	1.8	0.7	2.5	5.2	3.9	6.0	7.1	6.6		
	B	0.3	0.3	0.2	0.3	0.2	0.1	0.5	0.3	2.7	2.9	2.8	5.9	6.0	5.9		
NH ₄ ⁺ -N(μmol/l)	S	2.6	2.8	1.4	1.8	1.6	0.8	2.6	1.7	1.3	1.6	1.5	5.2	6.4	5.8		
	B	2.6	1.6	1.0	1.8	1.4	1.0	2.7	1.7	1.3	1.5	1.4	5.2	6.5	5.8		
TN(μmol/l)	S	36.8	39.9	42.1	50.1	46.1	43.4	54.7	50.2	52.5	59.0	55.8	72.0	87.0	79.5		
	B	41.1	76.8	46.0	50.6	48.3	44.1	58.8	51.6	50.1	66.4	58.3	68.8	89.4	79.1		
PHe(μg/l)	1m	1.9	2.3	1.4	2.5	2.0	3.5	3.6	3.6	2.8	3.1	3.0	1.5	3.6	2.6		
Phenol (μg/l)	S	85.4	87.6	89.5	89.5	89.5	98.9	104.6	101.8	97.7	125.8	111.7	100.8	105.4	103.1		

*Average of two readings

Air temperature given in parenthesis

Table 4.3.2 (Contd 1)

Parameter	Level	BS7			BS8			BS9			BS10			BS11		
		Min	Max	Avg	Min	Max	Avg									
Temperature(°C)	S	32.0	33.0	32.5	34.5	35.0	34.8	30.5	34.5	33.3	34.0	34.0	34.0	29.0	33.0	30.5
	B	28.0	31.5	29.8	32.5	34.5	33.5	30.0	34.0	32.7	33.0	33.5	33.3	28.5	32.5	30.1
	(32.5)	(34.0)	(33.3)	(35.0)	(37.0)	(36.0)	(30.0)	(35.0)	(33.8)	(35.5)	(36.0)	(35.8)	(22.0)	(31.0)	(25.9)	
SS(mg/l)	S	87	233	160	242	348	295	150	155	153	69	90	79	187	209	199
	B	217	319	268	292	437	364	169	177	173	75	104	89	196	221	209
Turbidity(NTU)	S	142.3	162.6	152.5	195.7	201.6	198.7	60.3	70.4	64.3	34.3	37.6	35.9	40.1	65.8	53.8
	B	135.4	189.3	162.4	172.1	232.7	202.4	60.2	70.2	66.3	35.7	39.0	37.3	42.3	59.8	49.1
pH	S	7.6	7.7	7.7	7.4	7.6	7.5	7.5	7.6	7.6	7.5	7.6	7.6	7.5	7.5	7.5
	B	7.6	7.7	7.7	7.5	7.5	7.5	7.5	7.6	7.6	7.5	7.6	7.6	7.4	7.5	7.5
Salinity(ppt)	S	20.9	26.0	23.4	19.6	24.4	22	15.7	22.3	19.0	13.1	20.5	16.8	12.1	15.0	13.5
	B	21.0	27.1	24.0	19.9	24.9	22.4	16.1	22.5	19.1	14.3	21.0	17.7	12.2	15.2	13.7
DO (mg/l)	S	0.6	1.6	1.1	0.3	1.0	0.6	1.6	2.5	2.1	<0.2	1.3	0.6	0.2	0.4	0.3
	B	0.6	1.9	1.3	0.3	1.3	0.8	1.6	2.9	2.1	<0.2	1.0	0.5	0.1	0.4	0.3
BOD (mg/l)	S	30.3	38.7	34.5	38	58.2	48.1	19.1	44.4	31.7	19.0	25.4	22.2	43.2	58.2	50.7
	B	28.4	35.7	32.0	31.7	50.7	41.2	25.3	38.0	31.7	25.4	31.7	28.5	44.4	62.4	53.4
PO ₄ ³⁻ -P (μmol/l)	S	6.4	7.5	7.0	5.7	7.7	6.7	1.7	16.6	11.1	14.3	15.3	14.8	15.2	24.6	20.5
	B	6.5	7.7	7.1	5.9	7.9	6.9	1.9	17.3	11.4	14.5	14.9	14.7	15.3	25.6	19.2
TP(μmol/l)	S	7.3	8.4	7.9	11.1	16.2	13.7	0.6	3.4	2.0	18.9	20.3	19.6	19.1	19.1	19.1
	B	7.6	8.7	8.1	11.4	16.5	14.0	0.8	3.1	2.0	19.6	20.0	19.8	25.2	33.0	29.1
NO ₃ ⁻ -N (μmol/l)	S	17.6	34.9	26.2	13.0	15.0	14.0	9.6	18.8	14.8	46.7	48.4	47.6	0.2	4.2	2.4
	B	36.7	36.9	36.8	14.4	16.2	15.3	11.1	21.0	15.9	44.6	48.2	46.4	1.6	5.2	3.3
NO ₂ ⁻ -N(μmol/l)	S	9.7	15	12.3	11.6	15	13.3	9.8	11.1	10.4	2.8	10.2	6.5	1.0	4.2	1.7
	B	9.4	14.1	11.7	11.5	14.3	12.9	9.3	10.5	9.8	3.3	9.5	6.4	0.7	3.3	1.4
NH ₄ ⁺ -N(μmol/l)	S	5.3	6.6	5.9	4.2	5.5	4.8	16.0	24.9	20.6	20.8	35.3	28.1	42.4	49.2	46.6
	B	5.4	6.4	5.9	4.4	5.2	4.8	11.1	25.6	20.2	20.8	35.0	27.9	43.8	49.5	46.9
TN(μmol/l)	S	81.6	109.2	95.4	72.5	74.2	73.3	73.6	85.1	79.3	125.6	130.6	128.1	272.1	272.1	272.1
	B	86.4	104.6	95.5	73.6	88.1	80.8	68.4	80.5	74.4	118.9	137.1	128.0	285.1	312.5	298.8
PHc(μg/l)	1m	2.4	4.4	3.4	24.7	26.0	25.4	26.4	31.0	28.7	32.6	34.0	33.3	34.5	36.0	35.3
Phenol (μg/l)	S	102.5	107.8	105.1	97.4	97.7	97.6	142.1	147.1	144.6	119.0	144.0	131.5	208.1	209.3	208.7

Air temperature given in parenthesis

Table 4.3.2 (Contd 2)

Parameter	Level	BS12			BS13		
		Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	33.0	34.0	33.5	33.5	34.0	33.8
	B	32.5	33.5	33.0	33.0	33.0	33.0
		(35.0)	(36.0)	(35.5)	(35.0)	(36.0)	(35.5)
SS(mg/l)	S	256	281	268	179	184	182
	B	237	341	289	190	190	190
Turbidity(NTU)	S	110.3	111.5	110.9	56.3	68.2	62.3
	B	106.3	109.3	107.8	66.8	66.8	66.8
pH	S	7.2	7.3	7.3	7.1	7.2	7.2
	B	7.3	7.4	7.4	7.2	7.2	7.2
Salinity(ppt)	S	8.9	10.7	9.8	2.7	7.7	5.2
	B	9.6	10.8	10.2	8.9	8.9	8.9
DO (mg/l)	S	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	B	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BOD (mg/l)	S	52.0	76.4	64.2	158.0	226.0	192.0
	B	63.4	69.7	66.5	190.0	190.0	190.0
PO ₄ ³⁻ -P (μmol/l)	S	1.5	2.2	1.9	14.7	22.5	18.6
	B	1.3	2.8	2.0	19.3	19.3	19.3
TP(μmol/l)	S	1.7	2.0	1.8	20.6	27.1	23.9
	B	1.7	2.8	2.2	26.8	28.5	27.7
NO ₃ ⁻ -N (μmol/l)	S	13.9	22.0	18.0	12.5	13.2	12.9
	B	16.4	20.4	18.4	12.2	12.2	12.2
NO ₂ ⁻ -N(μmol/l)	S	1.3	1.4	1.3	4.4	4.5	4.5
	B	1.3	1.5	1.4	5.2	5.2	5.2
NH ₄ ⁺ -N(μmol/l)	S	19.5	26.4	23.0	21.5	32.8	27.2
	B	21.3	26.6	24.0	22.5	22.5	22.5
TN(μmol/l)	S	176.4	204.4	190.4	186.3	192.6	189.5
	B	173.2	202.0	187.6	189.3	188.4	188.9
PHc(μg/l)	1m	38.6	40.2	39.4	64.4	72.1	68.2
Phenol (μg/l)	S	161.5	173.0	167.3	174.2	191.0	182.6

Air temperature given in parenthesis

Table 4.3.3: Sediment quality off Bassein/Ulhas estuary during November 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BS1	8.7	47.3	44	7.6	148	944	7.3	34	60	92	105	0.15	0.15	8.1	1.0	488	0.4
BS2	98.4	1.1	0.5	5.4	438	1935	9.8	69	108	49	127	0.18	0.06	16.6	0.0	1264	2.0
BS3	98.4	1.2	0.4	5.8	390	2211	9.2	65	91	44	121	0.19	0.05	9.1	0.0	1319	2.5
BS4	20.7	61.7	17.6	6.8	291	905	8.1	68	90	133	177	0.23	0.04	10.1	1.1	1316	1.1
BS5	24.1	41.7	34.2	7.2	411	1419	10.0	96	114	111	109	0.32	0.20	11.2	0.5	1712	2.6
BS6	16.3	38.2	45.5	7.0	248	1043	7.4	37	76	122	197	0.55	0.35	12.6	1.9	1391	2.8
BS7	4.0	81.6	14.4	7.8	249	1476	8.0	62	91	142	167	0.33	0.53	18.3	1.9	1559	2.5
BS8	2.9	55.7	41.4	7.5	238	1252	8.1	46	74	115	185	0.32	0.44	20.3	2.0	1496	5.0
BS9	1.1	45.8	53.1	8.2	300	1605	9.0	55	95	118	171	0.90	0.52	16.5	2.3	1594	3.1
BS10	0.6	69.2	30.2	7.1	187	1449	7.4	41	68	101	136	0.32	0.61	18.3	1.5	1317	5.6
BS11	2.9	55.7	41.4	7.6	286	1025	8.3	49	82	138	257	0.37	0.55	21.9	2.8	1496	3.6
BS12	1.2	51.4	47.4	7.5	391	904	8.1	49	80	135	269	0.34	0.91	20.8	3.0	1682	8.8
BS13	3.9	69.9	26.2	6.7	586	1018	8.4	60	116	210	706	0.77	0.46	76.5	1.8	1793	8.0

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.3.4: Sediment quality off Bassein/Ulhas estuary during May 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BS1	19.2	37.6	43.2	6.9	213	822	7.5	58	78	110	112	0.21	0.22	15.8	1.4	684	0.3
BS2	11.1	42.6	46.3	6.5	293	936	7.8	62	87	141	234	0.18	0.41	21.1	1.7	1048	1.2
BS3	17.1	48.3	34.6	6.5	230	1178	7.6	58	81	119	120	0.17	0.44	16.5	2.6	982	1.5
BS4	3.7	93.9	2.4	6.5	277	862	7.7	64	85	126	169	0.19	0.40	9.03	2.0	1254	0.9
BS5	39.4	44.2	16.4	6.3	358	1234	8.7	83	99	97	95	0.26	0.08	11.44	0.4	1489	2.8
BS6	4.7	61.5	33.8	6.6	197	1336	7.1	53	76	113	118	0.23	0.40	20.0	2.1	1005	2.2
BS7	17.9	41.7	40.4	7.7	226	1342	7.9	56	83	129	152	0.27	0.33	21.9	2.3	1926	2.4
BS8	14.2	55.8	30	7.2	257	955	8.2	63	89	124	140	0.39	0.46	20.5	1.9	1528	4.6
BS9	24.1	41.7	34.2	7.1	228	1727	7.6	57	83	129	150	0.36	0.44	22.5	2.2	1903	3.7
BS10	59.6	25.8	14.6	6.3	296	1374	7.8	64	96	125	164	0.38	0.49	23.8	2.1	2074	4.5
BS11	6.6	46.6	48.8	7.5	230	986	6.5	50	88	135	155	0.25	0.58	16.6	1.9	1029	3.8
BS12	24.4	48.8	26.8	6.8	691	1064	7.5	58	91	167	309	0.42	0.51	30.5	3.7	2224	7.5
BS13	34.5	56.9	8.6	7.0	645	1120	8.5	66	128	231	777	0.52	0.42	68.6	1.4	858	5.8

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.3.5: Microbial counts in surface water (CFU/ml) off Bassein/Ulhas estuary during November 2015

Type of Bacteria	Population in surface water (CFU/ml)																			
	BS1		BS2		BS3		BS4		BS5		BS6		BS7		BS8		BS9		BS10	
	Fl-Eb	Eb-Fl	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb		
TVC	7 X10 ³	4 X10 ³	17 X10 ³	23 X10 ³	34 X10 ³	29 X10 ³	7 X10 ³	9 X10 ³	2 X10 ³	1 X10 ³	17 X10 ³	14 X10 ³	20 X10 ³	28 X10 ³	21 X10 ³	13 X10 ³	12 X10 ³	9 X10 ³		
TC	30	30	150	480	250	30	20	10	500	200	1500	2000	1400	1800	730	520	1650	1200		
FC	10	20	110	370	190	20	10	10	400	200	1500	1800	1380	1700	500	400	1300	800		
ECLO	10	10	80	120	170	10	10	10	200	100	1400	1800	1200	1500	480	380	1240	700		
SHLO	ND	ND	ND	20	210	ND	ND	ND	ND	ND	200	ND	ND	ND	ND	ND	ND	200		
SLO	ND	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	500	700		
PKLO	20	30	20	160	90	ND	60	30	ND	ND	2000	2800	1400	4200	580	210	200	150		
VLO	ND	40	10	80	80	ND	ND	60	200	ND	1500	1200	1000	900	620	370	1100	960		
VPLO	ND	10	ND	30	80	20	ND	40	100	ND	600	ND	ND	ND	ND	ND	ND	ND		
VCLO	ND	30	10	50	ND	ND	ND	20	100	ND	900	1200	1000	900	620	370	1100	960		
PALO	ND	ND	ND	ND	ND	ND	ND	ND	200	ND	1200	500	200	300	180	70	160	130		
SFLO	10	50	ND	60	110	ND	20	ND	ND	ND	500	100	100	ND	120	90	800	290		

ND – Below Detectable Level

Table 4.3.6: Microbial counts in sediments (CFU/g) off Bassein/Ulhas estuary during November 2015

Type of Bacteria	Population in sediment (CFU/g)									
	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10
TVC X10 ³	80	60	90	110	60	500	330	4000	900	600
TC	ND	ND	200	120	120	ND	3000	5000	5000	2500
FC	ND	ND	100	70	90	ND	2200	4000	4200	2100
ECLO	ND	ND	100	100	40	ND	2000	3800	300	1800
SHLO	ND	ND	100	ND	40	ND	ND	ND	ND	ND
SLO	ND	ND	100	ND	60	2000	ND	ND	ND	100
PKLO	ND	ND	ND	120	70	ND	ND	2000	ND	1600
VLO	ND	ND	ND	90	200	ND	ND	ND	ND	ND
VPLO	ND	ND	100	60	170	ND	ND	ND	ND	ND
VCLO	ND	ND	200	30	30	ND	ND	ND	ND	100
PALO	ND	ND	ND	ND	ND	ND	ND	1800	ND	400
SFLO	ND	ND	ND	ND	ND	4000	ND	3000	ND	3000

ND – Below Detectable Level

Table 4.3.7: Microbial counts in Surface Water (CFU/ml) off Bassein/Ulhas estuary during May 2016

Type of Bacteria	Population in surface water (CFU/ml)																			
	BS1	BS2	BS3		BS4		BS5		BS6		BS7		BS8		BS9		BS10			
	Fl-Eb	Fl-Eb	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl
TVCX10 ³	30	240	60	40	80	110	80	30	180	70	190	180	170	190	184	200	180	190		
TC	NG	NG	10	10	20	40	180	NG	50	50	140	160	91	82	728	200	1100	1100		
FC	NG	NG	10	10	20	40	140	NG	30	20	90	39	57	80	448	92	608	1000		
ECLO	NG	NG	10	10	20	40	140	NG	20	10	46	9	34	40	400	160	900	394		
SHLO	NG	NG	NG	NG	NG	NG	NG	NG	60	90	14	40	53	40	680	88	764	765		
SLO	NG	NG	10	NG	NG	NG	NG	NG	NG	NG	NG	NG	1	1	NG	NG	NG	NG		
PKLO	NG	NG	10	NG	40	NG	350	10	30	20	65	280	164	312	NG	16	NG	NG		
VLO	NG	30	40	30	150	20	40	90	80	330	231	264	106	281	140	36	812	700		
VPLO	NG	NG	NG	NG	NG	NG	50	50	310	162	176	23	11	30	23	84	92			
VCLO	NG	30	40	30	150	20	40	40	30	20	69	88	83	270	110	13	728	608		
PALO	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG		
SFLO	NG	NG	NG	NG	NG	NG	10	NG	10	10	4	28	1	2	39	11	61	224		

Table 4.3.8: Microbial counts in Sediments (CFU/g) off Bassein/Ulhas estuary during May 2016

Type of Bacteria	Population in sediment (CFU/g)									
	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10
TVCX10 ⁴	90	240	280	110	30	NO SEDIMENT	150	180	220	196
TC	NG	NG	NG	NG	3000		160	168	124	32
FC	NG	NG	NG	NG	3000		120	57	100	20
ECLO	NG	NG	NG	NG	3000		100	10	228	4
SHLO	NG	NG	NG	NG	NG		80	20	80	42
SLO	NG	NG	NG	NG	NG		20	NG	NG	NG
PKLO	NG	NG	NG	20000	NG		180	280	90	34
VLO	NG	NG	21000	12000	2500		492	125	140	20
VPLO	NG	NG	8000	NG	1000		20	10	80	11
VCLO	NG	NG	13000	12000	1500		472	115	60	9
PALO	NG	NG	NG	NG	NG		NG	NG	NG	NG
SFLO	NG	NG	NG	NG	NG		50	NG	20	3

Table 4.3.9: Range and average of phytoplankton at different stations off Bassein/Ulhas estuary during November 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg
BS1	30-11-2015	1.4	1.8	1.2	1.3	2.1	2.2	2.6	2.6	0.6	0.8	0.5	0.5
		1.6		1.3		2.2		2.6		0.7		0.5	
BS2	30-11-2015	2.5	3.5	2.8	4.9	1.0	1.0	4.1	11.0	2.5	3.7	0.4	0.7
		3.0		3.9		1.0		7.5		3.1		0.6	
BS3	30-11-2015	1.6	3.8	2.1	3.7	2.1	2.8	3.0	4.9	0.8	1.4	0.7	0.7
		2.7		2.9		2.4		4.0		1.1		0.7	
BS4	01-12-2015	0.8	3.9	1.4	5.8	1.1	7.6	2.4	9.9	0.5	1.4	0.4	0.7
		2.6		3.2		3.1		5.8		0.9		0.6	
BS5	01-12-2015	1.4	10.1	3.7	10.0	1.7	2.1	5.0	6.5	0.8	4.9	0.7	1.5
		5.7		6.9		1.9		5.7		2.9		1.1	
BS6	27-11-2015	22.2	33.7	16.6	30.9	2.8	3.6	10.7	16.2	6.2	12.1	1.0	2.9
		28.0		23.7		3.2		13.4		9.1		2.0	
BS9	26-11-2015	33.7	42.4	18.3	40.7	3.4	8.8	5.5	14.5	4.3	9.8	1.9	4.7
		38.7		30.4		6.5		10.7		6.4		3.0	
BS10	26-11-2015	38.0	39.2	11.9	32.0	6.1	12.0	9.2	12.5	3.3	6.3	1.3	2.6
		38.6		22.0		9.0		10.9		4.8		1.9	
BS12	25-11-2015	33.6	36.6	30.2	34.1	13.9	17.6	15.5	23.3	1.9	2.6	1.3	2.2
		35.1		32.1		15.8		19.4		2.3		1.7	
BS13	25-11-2015	4.6	21.8	10.8	13.7	7.1	14.0	6.2	6.6	0.3	3.1	1.6	2.2
		13.2		12.2		10.5		6.4		1.7		1.9	

Table 4.3.10: Range and average of phytoplankton at different stations off Bassein/Ulhas estuary during May 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg
BS1	04-05-2016	1.0	1.1	2.1	2.5	0.1	0.1	1.3	1.5	7.8	13.3	1.4	1.9
		1.0		2.3		0.1		1.4		10.5		1.6	
BS2	04-05-2016	4.3	4.7	2.5	4.1	0.1	0.4	0.9	1.0	11.3	59.1	2.6	4.5
		4.5		3.3		0.2		0.9		35.2		3.5	
BS3	04-05-2016	3.2	5.8	3.1	3.5	0.1	1.7	1.4	1.7	1.8	64.1	1.8	2.5
		4.5		3.3		0.9		1.6		33.0		2.2	
BS4	05-05-2016	2.1	5.5	2.4	5.5	0.1	5.0	1.3	5.3	1.1	50.1	1.0	3.4
		3.8		3.8		1.9		2.8		7.7		1.5	
BS5	05-05-2016	1.7	2.8	4.9	5.0	1.0	2.7	5.4	5.9	1.0	1.8	0.8	0.9
		2.3		5.0		1.9		5.7		1.4		0.9	
BS6	06-05-2016	11.1	35.3	6.0	30.8	0.6	1.3	0.8	3.4	8.6	63.1	1.7	38.0
		23.2		18.4		0.9		2.1		35.9		19.9	
BS9	07-05-2016	20.7	36.3	20.7	35.6	1.2	5.1	1.6	5.1	4.6	26.9	4.9	21.8
		32.1		31.9		3.5		3.3		11.1		11.3	
BS10	07-05-2016	31.0	32.8	27.5	30.5	1.2	1.7	1.4	6.4	18.4	27.6	4.3	22.2
		31.9		29.0		1.4		3.9		23.0		13.3	
BS12	09-05-2016	18.2	21.1	22.1	30.2	2.0	11.3	4.3	8.0	1.6	10.7	2.8	7.1
		19.6		26.2		6.6		6.1		6.2		4.9	
BS13	09-05-2016	2.9	12.6	17.3	17.3	2.4	3.6	8.9	8.9	1.3	3.6	1.9	1.9
		7.8		17.3		3.0		8.9		2.4		1.9	

Table 4.3.11: Range and average of phytoplankton at different stations off Bassein/Ulhas estuary during November 2015

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera									
		S		B		S		B											
		Min	Max	Min	Max	Min	Max	Min	Max	S	B								
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg										
BS1	30-11-2015	53.0		46.2		13.0		10.0		Anacystis	Cylindrotheca								
BS2	30-11-2015	162.4		84.6		14.0		9.0		Cylindrotheca	Thalassiosira								
BS3	30-11-2015	32.4	156.0	74.2	228.4	7.0	11.0	10.0	14.0	Navicula	Navicula								
		94.2		151.3		9.0		12.0		Thalassiosira	Lithodesmium								
		38.4		104.2		31.2		83.6		Anacystis	Thalassiosira								
BS4	01-12-2015	71.3		57.4		13.0		10.0		Chaetoceros	Chaetoceros								
		19.0		940.0		14.2		141.2		Pseudonitzschia	Amphiprora								
		479.5		77.7		11.0		9.0		Skeletonema	Plagioselmis								
BS5	01-12-2015	199.2		4218.0		80.0		101.2		Thalassiosira	Navicula								
		3105.0		546.0		14.0		6.0		Scenedesmus	Cylindrotheca								
		4190.0		7496.2		1086.8		7532.0		Odontella	Thalassiosira								
BS6	27-11-2015	6168.2		6322.2		1608.0		7011.2		Thalassiosira	Thalassiosira								
		6245.2		4309.6		14.0		12.0		Scenedesmus	Skeletonema								
		5843.1		4309.4		19.5		16.0		Anabaena	Scenedesmus								
BS7	NO SAMPLE COLLECTED																		
BS8	NO SAMPLE COLLECTED																		
BS9	26-11-2015	17916.2		22747.2		16244.4		49529.2		Merimopedia	Chlorella								
		20331.7		32886.8		15.0		23.0		Anabaena	Merimopedia								
		2783.8		3444.4		1333.2		2485.0		Monoraphidium	Aulacoseira								
BS10	26-11-2015	4190.0		7496.2		1086.8		7532.0		Thalassiosira	Monoraphidium								
		5843.1		4309.4		18.0		21.0		Scenedesmus	Anabaena								
		17.0		22.0		10.0		22.0		Anabaena	Scenedesmus								
BS11	NO SAMPLE COLLECTED																		
BS12	25-11-2015	17916.2		22747.2		16244.4		49529.2		Merimopedia	Merimopedia								
		20331.7		32886.8		15.0		23.0		Monoraphidium	Aulacoseira								
		2783.8		3444.4		1333.2		2485.0		Thalassiosira	Monoraphidium								
BS13	25-11-2015	17.0		22.0		10.0		22.0		Merimopedia	Merimopedia								
		17.0		22.0		10.0		22.0		Pandorina	Aulacoseira								
		3114.1		1909.1		20.0		17.5		Aulacoseira	Scenedesmus								
		17.0		22.0		10.0		22.0		Anabaena	Eudorina								

Table 4.3.12: Range and average of phytoplankton at different stations off Bassein/Ulhas estuary during May 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera									
		S		B		S		B											
		Min	Max	Min	Max	Min	Max	Min	Max	S	B								
		Avg		Avg		Avg		Avg											
BS1	04-05-2016	62.2		18.6		8		6		<i>Skeletonema</i>	<i>Thalassiosira</i>								
BS2	04-05-2016	131.2		109.6		18		15		<i>Thalassiosira</i>	<i>Cylindrotheca</i>								
BS3	04-05-2016	109.2	377. 4	106	106. 4	15	18	1 0	14	<i>Ceratium</i>	<i>Thalassionema</i>								
		243.3		106.2		16.5		12		<i>Cylindrotheca</i>	<i>Pleurosigma</i>								
BS4	05-05-2016	80.8	162	69	94.8	8	15	1 0	13	<i>Thalassiosira</i>	<i>Thalassiosira</i>								
		121.4		81.9		11.5		11.5		<i>Cylindrotheca</i>	<i>Nitzschia</i>								
BS5	05-05-2016	49.2	70.6	49. 2	55.2	7	10	7	11	<i>Thalassionema</i>	<i>Skeletonema</i>								
		59.9		52.2		8.5		9		<i>Chaetoceros</i>	<i>Thalassionema</i>								
BS6	06-05-2016	295.8	3851. 4	14 5. 2	3331 .2	10	17	8	15	<i>Thalassiosira</i>	<i>Thalassiosira</i>								
		2073.6		1738.2		13.5		11.5		<i>Skeletonema</i>	<i>Odontella</i>								
BS7	NO SAMPLE COLLECTED																		
BS8	NO SAMPLE COLLECTED																		
BS9	07-05-2016	28 25. 4	32 85. 6	165 0	20 17 .2	13	1 3	12	15	<i>Thalassiosira</i>	<i>Thalassiosira</i>								
		3055.5		1833.6		13		13.5		<i>Cylindrotheca</i>	<i>Cylindrotheca</i>								
BS10	07-05-2016	35 24. 8	38 94	303 8.8	36 50 .2	11	1 7	1 0	14	<i>Skeletonema</i>	<i>Odontella</i>								
		3709.4		3344.5		14		12		<i>Odontella</i>	<i>Skeletonema</i>								
BS11	NO SAMPLE COLLECTED																		
BS12	09-05-2016	5001 .6	816 6.8	508 1.6	60 93. 8	1 2	15	16	16	<i>Merimopedia</i>	<i>Merimopedia</i>								
		6584.2		5587.7		13.5		16		<i>Cyclotella</i>	<i>Cyclotella</i>								
BS13	09-05-2016	3366 .4	177 63. 4	45996		10	12	10		<i>Pleurosigma</i>	<i>Oscillatoria</i>								
		10564.9				11				<i>Oscillatoria</i>	<i>Skeletonema</i>								
										<i>Cylindrotheca</i>	<i>Cylindrotheca</i>								

Table 4.3.13: Percentage composition of phytoplankton population at different station off Bassein/Ulhas estuary during November 2015

Name of the genera	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10	BS11	BS12	BS13	Total %
<i>Thalassiosira</i>	20.2	42.9	23.2	20.2	65.1	76.4			23.2	29.7		2.2	2.6	30.6
<i>Merimopedia</i>	-	-	-	-	-	1.8			18.4	11.7		36.0	54.8	12.3
<i>Skeletonema</i>	-	-	32.2	28.0	13.5	4.2			4.0	2.2		0.2	<0.1	8.4
<i>Scenedesmus</i>	-	-	-	3.7	3.9	6.0			14.0	12.7		2.0	4.6	4.7
<i>Chlorella</i>	-	-	-	-	-	-			-	-		45.4	-	4.5
<i>Cylindrotheca</i>	20.2	4.9	9.0	2.3	1.6	1.3			1.6	1.9		<0.1	0.2	4.3
<i>Anabaena</i>	-	-	-	-	-	4.3			14.3	14.9		3.1	3.0	4.0
<i>Navicula</i>	18.1	5.7	6.5	7.0	0.2	<0.1			<0.1	-		0.2	1.4	3.9
<i>Chaetoceros</i>	4.0	14.6	7.3	4.7	2.9	<0.1			-	-		-	-	3.4
<i>Ankistrodesmus</i>	-	-	-	-	-	-			11.6	8.9		<0.1	0.2	2.1
<i>Aulacoseira</i>	-	-	-	-	-	-			-	0.8		4.9	14.4	2.0
<i>Odontella</i>	4.6	3.2	2.9	3.4	3.1	0.8			0.1	0.6		-	-	1.9
<i>Rhizosolenia</i>	-	1.9	3.3	4.8	2.2	1.3			0.1	<0.1		-	-	1.4
<i>Pseudo-nitzschia</i>	4.0	-	0.4	7.8	0.7	-			-	-		-	-	1.3
<i>Thalassiothrix</i>	2.2	2.4	3.3	3.1	0.9	-			-	-		-	-	1.2
<i>Amphipora</i>	-	7.3	3.3	-	0.7	-			-	-		-	-	1.1
<i>Gyrodinium</i>	8.1	0.8	0.4	0.8	-	-			<0.1	-		-	-	1.0
<i>Dictyosphaerium</i>	-	-	-	-	-	-			3.9	5.5		<0.1	0.5	1.0
<i>Pleurosigma</i>	2.2	3.2	1.6	-	0.3	0.6			0.4	0.3		<0.1	<0.1	0.9
<i>Dinobrayon</i>	-	-	-	-	2.5	1.4			4.3	-		-	-	0.8
<i>Pandorina</i>	-	-	-	-	-	-			-	-		<0.1	8.0	0.8
<i>Plagioselmis</i>	-	6.5	-	1.6	-	-			-	-		-	-	0.8
<i>Lithodesmium</i>	6.0	-	-	0.8	-	-			-	-		-	-	0.7
<i>Monoraphidium</i>	-	-	-	-	-	-			-	-		4.4	2.1	0.7
<i>Unknown</i>	-	-	-	-	-	-			-	6.3		<0.1	-	0.6
<i>Gymnodinium</i>	4.0	-	0.8	0.8	-	-			<0.1	-		-	-	0.6

	-	2.4	0.4	0.8	0.4	<0.1	NS	0.6	0.5	NS	0.1	0.5	0.6
<i>Nitzschia</i>	-							-	-		-	-	0.4
<i>Peridinium</i>	-	-	0.4	3.9	-	-		0.2	0.1		-<0.1	0.4	0.4
<i>Amphora</i>	2.0	0.2	-	1.6	-	-		0.1	-		-	-	0.4
<i>Guinardia</i>	2.0	-	1.7	-	-	-		-	-		-	-	0.4
<i>Teleaulax</i>	-	-	-	-	0.2	1.3		0.2	0.1		-	-	0.3
<i>Cyclotella</i>	-	-	0.8	0.8	-	0.4		-	-		<0.1	0.2	0.3
<i>Spirulina</i>	-	-	-	-	-	-		<0.1	0.2		0.6	1.6	0.2
<i>Synedra</i>	-	2.4	-	-	-	-		-	-		-	-	0.2
<i>Closterium</i>	-	-	-	-	-	-		-	1.9		<0.1	0.2	0.2
<i>Torodinium</i>	2.0	-	-	-	-	-		-	-		-	-	0.2
<i>Melosira</i>	-	-	-	-	-	-		-	0.3		0.2	1.4	0.2
<i>Eudorina</i>	-	-	-	-	-	-		-	-		<0.1	1.8	0.2
<i>Alexandrium</i>	-	0.8	-	0.8	-	-		-	-		-	-	0.2
<i>Pyramimonas</i>	-	-	-	-	-	-		-	-		-	-	0.2
<i>Eutreptiella</i>	-	-	-	-	-	-		1.3	-		-	-	0.1
<i>Pediastrum</i>	-	-	-	-	0.2	-		-	<0.1		-	1.0	0.1
<i>Leptocylindrus</i>	-	-	-	-	1.1	<0.1		-	-		-	-	0.1
<i>Sphaerocystis</i>	-	-	-	-	-	-		1.1	-		<0.1	-	0.1
<i>Surirella</i>	-	0.8	-	-	-	-		<0.1	<0.1		-	-	<0.1
<i>Trichodesmium</i>	-	-	0.8	-	-	-		<0.1	-		-	-	<0.1
<i>Pinnularia</i>	-	-	0.8	-	-	-		-	-		-	-	<0.1
<i>Oscillatoria</i>	-	-	-	-	<0.1	-		<0.1	<0.1		0.2	0.4	<0.1
<i>Actinastrum</i>	-	-	-	-	-	-		-	0.2		<0.1	0.3	<0.1
<i>Oocystis</i>	-	-	-	-	-	-		0.3	<0.1		<0.1	<0.1	<0.1
<i>Asterionella</i>	-	-	0.4	-	-	-		-	-		-	-	<0.1
<i>Prorocentrum</i>	-	-	0.4	-	-	-		-	-		-	-	<0.1
<i>Selenastrum</i>	-	-	-	-	-	-		<0.1	0.3		-	-	<0.1
<i>Thalassionema</i>	-	-	-	-	0.4	-		-	-		-	-	<0.1
<i>Coscinodiscus</i>	0.2	-	-	<0.1	-	-		-	-		<0.1	-	<0.1
<i>Triceratium</i>	-	-	-	-	0.2	-		-	-		-	-	<0.1
<i>Chlorococcus</i>	-	-	-	-	-	-		-	0.2		-	-	<0.1
<i>Micratinium</i>	-	-	-	-	-	-		-	0.2		-	-	<0.1
<i>Bacillaria</i>	-	-	-	-	-	-		-	-		-	0.2	<0.1
<i>Chlorococcum</i>	-	-	-	-	-	-		-	<0.1		-	0.2	<0.1
<i>Euglinoid</i>	-	-	-	-	-	-		-	-		<0.1	<0.1	<0.1

<i>Golenkinia</i>	-	-	-	-	-	-		<0.1	-		-	-	<0.1
<i>Ditylum</i>	-	-	<0.1	-	-	-		-	-		-	-	<0.1
<i>Staurastrum</i>	-	-	-	-	-	-		-	-		<0.1	<0.1	<0.1
<i>Ceratium</i>	-	-	-	-	-	-		-	-		-	-	<0.1
<i>Gyrosigma</i>	-	-	-	-	-	-		<0.1	-		-	-	<0.1
<i>Chodatella</i>	-	-	-	-	-	-		-	-		<0.1	<0.1	<0.1
<i>Amphipleura</i>	-	-	-	-	-	-		-	<0.1		-	-	<0.1
<i>Eulothrix</i>	-	-	-	-	-	-		-	-		<0.1	-	<0.1
<i>Diploneis</i>	-	-	-	-	-	<0.1		-	-		-	-	<0.1
<i>Fragillaria</i>	-	-	-	-	-	-		<0.1	-		-	-	<0.1
Total	100	100	100	100	100	100		100	100		100	100	100

Table 4.3.14: Percentage composition of phytoplankton population at different station off Bassein/Ulhas estuary during May 2016

Name of the genera	BS1	BS2	BS3	BS4	BS5	BS6	NS	BS7	BS8	BS9	BS10	NS	BS11	BS12	BS13	Total %
<i>Actinastrum</i>	-	-	-	-	-	-		-	-	-	-		0.10	-	0.10	
<i>Akashiwo</i>	-	1.66	-	-	-	-		-	-	-	-		-	-	0.17	
<i>Amphora</i>	-	-	-	0.49	-	-		-	-	-	-		-	-	<0.1	
<i>Anabaena</i>	-	-	-	-	-	-		-	-	-	-		0.83	0.55	0.14	
<i>Ankistrodesmus</i>	-	-	-	-	-	-		-	-	-	-		<0.1	-	<0.1	
<i>Aulacoseira</i>	-	-	-	-	-	-		-	-	-	-		0.23	<0.1	<0.1	
<i>Cerataulina</i>	-	-	-	-	-	0.79		-	1.15	<0.1	-		<0.1	-	0.20	
<i>Cerataulina</i>	-	-	-	-	-	0.22		-	<0.1	1.12	-		<0.1	-	0.14	
<i>Ceratium</i>	9.90	1.66	0.29	-	-	-		-	-	-	-		-	-	1.18	
<i>Chaetoceros</i>	-	8.31	29.47	5.90	2.68	-		-	0.20	0.13	-		-	-	4.67	
<i>Chlamydomonas</i>	-	-	-	-	-	-		-	-	-	-		0.59	-	<0.1	
<i>Closterium</i>	-	-	-	-	-	-		-	0.45	<0.1	-		-	-	<0.1	
<i>Coscinodiscus</i>	-	3.32	0.92	1.62	1.07	-		-	-	-	-		-	-	0.69	
<i>Cryptomonas</i>	-	-	-	-	0.36	-		-	<0.1	<0.1	-		-	-	<0.1	
<i>Cyclotella</i>	-	0.83	1.72	-	2.68	0.31		-	0.86	3.30	-		11.95	1.44	2.31	
<i>Cylindrotheca</i>	12.38	10.80	3.72	12.79	6.42	4.04		-	19.31	19.46	-		2.69	0.23	9.18	
<i>Dactyliosolen</i>	-	-	-	-	-	-		-	0.35	-	-		-	-	<0.1	
<i>Diploneis</i>	-	<0.1	-	<0.1	-	-		-	-	-	-		-	-	<0.1	

Table 4.3.15: Range and average (parenthesis) of zooplankton at different stations off Bassein/Ulhas estuary during November 2015

Station (Date)	Biomass (ml/100m ³)	Population (no x 10 ³ /100m ³)	Total Groups (no)	Major group (%)
BS1 (30.11.2015)	2.0-3.8 (2.9)	14.9-22.1 (18.5)	14-15 (15)	Copepods (75.4), lamellibranchs (15.8), gastropods (3.0), decapod larvae (2.4), <i>Lucifer</i> sp. (1.9), Chaetognaths (1.1), <i>Acetes</i> sp. (0.1), fish eggs (0.1), fish larvae (0.1), others (0.1).
BS2 (30.11.2015)	0.7-1.1 (0.9)	6.1-6.4 (6.2)	9-12 (11)	Copepods (93.4), Chaetognaths (2.6), lamellibranchs (1.6), decapod larvae (0.9), gastropods (0.8), <i>Acetes</i> sp. (0.2), fish larvae (0.1), <i>Lucifer</i> sp. (0.1), mysids (0.1), ctenophores (0.1), others (0.1).
BS3 (30.11.2015)	0.3-1.4 (0.9)	1.8-7.3 (4.7)	1-14 (8)	Copepods (73.8), lamellibranchs (15.8), decapod larvae (4.7), gastropods (3.1), <i>Lucifer</i> sp. (1.3), Chaetognaths (0.9), fish egg (0.1), fish larvae (0.1), mysids (0.1), others (0.1).
BS4 (1.12.2015)	0.7-9.3 (3.2)	3.0-85.0 (19.8)	8-13 (11)	Copepods (84.1), Chaetognaths (6.2), lamellibranchs (5.9), decapod larvae (1.6), gastropods (1.0), mysids (0.5), <i>Acetes</i> sp. (0.4), <i>Lucifer</i> sp. (0.1), others (0.1).
BS5 (1.12.2015)	0.5-4.5 (2.5)	4.2-60.4 (32.3)	9-11 (10)	Copepods (91.4), Chaetognaths (4.1), lamellibranchs (2.7), mysids (0.8), decapod larvae (0.6), gastropods (0.3), others (0.1).
BS6 (27.11.2015)	1.3-1.8 (1.6)	12.8-21.2 (17.0)	5-6 (6)	Copepods (99.7), foraminiferans (0.2), others (0.1).
BS7 (27.11.2015)	0.8-1.0 (0.9)	5.9-7.8 (6.8)	3-5 (4)	Copepods (99.9), others (0.1).

BS8 (27.11.2015)	0.7-1.7 (1.2)	3.5-12.9 (8.2)	3-5 (4)	Copepods (99.1), lamellibranchs (0.6), polychaetes (0.1), gastropods (0.1), foraminiferans (0.1), others (0.1).
BS9 (26.11.2015)	0.3-4.9 (1.4)	5.8-26.1 (11.9)	2-5 (4)	Copepods (99.3), cladocerans (0.2), gastropods (0.1), lamellibranchs (0.2), polychaetes (0.1), others (0.1).
BS10 (26.11.2015)	1.3-1.4 (1.4)	14.9-20.8 (17.9)	5-10 (5)	Copepods (99.6), Cladocerans (0.3), others (0.1).
BS11 (25.11.2015)	0.9-1.1 (1.0)	9.8-14.2 (12.00)	3-4 (4)	Cladocerans (54.9), copepods (44.9), polychaetes (0.1), others(0.1).
BS12 (25.11.2015)	2.7-6.7 (4.7)	51.8-258.9 (155.3)	4-5 (5)	Cladocerans (55.7), Copepods (44.2), others (0.1).
BS13 (25.11.2015)	1.4-1.6 (1.5)	24.3-92.9 (58.6)	2-4 (3)	Cladocerans (58.6), copepods (41.3), others (0.1).

Table 4.3.16: Range and average (parenthesis) of zooplankton at different stations off Bassein/Ulhas estuary during May 2016

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
BS1 (04/05/2016)	3.6-3.7 (3.7)	49.6-53.5 (51.6)	9-12 (11)	Copepods (93.3), lamellibranchs (5.5), chaetognaths (0.5), decapod larvae (0.5), gastropods (0.4), fish larvae (0.1), others (0.1).
BS2 (04/05/2016)	0.5-1.1 (0.8)	5.4-6.6 (6.0)	9	Copepods (89.8), lamellibranchs (4.7), decapod larvae (2.8), gastropods (1.2), chaetognaths (0.9), foraminifera (0.5), others (0.1).
BS3 (04/05/2016)	2.3-7.6 (5.0)	68.7-243.1 (155.9)	10-12 (11)	Copepods (96.1), lamellibranchs (1.7), gastropods (1.2), decapod larvae (0.7), chaetognaths (0.1), appendicularians (0.1), others (0.1).
BS4 (05/05/2016)	1.5-4.2 (2.8)	32.2-131.5 (65.4)	7-13 (9)	Copepods (92.8), gastropods (4.4), chaetognaths (1.2), lamellibranchs (1.1),

				decapod larvae (0.4), others (0.1).
BS5 (05/05/2016)	1.3-1.9 (1.6)	15.5-50.8 (33.1)	7	Copepods (95.6), gastropods (2.4), decapod larvae (1.0), chaetognaths (0.5), lamellibranchs (0.4), others (0.1).
BS6 (06/05/2016)	3.3-9.0 (6.2)	32.7-75.9 (37.9)	4-9 (7)	Copepods (91.1), gastropods (6.9), chaetognaths (1.1), lamellibranchs (0.5), decapod larvae (0.3), medusae (0.1), others (0.1).
BS7 (06/05/2016)	0.2-6.0 (3.1)	1.9-36.0 (18.9)	7-10 (9)	Copepods (53.3), decapod larvae (38.9), chaetognaths (7.4), medusae (0.2), fish larvae (0.1), gastropods (0.1), others (0.1).
BS8 (06/05/2016)	1.1-3.1 (2.1)	4.4-45.6 (24.9)	1-4 (3)	Copepods (99.9), others (0.1).
BS9 (05/05/2016)	0.5-7.2 (2.7)	1.4-235.5 (54.7)	1-5 (3)	Copepods (99.8), <i>Lucifer</i> sp. (0.1), others (0.1).
BS10 (07/05/2016)	2.8-3.0 (2.9)	20.5-56.9 (38.7)	3-4 (4)	Copepods (99.9), others (0.1).
BS11 (10/05/2016)	1.1-6.9 (2.9)	21.0-67.2 (35.3)	1-9 (2)	Copepods (97.6), decapod larvae (2.1), chaetognaths (0.1), gastropods (0.1), others (0.1).
BS12 (09/05/2016)	3.2-12.3 (7.8)	28.1-72.3 (50.2)	3	Copepods (99.9), others (0.1).
BS13 (05/05/2016)	3.8	40.8	1	Copepods (99.9), others (0.1).

Table 4.3.17: Abundance of Zooplankton off Bassein/Ulhas estuary during November 2015

Table 4.3.18: Abundance of zooplanktons off Bassein/Ulhas estuary during May 2016

Faunal Groups	BS 1	BS 2	BS 3	BS 4	BS 5	BS 6	BS 7	BS 8	BS 9	BS 10	BS 11	BS 12	BS 13
Foraminiferans	+	+	+	+	-	+	-	-	-	-	+	-	-
Siphonophores	+	+	-	+	+	-	+	+	+	-	+	-	-
Medusae	+	-	+	+	+	+	+	-	+	+	-	-	-
Chaetognaths	+	+	+	+	+	+	+	-	-	+	+	-	-
Polychaetes	+	+	+	+	-	-	-	-	+	-	+	+	-
Ostracods	+	-	-	-	-	-	-	-	-	-	-	-	-
Copepods	+	+	+	+	+	+	+	+	+	+	+	+	+
Amphipods	-	-	-	+	-	-	-	-	-	-	-	-	-
Mysids	-	-	-	+	+	+	-	-	+	-	-	-	-
Lucifer sp.	-	-	-	-	+	-	+	-	+	-	-	-	-
Decapod larvae	+	+	+	+	-	+	+	+	-	+	+	+	-
Stomatopods	+	-	+	+	-	-	-	-	-	-	-	-	-
Gastropods	+	+	+	+	+	+	+	-	-	-	+	-	-
Lamellibranchs	+	+	+	+	-	+	+	-	-	-	+	-	-
Appendicularians	-	+	+	-	-	-	-	-	-	-	-	-	-
Fish Eggs	+	+	+	+	+	-	-	-	+	-	-	-	-
Fish Larvae	+	+	+	+	-	+	+	-	-	+	+	+	-
Isopods	-	-	+	+	-	-	+	-	-	-	-	-	-
Acetes sp.	-	-	-	+	-	-	+	-	-	-	-	-	-
Marine Insects	-	-	+	-	-	-	-	-	-	-	-	-	-
Pycnogonids	-	-	-	-	-	-	-	+	+	-	-	-	-

Table 4.3.19: Range and average of macrofauna off Bassein/Ulhas estuary during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (November 2015)									
BS1	0.00	0.30	0.10	0	375	131	0	4	2
BS2	Not collected								
BS3	0.00	0.20	0.10	0	25	13	0	1	1
BS4	0.14	1.56	0.97	0	1150.00	575.00	0.00	2	1
BS5	0.03	0.40	0.20	50	150	94	1	2	1
BS6	0.55	1.35	0.96	1150	3800	2644	2	3	3
BS7	0.10	1.50	0.80	250	925	607	2	2	2
BS8	0.05	4.40	2.70	100	3100	2263	1	2	2
BS9	0.00	0.70	0.40	0	825	350	1	1	1
BS10	0.00	0.03	0.01	0	25	13	0	1	1
BS11	0.60	64.10	22.10	325	14200	5338	1	2	1
BS12	0.00	0.00	0.00	0	0	0	0	0	0
BS13	0.39	1.06	0.68	250	550	388	1	1	1
Overall	0.00	64.10	2.42	0	14200	1035	0	4	1
Premonsoon (May 2016)									
BS1	0.10	7.50	3.00	350	625	426	3	7	5
BS2	0	1.67	0.44	0	175	75	0	3	1
BS3	0.10	4.60	2.30	50	600	312	1	4	3
BS4	0.149	0.35	0.28	175	775	406	2	3	2
BS5	0.00	0.40	0.10	0	250	75	0	1	1
BS6	0.24	1.76	0.69	1075	7425	3076	2	5	4
BS7	0.3	1.4	0.8	2275	4325	3243	1	4	2
BS8	0.29	401	2.1	1850	7025	5251	3	4	3
BS9	3.2	24.1	11.5	450	6900	2369	2	2	2
BS10	0	0.19	0.05	0	125	56.25	0	2	0.75
BS11	0	0	0	0	0	0	0	0	0
BS12	2.1	5.5	3.5	2175	4700	3619	2	2	2
BS13	0	0.15	0.04	0	25	6.25	0	1	0.25
Overall	0.00	401.00	1.91	0	7425	1455	0	7	2

Table 4.3.20: Percentage composition of macrofauna off Bassein/Ulhas estuary during November 2015

Phylum	Groups	Stations													Average
		BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9/10	BS11	BS12	BS13	BS14	
Annelida	Polychaeta	57.25	No collection	100.00	20.65	86.17	89.60	73.15	97.49	100.00	0.00	97.41	NIL	0.00	89.48
Annelida	Oligochaeta	0.00		0.00	79.35	0.00	0.42	26.85	0.00	0.00	50.00	2.59		100.00	7.36
Arthropoda	Amphipoda	23.66		0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00		0.00	0.28
Arthropoda	Pycnogonida	0.00		0.00	0.00	0.00	3.25	0.00	0.00	0.00	0.00	0.00		0.00	0.63
Arthropoda	Decapoda Larvae	0.00		0.00	0.00	0.00	0.20	0.00	0.36	0.00	0.00	0.00		0.00	0.16
Arthropoda	Brachyura	4.58		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.04
Cnidaria	Hydrozoa colony	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00		0.00	0.04
Echinodermata	Holothuroidea	14.50		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.12
Mollusca	Pelecypoda	0.00		0.00	0.00	0.00	0.62	0.00	0.36	0.00	0.00	0.00		0.00	0.24
Phoronida	Phoronida	0.00		0.00	0.00	0.00	5.49	0.00	1.79	0.00	0.00	0.00		0.00	1.66
Chordata	Fish larvae	0.00		0.00	0.00	13.83	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.08

Table 4.3.21: Percentage composition of macrofauna off Bassein/Ulhas estuary during May 2016

Phylum	Groups	Stations													Average
		BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10	BS11	BS12	BS13	
Annelida	Polychaeta	7.28	66.67	86.22	21.54	100.00	87.48	0.00	98.06	94.98	88.89	NIL	6.22	0.00	48.85
Annelida	Oligochaeta	0.00	0.00	0.00	76.92	0.00	11.57	0.00	0.00	5.02	0.00		93.78	0.00	26.66
Arthropoda	Amphipoda	63.15	0.00	1.92	0.00	0.00	0.00	0.19	0.00	0.00	0.00		0.00	0.00	1.81
Arthropoda	Tanaidacea	8.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.25
Arthropoda	Decapoda Larvae	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.00		0.00	0.00	0.12
Arthropoda	Pychnogonida	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.12
Arthropoda	Isopoda	0.00	16.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.08
Arthropoda	Mysida	0.00	8.33	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.08
Arthropoda	Anomura	0.00	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.04
Arthropoda	Brachyura	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00		0.00	0.00	0.04
Arthropoda	Penaeid shrimp	0.00	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.04
Echinodermata	Ophiuroidea	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.04
Mollusca	Pelecypoda	5.87	0.00	1.92	1.54	0.00	0.00	98.86	0.00	0.00	11.11		0.00	100.00	21.01
Mollusca	Gastropoda	0.00	8.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.04
Nemertea	Nemertea	5.87	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00		0.00	0.00	0.20
Phoronida	Phoronida	0.00	0.00	0.00	0.00	0.00	0.95	0.00	1.94	0.00	0.00		0.00	0.00	0.45
Sipuncula	Sipuncula	3.05	0.00	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.17

Table 4.3.22: Station-wise distribution of meiofauna parameters in Bassein/Ulhas estuary

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Post-monsoon (November 2015)									
BS1	101.59	213.19	157.39	40	170	105	3	4	3
BS2	No collection								
BS3	70.36	105.08	87.72	72	134	103	4	4	4
BS4	305.26	411.16	358.21	98	277	187	6	7	6
BS5	0	225.12	112.56	0	239	120	0	4	2
BS6	No collection								
BS7	0	761.52	380.76	0	57	28	0	3	1
BS8	No collection								
BS9	64.23	104.33	84.28	93	170	132	6	8	7
BS10	87.51	100.55	94.03	117	139	128	5	6	5
BS11	No collection								
BS12	203.41	321.39	262.4	180	350	265	5	8	6
BS13	99.37	136.79	118.08	98	491	294	6	6	6
Premonsoon (May 2016)									
BS1	228.91	304.55	266.73	18	18	18	2	4	3
BS2	186.24	243.6	214.92	34	51	42	1	3	2
BS3	96.54	220.8	158.67	90	306	198	2	2	2
BS4	8.42	289.3	148.86	3	98	50	2	7	4
BS5	893.12	8666.88	4780.0	534	7313	3924	1	2	1
BS6	No collection								
BS7	3.21	10.41	6.81	4	27	15	1	1	1
BS8	No collection								
BS9	385.26	555.68	470.47	149	212	180	8	9	8
BS10	8.19	155.53	81.86	14	185	100	2	5	3
BS11	No collection								
BS12	92.11	95.93	94.02	27	28	28	2	5	3
BS13	46.4	82.84	64.62	8	23	15	2	2	2

Table 4.3.23: Percentage composition of meiofauna off Bassein/Ulhas estuary during November 2015

Groups	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10	BS11	BS12	BS13	Average
Cladocerans	0.00	No collection	0.00	0.00	0.00	No collection	0.00	No collection	0.00	0.00	No collection	0.27	0.00	0.05
Copepods	7.43		17.12	29.43	3.55		0.00		1.61	1.66		1.07	0.24	6.81
Foraminiferans	0.00		2.05	1.13	0.59		0.00		66.67	83.43		60.70	80.05	43.74
Gastropods	0.00		0.00	0.00	0.00		0.00		2.69	2.76		0.00	0.00	0.52
Gastrotrichs	0.00		0.00	0.00	0.00		0.00		2.15	0.00		0.00	0.00	0.21
Halacaroids	0.00		0.00	0.75	0.59		0.00		2.15	3.31		2.67	4.57	2.18
Insects	0.00		0.00	0.00	0.00		0.00		1.08	0.55		0.00	0.00	0.16
Nauplius	0.00		0.68	1.51	0.00		0.00		0.00	0.00		0.27	0.00	0.31
Nematodes	86.49		41.10	64.91	95.27		62.50		21.51	7.73		32.89	13.46	40.47
Oligochaetes	2.70		0.00	0.00	0.00		2.50		0.00	0.00		0.00	0.00	0.26
Ostracods	0.00		0.00	0.75	0.00		0.00		0.54	0.00		0.27	0.00	0.21
Polychaetes	3.38		39.04	1.51	0.00		35.00		1.08	0.55		0.00	0.00	4.31
Rotifers	0.00		0.00	0.00	0.00		0.00		0.00	0.00		1.87	0.96	0.57
Tardigrades	0.00		0.00	0.00	0.00		0.00		0.00	0.00		0.00	0.48	0.10
Turbellarians	0.00		0.00	0.00	0.00		0.00		0.54	0.00		0.00	0.24	0.10

Table 4.3.24: Percentage composition of meiofauna off Bassein/Ulhas estuary during May 2016

Groups	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10	BS11	BS12	BS13	Average
Bivalves	0.00	0.00	0.00	0.00	0.00	No collection	0.00	No collection	0.78	0.00	No collection	0.00	0.00	0.03
Cnidarians	0.00	0.00	0.00	0.00	0.00		0.00		5.49	0.00		0.00	0.00	0.22
Copepods	0.00	1.67	0.71	11.27	0.04		0.00		13.73	3.55		10.26	0.00	0.88
Foraminiferans	0.00	0.00	0.00	2.82	0.00		0.00		9.41	7.09		15.38	90.91	0.96
Gastropods	0.00	0.00	0.00	0.00	0.00		0.00		1.18	0.00		0.00	0.00	0.05
Halacaroids	0.00	0.00	0.00	0.00	0.00		0.00		5.10	0.00		0.00	4.55	0.22
Nauplius	0.00	0.00	0.00	30.99	0.00		0.00		0.00	0.00		0.00	0.00	0.34
Nematodes	76.92	96.67	98.93	47.89	99.96		100.00		55.29	85.11		53.85	4.55	96.53
Oligochaetes	3.85	0.00	0.00	1.41	0.00		0.00		0.00	0.00		7.69	0.00	0.08
Ostracods	0.00	0.00	0.00	1.41	0.00		0.00		0.00	3.55		0.00	0.00	0.09
Phoronids	3.85	0.00	0.00	0.00	0.00		0.00		0.00	0.00		0.00	0.00	0.02
Polychaetes	15.38	1.67	0.36	4.23	0.00		0.00		5.49	0.71		12.82	0.00	0.45
Pycnogonids	0.00	0.00	0.00	0.00	0.00		0.00		3.53	0.00		0.00	0.00	0.14

Table 4.4.1: Water quality off Manori during December 2015

Parameter	Level	BYMa4			BYMa5	BYMa6
		Min	Max	Avg	Avg*	Avg*
Temperature(°C)	S	26.0	29.5	28.2	28.0	28.0
	B	26.0	29.0	27.7	27.5	27.5
		(26.5)	(32.0)	(29.3)	(31.5)	(30.0)
SS(mg/l)	S	28	72	50	91	68
	B	62	95	79	85	77
Turbidity(NTU)	S	14.4	30.1	21.8	16.7	22.1
	B	19.2	32.0	25.8	22.3	21.3
pH	S	7.8	8.1	8.0	7.9	7.7
	B	7.9	8.1	8.0	7.9	7.8
Salinity(ppt)	S	31.1	35.0	33.2	32.7	32.6
	B	31.9	35.0	33.3	32.8	31.8
DO (mg/l)	S	3.8	7.0	5.4	3.2	1.9
	B	3.8	6.1	5.0	2.2	2.6
BOD (mg/l)	S	2.9	4.2	3.5	0.3	1.3
	B	2.2	4.8	3.5	0.3	1.3
PO ₄ ³⁻ -P (μmol/l)	S	2.5	7.3	4.9	6.2	13.7
	B	3.0	7.5	4.8	5.7	10.7
TP(μmol/l)	S	4.5	6.6	5.6	7.3	14.5
	B	4.9	7.0	6.0	6.9	12.2
NO ₃ ⁻ -N (μmol/l)	S	6.0	21.3	15.7	15.3	12.7
	B	14.3	20.4	16.6	14.1	8.3
NO ₂ ⁻ -N(μmol/l)	S	2.2	5.4	3.7	3.5	5.6
	B	2.3	5.4	3.5	3.6	4.9
NH ₄ ⁺ -N(μmol/l)	S	1.6	27.4	12.0	21.7	44.4
	B	2.2	19.1	8.7	18.4	35.1
TN(μmol/l)	S	35.8	44.7	40.3	50.8	72.0
	B	31.7	41.7	36.7	45.4	58.8
PHc(μg/l)	1m	2.4	3.0	2.7	3.1	5.5
Phenol (μg/l)	S	88.6	111.6	100.1	62.2	75.8

*Average of two readings

Air temperature given in parenthesis

Table 4.4.2: Water quality off Manori during May 2016

Parameter	Level	BYMa4			BYMa5	BYMa6
		Min	Max	Avg	Avg*	Avg*
Temperature(°C)	S	27.0	32.0	29.4	27.0	27.3
	B	27.5	31.5	29.3	27.5	27.5
		(28.0)	(33.0)	(30.5)	(29.0)	(29.0)
SS(mg/l)	S	72	115	94	91	72
	B	95	157	126	95	95
Turbidity(NTU)	S	14.9	32.5	22.6	15.0	14.9
	B	15.8	31.3	22.7	24.0	25.0
pH	S	7.6	7.7	7.7	7.8	7.8
	B	7.6	7.7	7.7	7.8	7.8
Salinity(ppt)	S	28.8	32.5	31.2	32.4	32.3
	B	29.7	32.5	31.4	32.0	32.0
DO (mg/l)	S	5.4	7.0	6.1	6.7	5.9
	B	2.5	5.7	4.5	4.3	2.7
BOD (mg/l)	S	2.2	4.1	3.2	3.8	2.5
	B	3.2	3.5	3.3	2.6	0.6
PO ₄ ³⁻ -P (μmol/l)	S	15.7	36.9	29.3	13.5	25.0
	B	14.6	34.9	27.7	10.7	21.8
TP(μmol/l)	S	21.5	45.8	33.6	24.7	39.4
	B	22.9	48.2	35.5	22.9	34.0
NO ₃ ⁻ -N (μmol/l)	S	22.0	32.0	26.8	21.0	34.4
	B	22.8	37.5	32.4	15.4	33.5
NO ₂ ⁻ -N(μmol/l)	S	0.7	1.5	1.1	1.9	4.1
	B	0.1	2.6	1.5	2.2	4.6
NH ₄ ⁺ -N(μmol/l)	S	37.9	51.0	46.3	40.2	40.0
	B	30.8	50.4	44.7	26.9	43.5
TN(μmol/l)	S	17.2	41.2	29.2	37.2	63.7
	B	21.6	49.2	35.4	29.2	59.5
PHc(μg/l)	1m	2.5	2.5	2.5	1.8	1.6
Phenol (μg/l)	S	85.9	112.6	99.2	59.5	43.2

* Average of two readings

Air temperature given in parenthesis

Table 4.4.3: Sediment quality off Manori during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BYMA4	5.5	79.5	15	8.0	189.6	1115.0	8.4	42.4	57.0	103.5	130.0	1.1	0.24	28.8	1.9	314	3.9
BYMA5	13.1	70.7	16.2	8.1	204.6	882.4	8.5	36.5	54.4	103.1	157.6	2.8	0.34	22.7	2.1	234	5.8
BYMA6	39.5	40.2	20.3	8.1	182.4	759.6	7.5	33.2	59.5	126.6	150.2	1.1	0.28	18.5	1.9	309	12.2

Remark: - *on dry weight basis except PHc which is in wet wt.

Table 4.4.4: Sediment quality off Manori during May 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BYMA4	13.8	68.4	17.9	7.0	167	981	7.4	37	50	91	114	1.2	0.2	25.4	1.7	320	3.4
BYMA5	21.0	60.8	18.2	6.6	168	724	7.0	30	45	85	129	2.1	0.3	18.2	1.7	239	4.8
BYMA6	15.8	34.6	49.6	6.3	142	592	5.9	26	46	99	117	1.1	0.2	20.5	1.5	315	9.5

Remark:-*on dry weight basis except PHc which is in wet wt.

Table 4.4.5: Microbial counts in surface water (CFU/ml) off Manori during 2015-16

Type of Bacteria	Population in surface water (CFU/ml)							
	Postmonsoon (December 2015)				Premonsoon (April 2016)			
	BYMa4		BYMa5	BYMa6	BYMa4	BYMa5	BYMa6	
	Eb	FI					Eb	FI
TVC	15 x 10 ³	8x 10 ³	16 x 10 ³	30 x 10 ³	29 x 10 ³	2 x 10 ³	4 x 10 ³	1 x 10 ³
TC	150	80	160	300	ND	50	30	10
FC	60	ND	ND	350	ND	40	30	10
ECLO	40	ND	ND	240	ND	40	30	10
SHLO	ND	ND	ND	ND	ND	30	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	40	ND	10	ND	30	40	ND	20
VLO	40	ND	30	50	9020	600	100	80
VPLO	20	ND	10	ND	60	NG	70	50
VCLO	20	ND	20	50	30	600	30	30
PALO	ND	ND	ND	40	50	ND	ND	10
SFLO	ND	ND	ND	ND	ND	30	ND	ND

ND – Below Detectable Level

Table 4.4.6: Microbial counts in sediments (CFU/g) off Manori during 2015-16

Type of Bacteria	Population in sediment (CFU/g; dry wt)					
	Postmonsoon (December 2015)			Premonsoon (April 2016)		
	BYMa4	BYMa5	BYMa6	BYMa4	BYMa5	BYMa6
TVC	60 x 10 ³	1500 x 10 ³	200 x 10 ³	11 x 10 ³	9 x 10 ³	2 x 10 ³
TC	ND	ND	80	100	7000	ND
FC	ND	ND	50	100	6000	ND
ECLO	ND	ND	40	500	6000	ND
SHLO	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND
PKLO	700	ND	ND	1800	1100	1000
VLO	ND	4000	2400	4600	10700	4000
VPLO	1000	ND	1000	1600	2700	NG
VCLO	300	4000	1400	3000	8000	4000
PALO	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.4.7: Range and average of phytopigments off Manori during December 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BYMa4	11-12-15	2.4	11.6	2.0	8.5	0.3	2.9	0.8	3.9	0.9	37.3	0.8	3.2
		6.1		4.1		1.5		2.3		6.6		1.9	
BYMa5	11-12-15	8.0	8.0	4.8	4.8	1.6	1.6	3.2	3.2	4.9	4.9	1.5	1.5
		8.0		4.8		1.6		3.2		4.9		1.5	
BYMa6	11-12-15	31.8	32.2	12.4	12.8	2.3	3.3	3.9	4.4	9.6	14.1	2.9	3.2
		32.0		12.6		2.8		4.2		11.9		3.0	

Table 4.4.8: Range and average of phytopigments off Manori during May 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BYMa4	03-05-16	19.7	20.4	19.1	20.4	4.8	4.8	6.3	7.0	4.1	4.2	2.9	3.0
		20.1		19.8		4.8		6.7		4.2		3.0	
BYMa5	03-05-16	23.5	23.8	18.2	20.3	8.4	8.9	11.2	11.2	2.7	2.8	1.6	1.8
		23.6		19.2		8.7		11.2		2.7		1.7	
BYMa6	03-05-16	24.5	29.4	5.0	27.2	7.8	13.8	3.5	15.3	1.8	3.6	1.4	2.7
		27.6		22.2		10.4		12.2		2.8		1.8	

Table 4.4.9: Range and average of phytoplankton population off Manori during December 2015

Station	Date	Cell count				Total genera				Major genera			
		(no x 10 ³ Cells/ L)				(nos.)							
		S		B		S		B					
		Min	Max	Min	Max	Min	Max	Min	Max				
Avg		Avg		Avg		Avg		Avg					
BYMa4	11-12-15	62.0	67.0	44.4	50.4	12.0	14.0	7.0	13.0	<i>Thalassiosira</i>	<i>Thalassiosira</i>		
		64.5		47.4		13.0		10.0		<i>Chaetoceros</i>	<i>Chaetoceros</i>		
BYMa5	11-12-15	60.4		47.6		10.0		11.0		<i>Navicula</i>	<i>Navicula</i>		
										<i>Nitzschia</i>	<i>Nitzschia</i>		
BYMa6	11-12-15	102.0		56.6		11.0		9.0		<i>Anacystis</i>	<i>Cylindrotheca</i>		
										<i>Thalassiosira</i>	<i>Thalassiosira</i>		
										<i>Chaetoceros</i>	<i>Chaetoceros</i>		
										<i>Cylindrotheca</i>	<i>Gyrodinium</i>		

Table 4.4.10: Range and average of phytoplankton population off Manori during May 2016

Station	Date	Cell count				Total genera				Major genera			
		(no x 10 ³ Cells/ L)				(nos.)							
		S		B		S		B					
		Min	Max	Min	Max	Min	Max	Min	Max				
Avg		Avg		Avg		Avg		Avg					
BYMa4	03-05-16	2814.6		2397.8		20		18		<i>Chaetoceros</i>	<i>Chaetoceros</i>		
										<i>Thalassiosira</i>	<i>Pseudo-nitzschia</i>		
BYMa5	03-05-16	553.4		639.2		13		14		<i>Skeletonema</i>	<i>Skeletonema</i>		
										<i>Pseudo-nitzschia</i>	<i>Thalassiosira</i>		
BYMa6	03-05-16	600.0	900.0	335.0	557.8	13.0	14.0	11.0	15.0	<i>Thalassiosira</i>	<i>Chaetoceros</i>		
		750.0		446.4		13.5		13.0		<i>Cryptomonas</i>	<i>Skeletonema</i>		
										<i>Guinardia</i>	<i>Cryptomonas</i>		

Table 4.4.11: Percentage composition of phytoplankton population off Manori during December 2015

Name of the genera	BYMa4	BYMa5	BYMa6	Total Avg.
<i>Alexandrium</i>	<0.1	-	2.5	0.9
<i>Amphiprora</i>	-	1.9	-	0.6
<i>Ceratium</i>	0.9	-	-	0.3
<i>Chaetoceros</i>	16.1	1.9	10.1	9.3
<i>Corethron</i>	-	1.9	-	0.6
<i>Coscinodiscus</i>	2.7	13.0	3.8	6.5
<i>Cyclotella</i>	1.8	-	-	0.6
<i>Cylindrotheca</i>	5.4	22.2	7.6	11.7
<i>Guinardia</i>	0.2	-	-	<0.1
<i>Gymnodinium</i>	0.9	1.9	-	0.9
<i>Gyrodinium</i>	0.9	-	6.3	2.4
<i>Gyrosigma</i>	<0.1	-	-	<0.1
<i>Leptocylindrus</i>	0.4	-	-	0.1
<i>Melosira</i>	1.8	-	-	0.6
<i>Navicula</i>	13.4	16.7	5.0	11.7
<i>Nitzschia</i>	10.7	4.1	-	4.9
<i>Odontella</i>	-	0.2	-	<0.1
<i>Peridinium</i>	0.2	1.9	-	0.7
<i>Pleurosigma</i>	4.5	-	0.3	1.6
<i>Prorocentrum</i>	2.0	1.9	-	1.3
<i>Pyrophacus</i>	<0.1	-	-	<0.1
<i>Rhizosolenia</i>	2.0	-	-	0.7
<i>Skeletonema</i>	-	1.1	0.4	0.5
<i>Surirella</i>	-	1.9	1.3	1.0
<i>Thalassionema</i>	0.2	-	0.5	0.2
<i>Thalassiosira</i>	33.1	27.8	61.8	40.9
<i>Thalassiothrix</i>	2.8	2.0	0.5	1.8
Total	100	100	100	100

Table 4.4.12: Percentage composition of phytoplankton population off Manori during May 2016

Name of the genera	BYMa4	BYMa5	BYMa6	Total %
<i>Amphiprora</i>	-	<0.1	<0.1	<0.1
<i>Asterionellopsis</i>	0.88	-	-	0.29
<i>Bacillaria</i>	0.15	-	-	<0.1
<i>Ceratium</i>	0.15	-	-	<0.1
<i>Chaetoceros</i>	56.40	38.91	6.02	33.78
<i>Corethron</i>	<0.1	-	-	<0.1
<i>Coscinodiscus</i>	<0.1	-	0.15	<0.1
<i>Cryptomonas</i>	-	10.90	34.52	15.14
<i>Cylindrotheca</i>	0.77	3.19	1.09	1.68
<i>Dactyliosolen</i>	0.13	-	0.25	0.13
<i>Diploneis</i>	<0.1	-	-	<0.1
<i>Gonyaulax</i>	-	0.17	-	<0.1
<i>Guinardia</i>	0.88	1.17	1.34	1.13
<i>Gymnodinium</i>	0.58	1.68	0.61	0.95
<i>Gyrodinium</i>	0.19	-	0.42	0.20
<i>Gyrosigma</i>	-	<0.1	-	<0.1
<i>Navicula</i>	0.19	0.84	0.84	0.62
<i>Nitzschia</i>	-	<0.1	0.25	0.10
<i>Odontella</i>	<0.1	-	-	<0.1

<i>Oscillatoria</i>	-	-	<0.1	<0.1
<i>Peridinium</i>	-	0.34	0.84	0.39
<i>Pleurosigma</i>	<0.1	0.50	0.21	0.25
<i>Prorocentrum</i>	<0.1	-	-	<0.1
<i>Protoperidinium</i>	0.15	-	-	<0.1
<i>Pseudo-nitzschia</i>	11.13	<0.1	<0.1	3.74
<i>Rhizosolenia</i>	0.88	0.84	0.28	0.67
<i>Skeletonema</i>	14.54	6.41	2.17	7.71
<i>Surirella</i>	-	-	0.10	<0.1
<i>Thalassionema</i>	<0.1	0.67	0.18	0.31
<i>Thalassiosira</i>	12.66	34.21	50.57	32.48
<i>Triceratium</i>	-	-	<0.1	<0.1
<i>Tropidoneis</i>	<0.1	-	-	<0.1
Total	100	100	100	100

Table 4.4.13: Range and average (parenthesis) of zooplankton at different stations off Manori during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
BYMa4 (11/12/2015)	1.0-9.4 (3.5)	1.0-101.5 (48.9)	11-15 (12)	decapod larvae (4.1), lamellibranchs (3.1), <i>Lucifer sp.</i> (3.0), fish larvae(1.0), gastropods (0.9), polychaetes (0.7), ctenophores (0.2), appendicularians (0.2), fish eggs (0.1), chaetognaths (0.1), others (0.1).
BYMa5 (11/12/2015)	1.3- (1.3)	43.3-43.5 (43.5)	- (12)	copepods (96.4), decapod larvae (1.3), gastropods (0.9), <i>Lucifer sp.</i> (0.7), lamellibranchs (0.6), fish eggs (0.1), chaetognaths (0.1), others (0.1).
BYMa6 (11/12/2015)	0.4-0.8 (0.6)	3.4-8.3 (5.8)	15-16 (16)	copepods (74.5), decapod larvae (13.1), gastropods (6.1), lamellibranchs (3.2), <i>Lucifer sp.</i> (1.5), fish larvae(0.4), chaetognaths (0.4), siphonophores (0.3), fish eggs (0.2), polychaetes (0.2), ctenophores (0.1), isopods (0.1), others (0.1).

Table 4.4.14: Range and Average (parenthesis) of Zooplankton at different stations off Manori during May 2016

Station (Date)	Biomass (ml/100m ³)	Population (no x 10 ³ /100m ³)	Total Groups (No.)	Major group (%)
BYMa4 (03/05/2016)	3.8-94.1 (23.9)	1.5-507.9 (127.4)	6-8 (7)	Copepods (36.4), gastropods (9.5), medusae (2.8), polychaetes (0.7), foraminifera (0.2), lamellibranchs (0.1), others (0.1).
BYMa5 (03/05/2016)	0.4-17.6 (9.0)	6.7-23.6 (15.2)	6-12 (9)	Copepods (68.9), gastropods (16.8), lamellibranchs (6.8), medusae (6.0), foraminifera (0.8), decapod larvae (0.6), others (0.1).
BYMa6 (03/05/2016)	2.6-3.1 (2.9)	38.3-60.3 (49.3)	10-12 (11)	Copepods (64.3), gastropods (13.9), lamellibranchs (12.8), foraminifera (8.6), decapod larvae (0.3), medusae (0.1), others (0.1).

Table 4.4.15: Abundance of Zooplanktons off Manori during December 2015

Faunal groups	BYMa4	BYMa5	BYMa6
Foraminiferans	+	-	+
Siphonophores	+	+	+
Medusae	+	+	+
Ctenophores	+	+	+
Chaetognaths	+	+	+
Polychaetes	+	+	+
Copepods	+	+	+
Amphipods	-	-	+
Mysids	-	-	+
<i>Lucifer</i> sp.	+	+	+
Decapod larvae	+	+	+
Gastropods	+	+	+
Lamellibranchs	+	+	+
Appendicularians	+	-	-
Fish Eggs	+	+	+
Fish Larvae	+	+	+
Isopods	+	-	+
Pycnogonids	-	-	+

Table 4.4.16: Abundance of zooplanktons off Manori during May 2016

Faunal groups	BYMa4	BYMa5	BYMa6
Foraminiferans	+	+	+
Siphonophores	-	-	+
Medusae	+	+	+
Ctenophores	-	-	+
Chaetognaths	-	+	-
Polychaetes	+	+	+
Copepods	+	+	+
Amphipods	+	+	-
Lucifer sp.	-	+	-
Decapod larvae	+	+	+
Gastropods	+	+	+
Lamellibranchs	+	+	+
Appendicularians	-	+	+
Fish Eggs	-	-	+
Fish Larvae	+	+	+
Isopods	-	-	+

Table 4.4.17: Range and average of macrofauna off Manori during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
BYMa4	0.01	0.17	0.09	25	150	106	1	4	3
BYMa5	23.89	74.19	47.59	17025	23950	20633	0	7	5
BYMa6	0.79	7.28	3.54	1200	4975	2438	2	5	3
Overall	0.01	74.19	17.07	25	23950	7726	0	7	4
Premonsoon May 2016									
BYMa4	0.14	19.60	5.35	300	1275	856	1	5	3
BYMa5	1.84	3.86	2.94	2575	4000	3419	3	8	5
BYMa6	197.06	513.06	322.66	925	2250	1606	3	6	5
Overall	0.14	513.06	110.32	300	4000	1960	1	8	4

Table 4.4.18: Percentage composition of macrofauna off Manori during December 2015

Phylum	Groups	Stations			Average
		BYMa4	BYMa5	BYMa6	
Annelida	Polychaeta	52.94	24.60	73.08	31.32
Annelida	Oligochaeta	11.76	0.00	0.51	0.14
Arthropoda	Amphipoda	11.76	37.04	0.00	31.88
Arthropoda	Isopoda	0.00	0.32	0.00	0.28
Arthropoda	Decapoda Larvae	5.88	0.00	0.00	0.03
Arthropoda	Pychnogonida	0.00	0.04	0.00	0.03
Cnidaria	Anthozoa	0.00	2.87	0.00	2.46
Mollusca	Pelecypoda	0.00	1.78	1.28	1.70
Mollusca	Gastropoda	5.88	0.69	0.26	0.66
Nemertea	Nemertea	11.76	0.00	0.00	0.07
Phoronida	Phoronida	0.00	32.67	24.87	31.43

Table 4.4.19: Percentage composition of macrofauna off Manori during May 2016

Phylum	Groups	Stations			Average
		BYMa4	BYMa5	BYMa6	
Annelida	Polychaeta	85.40	85.37	50.97	75.98
Annelida	Oligochaeta	2.19	0.00	0.00	0.32
Arthropoda	Amphipoda	1.46	0.73	3.89	1.70
Arthropoda	Pychnogonida	0.00	0.55	1.17	0.64
Arthropoda	Anomura	0.73	0.00	0.00	0.11
Arthropoda	Isopoda	0.00	0.18	0.00	0.11
Arthropoda	Mysida	0.73	0.00	0.00	0.11
Arthropoda	Penaeid shrimp	0.73	0.00	0.00	0.11
Cnidaria	Anthozoa	0.00	0.91	2.72	1.28
Cnidaria	Hydrozoa colony	0.73	0.00	0.00	0.11
Mollusca	Pelecypoda	0.00	0.55	14.01	4.14
Mollusca	Gastropoda	0.73	1.10	0.00	0.74
Nemertea	Nemertea	7.30	0.00	0.39	1.17
Phoronida	Phoronida	0.00	10.60	26.85	13.50

Table 4.4.20: Station-wise distribution of meiofauna parameters in Manori

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
BYMa4	7.28	28.66	17.97	10	52	31	4	7	5
BYMa5	2072.3	2193.5	2132.9	130	232	181	5	8	6
BYMa6	23.56	2917.24	1470.4	13	403	208	4	7	5
Premonsoon May 2016									
BYMa4	415.56	913.02	664.29	133	481	307	4	7	5
BYMa5	1049.44	47374.56	24212.0	178	1114	646	5	8	6
BYMa6	471.69	686.31	579.0	14	24	19	2	3	2

Table 4.4.21: Percentage composition of meiofauna off Manori during December 2015

Groups	BYMa4	BYMa5	BYMa6	Average
Cnidarians	0.00	1.25	1.37	1.23
Copepods	17.14	0.83	0.34	1.59
Foraminiferans	34.29	3.33	0.68	3.88
Gastropods	0.00	19.17	0.00	8.11
Halacaroids	0.00	0.83	0.00	0.35
Insects	0.00	0.00	0.34	0.18
Kinorhynchs	2.86	0.00	0.00	0.18
Nauplius	5.71	0.00	0.00	0.35
Nematodes	22.86	9.58	14.04	12.70
Nemerteans	5.71	0.00	0.00	0.35
Polychaetes	0.00	64.17	82.88	69.84
Rotifers	11.43	0.83	0.34	1.23

Table 4.4.22: Percentage composition of meiofauna off Manori during May 2016

Groups	BYMa4	BYMa5	BYMa6	Average
Amphipods	0.00	0.55	0.00	0.36
Bivalves	0.23	0.00	0.00	0.07
Cnidarians	0.00	1.10	0.00	0.73
Copepods	3.70	0.66	0.00	1.60
Foraminiferans	4.85	0.00	0.00	1.53
Gastropods	0.00	5.48	0.00	3.64
Gnathostomulids	0.00	0.11	0.00	0.07
Nematodes	87.30	1.75	37.04	29.42
Oligochaetes	0.00	0.00	3.70	0.07
Ostracods	0.00	1.10	0.00	0.73
Polychaetes	2.77	89.27	59.26	61.40
Rotifers	1.15	0.00	0.00	0.36

Table 4.5.1: Water quality off Versova during December 2015

Parameter	Level	BYV4			BYV5		
		Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	26.5	27.5	27.0	26.0	29.5	27.5
	B	26.5	27.5	26.8	26.0	29.0	27.3
		(27.5)	(29.0)	(28.3)	(27.0)	(29.0)	(28.0)
SS(mg/l)	S	61	89	75	55	84	70
	B	56	77	67	38	79	58
Turbidity	S	24.4	28.3	26.3	14.4	28.4	22.1
	B	21.1	21.1	21.1	13.6	26.2	19.3
pH	S	8.0	8.1	8.1	7.3	8.0	7.6
	B	8.1	8.1	8.1	7.4	8.0	7.7
Salinity(ppt)	S	34.9	35.2	35.1	10.9	35.1	26.7
	B	35.1	35.2	35.1	10.7	35.0	24.8
DO (mg/l)	S	2.6	2.9	2.7	<0.2	2.6	0.9
	B	2.2	2.6	2.4	<0.2	3.2	0.8
BOD (mg/l)	S	2.2	12.7	7.5	0.6	15.6	8.1
	B	1.9	15.3	8.6	1.3	20.4	10.8
PO ₄ ³⁻ -P (μmol/l)	S	0.2	0.7	0.5	0.4	5.5	2.4
	B	0.1	0.6	0.4	0.4	5.2	2.8
TP(μmol/l)	S	1.2	1.5	1.3	0.9	6.2	3.6
	B	0.7	1.3	1.0	0.9	5.3	3.1
NO ₃ ⁻ -N (μmol/l)	S	16.2	17.9	17.0	0.6	16.8	8.0
	B	15.8	17.0	16.4	0.5	22.0	8.0
NO ₂ ⁻ -N(μmol/l)	S	2.7	4.5	3.6	ND	4.1	1.7
	B	2.3	4.4	3.3	ND	4.3	1.8
NH ₄ ⁺ -N(μmol/l)	S	2.3	7.4	4.8	3.3	42.7	19.5
	B	5.1	7.9	6.5	2.1	62.8	26.5
TN(μmol/l)	S	30.8	35.8	33.3	16.5	38.0	27.2
	B	33.2	34.5	33.9	17.8	33.6	25.7
PHc(μg/l)	1m	2.3	4.4	3.4	2.5	3.8	3.2
Phenol (μg/l)	S	48.5	90.0	69.2	179.3	185.8	182.5

Air temperature given in parenthesis

Table 4.5.2: Water quality off Versova during May 2016

Parameter	Level	BYV4			BYV5		
		Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	28.0	31.0	29.5	28.0	31.0	29.5
	B	28.5	30.5	29.5	27.5	30.5	29.0
		(29.0)	(32.0)	(30.5)	(29.0)	(32.5)	(30.4)
SS(mg/l)	S	110	121	115	74	111	93
	B	115	139	127	104	107	106
Turbidity(NTU)	S	25.3	28.3	26.8	17.6	31.5	21.7
	B	20.4	28.2	24.3	13.2	30.8	20.7
pH	S	7.9	8.1	8.0	7.3	8.0	7.6
	B	8.1	8.2	8.2	7.4	8.0	7.8
Salinity(ppt)	S	33.4	36.7	35.0	16.7	35.7	27.6
	B	34.2	36.4	35.3	29.0	36.0	34.3
DO (mg/l)	S	2.9	3.5	3.2	<0.2	6.7	3.1
	B	2.6	3.2	2.9	<0.2	6.7	2.9
BOD (mg/l)	S	2.9	15.2	9.0	1.9	27.6	14.8
	B	2.9	18.2	10.5	2.3	30.6	16.4
PO ₄ ³⁻ -P (μmol/l)	S	1.0	10.3	5.6	3.7	35.0	18.2
	B	2.0	2.2	2.1	2.6	34.0	9.3
TP(μmol/l)	S	6.2	6.3	6.2	4.3	5.4	4.8
	B	5.7	6.0	5.9	4.5	5.9	5.2
NO ₃ ⁻ -N (μmol/l)	S	12.5	15.2	13.9	10.5	16.8	12.9
	B	11.4	14.4	12.9	10.5	16.6	13.5
NO ₂ ⁻ -N(μmol/l)	S	0.6	2.1	1.3	ND	3.8	1.5
	B	0.2	1.5	0.9	ND	2.9	1.5
NH ₄ ⁺ -N(μmol/l)	S	8.3	9.4	8.8	16.2	43.1	25.7
	B	8.2	8.3	8.3	15.7	47.5	27.4
TN(μmol/l)	S	2.6	34.6	18.6	7.1	66.5	36.8
	B	2.8	3.4	3.1	7.6	61.2	34.4
PHc(μg/l)	1m	2.8	4.7	3.8	0.8	3.7	2.3
Phenol (μg/l)	S	29.3	42.7	36.0	32.9	48.7	40.8

Air temperature given in parenthesis

Table 4.5.3: Sediment quality off Versova during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BYV4	4.4	81	14.6	9.7	154	983	8.3	36	61	104	116	2.4	0.12	28.4	2.4	938	1.2
BYV5	3.7	87.7	8.6	6.3	226	878	7.2	24	63	139	168	1.1	0.28	22.7	2.2	622	2.7

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.5.4: Sediment quality off Versova during May 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BYV4	2.3	80.1	17.6	6.4	123	947	6.2	45	80	160	132	2.5	0.11	20.1	2.3	1116	1.4
BYV5	1.7	85.7	12.6	4.8	157	700	6.3	50	78	149	180	2.7	0.30	23.8	2.2	1449	2.2

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.5.5 Microbial counts in surface water (CFU/ml) off Versova during 2015-16

Type of Bacteria	Population in surface water (CFU/ml)							
	Postmonsoon (December 2015)				Premonsoon (April 2016)			
	BYV4		BYV5		BYV4		BYV5	
	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl
TVC	12x 10 ³	9 x 10 ³	40 x 10 ³	32 x 10 ³	11x 10 ³	1x 10 ³	24x 10 ³	39 x 10 ³
TC	30	20	480	120	10	20	150	250
FC	10	10	420	90	10	20	90	150
ECLO	10	10	190	70	ND	20	60	100
SHLO	ND	ND	90	30	170	ND	30	20
SLO	ND	ND	40	10	ND	ND	10	ND
PKLO	ND	ND	140	20	30	10	100	200
VLO	ND	20	110	30	420	ND	20	510
VPLO	ND	ND	60	20	50	ND	20	100
VCLO	ND	20	50	10	370	ND	ND	410
PALO	ND	10	130	70	ND	ND	ND	20
SFLO	ND	ND	370	40	70	ND	90	150

ND – Below Detectable Level

Table 4.5.6 Microbial counts in sediments (CFU/g) off Versova during 2015-16

Type of Bacteria	Population in sediment (CFU/g)			
	Postmonsoon (December 2015)		Premonsoon (April 2016)	
	BYV4	BYV5	BYV4	BYV5
TVC	220 x 10 ³	490 x 10 ³	1 x 10 ³	8 x 10 ³
TC	ND	80	10	30
FC	ND	70	ND	20
ECLO	ND	30	ND	10
SHLO	ND	ND	ND	50
SLO	ND	ND	ND	ND
PKLO	10	ND	ND	30
VLO	20	10	60	80
VPLO	ND	ND	40	10
VCLO	20	10	20	70
PALO	ND	ND	ND	ND
SFLO	ND	40	ND	370

ND – Below Detectable Level

Table 4.5.7: Range and average of phytopigments off Versova during December 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BYV4	10-12-15	3.4	5.8	4.0	7.1	1.6	1.7	1.1	1.7	1.9	3.7	2.3	6.6
		4.6		5.6		1.7		1.4		2.8		4.4	
BYV5	10-12-15	1.3	13.1	2.1	15.9	0.8	3.0	1.2	4.3	1.6	6.0	1.0	7.0
		7.2		7.9		1.8		2.1		4.0		4.2	

Table 4.5.8: Range and average of Phytopigments off Versova during May 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BYV4	02-05-16	11.5	16.1	13.9	17.1	6.2	7.4	2.9	5.8	1.9	2.2	2.4	5.9
		13.8		15.5		6.8		4.3		2.0		4.1	
BYV5	02-05-16	15.4	41.6	11.5	19.1	3.3	8.2	2.3	8.7	1.9	8.1	1.4	5.1
		24.6		13.7		5.4		4.9		4.9		3.1	

Table 4.5.9: Range and average of phytoplankton off Versova during December 2015

Station	Date	Cell count				Total genera				Major genera	
		(no x 10 ³ Cells/ l)				(nos.)					
		S		B		S		B		S	B
		Min	Max	Min	Max	Min	Max	Min	Max		
Avg		Avg		Avg		Avg		Avg			
BYV4	10-12-15	124.2	220.8	65.0	99.2	17.0	19.0	12.0	16.0	<i>Chaetoceros</i>	<i>Thalassiosira</i>
		172.5		82.1		18.0		14.0		<i>Thalassiosira</i>	<i>Chaetoceros</i>
BYV5	10-12-15	82.4	187.4	38.0	125.0	11.0	18.0	8.0	18.0	<i>Leptocylindrus</i>	<i>Coscinodiscus</i>
		134.9		81.5		14.5		13.0		<i>Navicula</i>	<i>Nitzschia</i>

Table 4.5.10: Range and average of phytoplankton population off Versova during May 2016

Station	Date	Cell count				Total genera				Major genera	
		(no x 10 ³ Cells/ l)				(nos.)					
		S		B		S		B		S	B
		Min	Max	Min	Max	Min	Max	Min	Max		
Avg		Avg		Avg		Avg		Avg			
BYV4	02-05-16	1115.0	1372.8	876.0	969.0	18	19	14	20	<i>Chaetoceros</i>	<i>Chaetoceros</i>
		1243.9		922.5		19		17		<i>Skeletonema</i>	<i>Skeletonema</i>
BYV5	02-05-16	1364.2	2058.8	1249.8	1520.0	14	18	15	17	<i>Pseudo-nitzschia</i>	<i>Thalassiosira</i>
		1711.5		1384.9		16		16		<i>Rhizosolenia</i>	<i>Pseudo-nitzschia</i>

Table 4.5.11: Percentage composition of phytoplankton population off Versova during December 2015

Name of the genera	BYV4	BYV5	Total Avg.
<i>Amphora</i>	0.8	0.5	0.6
<i>Anabaena</i>	-	3.2	1.6
<i>Asterionella</i>	-	0.9	0.5
<i>Ceratium</i>	0.5	-	0.2
<i>Chaetoceros</i>	38.9	18.5	28.7
<i>Corethron</i>	0.8	-	0.4
<i>Coscinodiscus</i>	4.3	2.8	3.6
<i>Cylindrotheca</i>	3.9	4.3	4.1
<i>Dinophysis</i>	0.2	-	<0.1
<i>Ditylum</i>	0.4	-	0.2
<i>Gonyaulax</i>	-	0.6	0.3
<i>Guinardia</i>	1.2	0.5	0.8
<i>Gymnodinium</i>	0.1	0.5	0.3
<i>Gyrodinium</i>	1.2	0.9	1.1
<i>Gyrosigma</i>	<0.1	<0.1	<0.1
<i>Leptocylindrus</i>	7.6	1.4	4.5
<i>Lithodesmium</i>	-	0.9	0.5
<i>Navicula</i>	5.1	11.6	8.3
<i>Nitzschia</i>	4.1	4.9	4.5
<i>Odontella</i>	0.8	0.6	0.7
<i>Pleurosigma</i>	1.2	1.4	1.3
<i>Prorocentrum</i>	2.0	0.5	1.2
<i>Protoperidinium</i>	<0.1	0.5	0.3
<i>Pseudo-nitzschia</i>	1.6	<0.1	0.8
<i>Rhizosolenia</i>	2.0	1.0	1.5
<i>Skeletonema</i>	1.3	2.1	1.7
<i>Surirella</i>	-	0.5	0.2
<i>Thalassionema</i>	2.0	1.2	1.6
<i>Thalassiosira</i>	18.5	37.0	27.7
<i>Thalassiothrix</i>	1.2	3.8	2.5
<i>Triceratium</i>	0.4	<0.1	0.2
Total	100	100	100

Table 4.5.12: Percentage composition of phytoplankton population off Versova during May 2016

Name of the genera	BYV4	BYV5	Total %
<i>Amphiprora</i>	<0.1	<0.1	<0.1
<i>Amphora</i>	<0.1	-	<0.1
<i>Ankistrodesmus</i>	-	0.11	<0.1
<i>Asterionellopsis</i>	1.34	0.78	1.06
<i>Ceratium</i>	<0.1	<0.1	<0.1
<i>Chaetoceros</i>	45.84	38.46	42.15
<i>Corethron</i>	<0.1	<0.1	<0.1
<i>Coscinodiscus</i>	<0.1	-	<0.1
<i>Cyclotella</i>	-	0.16	<0.1
<i>Cylindrotheca</i>	0.37	0.16	0.27
<i>Dactyliosolen</i>	0.37	-	0.18
<i>Diploneis</i>	0.14	-	<0.1
<i>Ditylum</i>	0.37	<0.1	0.23

Gonyaulax	-	<0.1	<0.1
Guinardia	4.29	2.16	3.23
Gymnodinium	0.69	0.68	0.69
Gyrodinium	-	<0.1	<0.1
Gyrosigma	-	<0.1	<0.1
Lauderia	<0.1	-	<0.1
Merismopedia	-	0.52	0.26
Navicula	0.23	0.29	0.26
Nitzschia	0.23	-	0.12
Odontella	0.14	<0.1	<0.1
Ornithocercus	<0.1	-	<0.1
Oscillatoria	-	0.81	0.40
Peridinium	-	0.29	0.15
Pleurosigma	0.11	<0.1	<0.1
Prorocentrum	<0.1	-	<0.1
Protoperidinium	0.42	<0.1	0.22
Pseudo-nitzschia	6.65	1.00	3.82
Rhizosolenia	5.72	5.49	5.61
Rhodomonas	-	26.22	13.11
Skeletonema	27.51	13.31	20.41
Spirulina	-	<0.1	<0.1
Surirella	-	<0.1	<0.1
Thalassionema	0.88	0.71	0.79
Thalassiosira	4.17	8.33	6.25
Triceratium	<0.1	-	<0.1
Total	100	100	100

Table 4.5.13: Range and average (parenthesis) of zooplankton at different stations off Versova during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
BYV4 (10/12/2015)	4.9-5.2 (5.1)	81.9-144.6 (113.2)	11-16 (14)	copepods (92.2), gastropods (2.3), lamellibranchs (2.1), decapod larvae (2.0), polychaetes (0.6), ctenophores (0.3), <i>Lucifer sp.</i> (0.2), fish eggs (0.1), others (0.1)
BYV5 (10/12/2015)	0.6-2.4 (1.5)	1.6-60.1 (18.7)	8-10 (9)	copepods (84.8), gastropods (8.7), lamellibranchs (5.0), decapod larvae (1.1), polychaetes (0.1), <i>Lucifer sp.</i> (0.1), others (0.1).

Table 4.5.14: Range and Average (parenthesis) of Zooplankton at different stations off Versova during May 2016

Station (Date)	Biomass (ml/100m ³)	Population (no x 10 ³ /100m ³)	Total Groups (no)	Major group (%)
BYV4 (02/05/2016)	0.3-0.7 (0.5)	4.5-6.9 (5.7)	10	Copepods (87.5), lamellibranchs (7.7), gastropods (2.8), appendicularians (0.9), decapod larvae (0.4), polychaetes (0.3), foraminifera (0.2), medusae (0.1), chaetognaths (0.1), fish larvae(0.1), others (0.1).
BYV5 (02/05/2016)	0.2-1.4 (0.7)	0.016-18.2 (9.4)	3-11 (8)	Copepods (81.3), gastropods (12.6), appendicularians (3.2), lamellibranchs (1.3), polychaetes (0.6), foraminifera (0.4), medusae (0.4), <i>Lucifer</i> sp. (0.1), decapod larvae (0.1), others (0.1).

Table 4.5.15: Abundance of Zooplanktons off Versova during December 2015

Faunal groups	BYV4	BYV5
Foraminiferans	+	+
Siphonophores	+	-
Medusae	+	+
Ctenophores	+	+
Chaetognaths	+	+
Polychaetes	+	+
Copepods	+	+
<i>Lucifer</i> sp.	+	+
Decapod larvae	+	+
Gastropods	+	+
Lamellibranchs	+	+
Appendicularians	+	+
Fish Eggs	+	+
Fish Larvae	+	+
Isopods	+	-
Marine Insects	+	-

Table 4.5.16: Abundance of zooplanktons off Versova during May 2016

Faunal Groups	BYV4	BYV5
Foraminiferans	+	+
Siphonophores	+	+
Medusae	+	+
Ctenophores	+	-
Chaetognaths	+	+
Polychaetes	+	+
Copepods	+	+
Amphipods	-	+
Lucifer sp.	-	+
Decapod larvae	+	+
Gastropods	+	+
Lamellibranchs	+	+
Appendicularians	+	+
Fish Eggs	-	+
Fish Larvae	+	+
Isopods	-	+

Table 4.5.17: Range and average of macrofauna off Versova during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
BYV4	0.30	0.89	0.55	200	425	325	1	3	2
BYV5	6.03	22.03	13.96	1725	3275	2525	5	7	6
Overall	0.30	22.03	7.26	200	3275	1425	1	7	4
Premonsoon May 2016									
BYV4	0.00	0.04	0.02	0	25	13	0	1	1
BYV5	0.07	0.46	0.19	75	250	138	1	2	2
Overall	0.00	0.46	0.10	0	250	75	0	2	1

Table 4.5.18: Percentage composition of macrofauna off Versova during December 2015

Phylum	Groups	Stations		Average
		BYV4	BYV5	
Annelida	Polychaeta	88.46	41.58	46.93
Annelida	Oligochaeta	0.00	7.18	6.36
Arthropoda	Amphipoda	7.69	0.74	1.54
Arthropoda	Brachyura	0.00	0.99	0.88
Arthropoda	Isopoda	0.00	0.25	0.22
Arthropoda	Tanaidacea	0.00	0.25	0.22
Mollusca	Gastropoda	0.00	31.44	27.85
Mollusca	Pelecypoda	0.00	10.89	9.65
Nematoda	Nematoda	0.00	6.68	5.92
Nemertea	Nemertea	1.92	0.00	0.22
Phoronida	Phoronida	1.92	0.00	0.22

Table 4.5.19: Percentage composition of macrofauna off Versova during May 2016

Phylum	Groups	Stations			Average
		BYV4	BYV5		
Annelida	Polychaeta	50.00	86.36		83.33
Nemertea	Nemertea	0.00	13.64		12.50
Arthropoda	Copepoda	50.00	0.00		4.17

Table 4.5.20: Station-wise distribution off meiofauna parameters in Versova

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
BYV4	14.41	19.63	17.02	65	140	103	4	4	4
BYV5	16.65	25.81	21.23	34	90	62	4	5	4
Premonsoon May 2016									
BYV4	4.06	6.4	5.23	14	28	21	2	2	2
BYV5	1016.26	2564.74	1790.5	414	974	694	4	5	4

Table 4.5.21: Percentage composition of meiofauna off Versova during December 2015

Groups	BYV4	BYV5	Average
Bivalves	0.00	12.20	5.21
Copepods	0.00	6.10	2.60
Foraminiferans	81.82	18.29	54.69
Gastropods	0.00	1.22	0.52
Insects	0.91	0.00	0.52
Nematodes	16.36	56.10	33.33
Polychaetes	0.91	6.10	3.13

Table 4.5.22: Percentage composition of meiofauna off Versova during May 2016

Groups	BYV4	BYV5	Average
Foraminiferans	66.67	1.02	2.97
Insects	0.00	0.20	0.20
Nematodes	33.33	95.51	93.66
Oligochaetes	0.00	2.24	2.18
Polychaetes	0.00	1.02	0.99

Table 4.6.1: Water quality off Mahim during December 2015

Parameter	Level	BYM4			BYM5	BYM6		
		Min	Max	Avg	Avg*	Min	Max	Avg
Temperature(°C)	S	27.5	28.0	27.8	27.5	26.0	28.5	27.5
	B	27.5	27.5	27.5	27.5	26.0	28.5	27.5
		(30.0)	(30.0)	(30.0)	(30.0)	(27.0)	(33.0)	(29.5)
SS(mg/l)	S	48	70	59	68	61	81	71
	B	71	74	73	39	69	81	75
Turbidity(NTU)	S	35.7	37.2	36.4	23.0	13.1	24.3	18.8
	B	40.3	52.4	46.3	26.3	10.2	23.6	17.0
pH	S	8.0	8.1	8.1	8.1	7.7	8.0	8.0
	B	8.1	8.1	8.1	8.1	8.0	8.1	8.0
Salinity(ppt)	S	33.4	33.8	33.6	33.4	33.6	35.5	34.7
	B	34.6	34.8	34.7	33.3	34.8	35.3	35.1
DO (mg/l)	S	2.9	2.9	2.9	2.9	2.2	5.4	3.5
	B	2.6	2.6	2.6	2.6	1.9	4.5	2.5
BOD (mg/l)	S	2.2	2.2	2.2	2.2	0.6	1.0	0.8
	B	1.9	2.2	2.1	2.2	0.6	1.3	1.0
PO ₄ ³⁻ -P (μmol/l)	S	3.4	4.2	3.8	3.1	2.2	6.4	3.3
	B	2.7	3.4	3.1	2.9	2.7	4.9	3.1
TP(μmol/l)	S	5.1	6.4	5.7	4.2	4.4	4.4	4.4
	B	3.4	5.1	4.3	3.3	4.2	5.8	5.0
NO ₃ ⁻ -N (μmol/l)	S	21.6	27.9	24.8	22.0	11.3	29.4	19.8
	B	26.7	28.5	27.6	13.8	10.1	27.1	16.2
NO ₂ ⁻ -N(μmol/l)	S	5.4	5.6	5.5	6.6	2.4	6.2	5.3
	B	5.7	5.8	5.7	5.0	4.5	6.5	5.6
NH ₄ ⁺ -N(μmol/l)	S	4.0	4.7	4.3	8.1	3.5	17.0	8.2
	B	4.1	4.6	4.3	6.4	3.3	6.4	5.7
TN(μmol/l)	S	40.1	43.2	41.7	44.3	46.7	50.3	48.5
	B	45.4	46.4	45.9	37.2	39.3	41.7	40.5
PHc(μg/l)	1m	1.3	2.0	1.7	2.4	3.6	3.8	3.7
Phenol (μg/l)	S	62.2	93.4	77.8	93.4	66.5	95.8	81.1

* Average of two readings

Air temperature given in parenthesis

Table 4.6.2: Water quality off Mahim during April 2016

Parameter	Level	BYM4			BYM5			BYM6		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	29.0	30.0	29.5	28.0	28.0	28.0	27.0	30.0	28.5
	B	28.5	29.5	29.0	28.5	28.5	28.5	26.5	29.5	28.2
		(30.0)	(30.5)	(30.3)	(29.0)	(29.0)	(29.0)	(28.0)	(31.5)	(29.7)
SS(mg/l)	S	77	85	81	73	73	73	72	80	76
	B	106	132	119	115	115	115	95	104	99
Turbidity(NTU)	S	36.8	43.9	40.9	20.3	21.6	21.0	15.9	23.0	20.5
	B	42.6	52.6	47.6	54.6	58.1	56.4	16.7	24.8	21.3
pH	S	8.0	8.3	8.1	7.9	7.9	7.9	7.5	8.4	7.8
	B	8.1	8.3	8.2	8.0	8.0	8.0	7.8	8.1	8.0
Salinity(ppt)	S	23.5	24.6	24.1	23.5	23.5	23.5	17.4	36.1	29.2
	B	23.2	23.5	23.4	36.0	36.0	36.0	28.8	36.0	33.6
DO (mg/l)	S	2.9	3.2	3.0	2.9	3.2	3.0	2.5	5.4	3.7
	B	2.5	2.9	2.7	2.5	2.5	2.5	1.9	4.4	2.5
BOD (mg/l)	S	2.2	2.5	2.4	2.2	2.9	2.5	0.6	1.3	1.0
	B	2.2	2.2	2.2	1.9	2.2	2.1	1.3	1.6	1.4
PO ₄ ³⁻ -P (μmol/l)	S	0.1	5.0	2.6	5.4	5.5	5.4	1.6	8.3	5.4
	B	0.9	1.7	1.3	2.4	2.4	2.4	1.2	5.5	2.7
TP(μmol/l)	S	1.1	6.2	3.6	6.6	7.2	6.9	2.5	20.0	11.0
	B	1.4	2.3	1.8	3.9	4.1	4.0	1.9	8.2	5.0
NO ₃ ⁻ -N (μmol/l)	S	3.2	4.7	4.0	4.3	4.5	4.4	1.2	9.2	6.4
	B	2.6	7.8	3.9	5.7	5.8	5.7	6.9	15.3	8.8
NO ₂ ⁻ -N(μmol/l)	S	0.7	1.2	0.9	0.8	0.8	0.8	0.1	3.5	1.5
	B	1.8	1.9	1.9	5.6	5.6	5.6	0.4	2.0	1.5
NH ₄ ⁺ -N(μmol/l)	S	6.9	8.5	7.7	7.0	7.0	7.0	3.1	7.9	5.8
	B	6.9	9.1	8.0	5.0	5.0	5.0	2.5	8.8	5.4
TN(μmol/l)	S	18.2	52.6	35.4	60.3	62.2	61.2	14.2	69.3	41.7
	B	22.6	59.2	40.9	46.3	48.9	47.6	16.2	53.6	34.9
PHc(μg/l)	1m	2.6	4.5	3.6	1.8	1.8	1.8	1.2	3.9	2.6
Phenol (μg/l)	S	34.1	39.8	37.0	35.3	35.3	35.3	20.4	35.3	27.6

Air temperature given in parenthesis

Table 4.6.3: Sediment quality off Mahim during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BYM4	0.4	49.0	50.6	8.6	143	1157	7.8	34	53	91	109	1.25	0.24	17.9	1.3	1621	1.7
BYM5	1.1	81.1	17.8	9.8	159	975	8.5	36	61	105	124	1.43	0.25	27.0	1.7	1320	1.2
BYM6	19.2	68.5	12.3	6.2	123	816	6.5	48	73	105	90	0.96	0.17	16.1	1.2	797	1.0

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.6.4: Sediment quality off Mahim during April 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BYM4	0.9	43.4	55.7	5.0	160	918	6.3	51	71	109	131	0.33	0.23	17.4	2.2	1229	1.1
BYM5	8.0	60.8	31.2	6.9	162	995	6.4	37	62	107	127	0.32	0.30	20.8	1.7	1346	0.9
BYM6	16.0	70.6	13.4	6.7	134	887	7.1	52	79	114	98	0.36	0.19	26.2	1.3	866	1.1

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.6.5: Microbial counts in surface water (CFU/ml) off Mahim during 2015-16

Type of Bacteria	Population in surface water (CFU/ml)									
	Postmonsoon (December 2015)					Premonsoon (April 2016)				
	BYM4		BYM5	BYM6		BYM4		BYM5	BYM6	
	Eb	Fl		Eb	Fl	Eb	Fl		Eb	Fl
TVC	6 x 10 ³	19 x 10 ³	28 x 10 ³	33 x 10 ³	26 x 10 ³	21 x 10 ³	3 x 10 ³	2 x 10 ³	3 x 10 ³	2 x 10 ³
TC	60	190	280	330	260	70	10	990	ND	1220
FC	10	180	20	70	310	40	10	450	ND	610
ECLO	10	150	10	50	230	20	ND	280	ND	310
SHLO	ND	ND	10	ND	ND	ND	ND	20	20	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	10	140	30	60	400	20	20	300	20	830
VLO	10	10	50	ND	40	120	10	160	ND	1290
VPLO	ND	ND	40	ND	ND	50	ND	80	ND	200
VCLO	10	10	10	80	40	70	10	80	ND	1090
PALO	ND	ND	ND	ND	ND	10	ND	10	ND	ND
SFLO	ND	400	10	ND	200	260	170	900	ND	610

ND – Below Detectable Level

Table 4.6.6: Microbial counts in sediments (CFU/g) off Mahim during 2015-16

Type of Bacteria	Population in sediment (CFU/g)					
	Postmonsoon (December 2015)			Premonsoon (April 2016)		
	BYM4	BYM5	BYM6	BYM4	BYM5	BYM6
TVC	200 x 10 ³	70 x 10 ³	170 x 10 ³	2 x 10 ³	2 x 10 ³	3 x 10 ³
TC	50	ND	60	ND	ND	ND
FC	30	ND	40	ND	ND	ND
ECLO	20	ND	30	ND	ND	ND
SHLO	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND
PKLO	70	30	90	ND	ND	ND
VLO	40	30	50	ND	ND	ND
VPLO	10	10	ND	ND	ND	ND
VCLO	30	20	50	ND	ND	ND
PALO	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.6.7: Range and average of phytopigments off Mahim during December 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BYM4	07-12-15	2.0	10.2	2.0	5.0	0.7	0.8	0.9	1.5	2.3	15.2	2.3	3.3
		6.1		3.5		0.8		1.2		8.8		2.8	
BYM5	07-12-15	20.6	21.6	5.5	5.5	1.1	1.3	1.7	1.7	15.4	20.3	0.0	3.2
		21.1		5.5		1.2		1.7		17.9		1.6	
BYM6	07-12-15	1.3	12.8	1.9	7.4	0.5	1.8	0.5	1.8	1.4	16.4	1.7	13.7
		5.9		4.3		1.0		1.3		6.7		4.0	

Table 4.6.8: Range and average of Phytopigments off Mahim during April 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BYM4	30-04-16	23.7	27.6	16.5	20.6	0.2	2.7	3.1	7.6	8.6	131.2	2.2	6.6
		25.6		18.5		1.5		5.4		69.9		4.4	
BYM5	30-04-16	30.7	32.4	25.5	26.7	1.1	3.9	2.3	2.4	7.9	30.5	11.1	11.3
		31.5		26.1		2.5		2.3		19.2		11.2	
BYM6	30-04-16	14.0	32.3	15.2	29.0	0.7	4.4	4.8	9.3	3.8	43.9	2.1	5.4
		27.2		22.0		2.2		5.7		18.6		4.0	

Table 4.6.9: Range and average of phytoplankton population off Mahim during December 2015

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera			
		S		B		S		B					
		Min	Max	Min	Max	Min	Max	Min	Max	S	B		
		Avg		Avg		Avg		Avg					
BYM4	07-12-15	71.2	417.2	142.4		10.0	12.0	10.0		<i>Thalassiosira</i>	<i>Thalassiosira</i>		
		244.2				11.0				<i>Skeletonema</i>	<i>Navicula</i>		
BYM5	07-12-15	296.6		190.4		11.0		11.0		<i>Chaetoceros</i>	<i>Chaetoceros</i>		
										<i>Cylindrotheca</i>	<i>Cylindrotheca</i>		
BYM6	07-12-15	39.6	329.4	38.8	145.2	9.0	15.0	9.0	16.0	<i>Anacystis</i>	<i>Thalassiosira</i>		
		184.5		92.0		12.0		12.5		<i>Skeletonema</i>	<i>Skeletonema</i>		
										<i>Chaetoceros</i>	<i>Chaetoceros</i>		
										<i>Navicula</i>	<i>Nitzschia</i>		

Table 4.6.10: Range and average of phytoplankton population off Mahim during April 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
BYM4	30-04-16	855.2	5390.8	1270.8	6023.6	10.0	21.0	14.0	18.0	<i>Chaetoceros</i>	<i>Chaetoceros</i>
		3123.0		3647.2		15.5		16.0		<i>Thalassiosira</i>	<i>Thalassiosira</i>
BYM5	30-04-16	7793.0		7793.0		11.0		17.0		<i>Skeletonema</i>	<i>Skeletonema</i>
										<i>Pseudo-nitzschia</i>	<i>Pseudo-nitzschia</i>
BYM6	30-04-16	4939.0	8719.0	3302.2	3563.4	9.0	10.0	13.0	19.0	<i>Anacystis</i>	<i>Chaetoceros</i>
		6829.0		3432.8		9.5		16.0		<i>Chaetoceros</i>	<i>Thalassiosira</i>
										<i>Protoperidinium</i>	<i>Skeletonema</i>
										<i>Skeletonema</i>	<i>Rhizosolenia</i>

Table 4.6.11: Percentage composition of phytoplankton population off Mahim during December 2015

Name of the genera	BYM4	BYM5	BYM6	Total Avg.
<i>Amphora</i>	0.7	<0.1	<0.1	0.2
<i>Asterionella</i>	-	-	0.4	0.1
<i>Ceratium</i>	<0.1	-	-	<0.1
<i>Chaetoceros</i>	13.3	19.7	6.5	13.2
<i>Coscinodiscus</i>	1.0	1.2	4.7	2.3
<i>Cylindrotheca</i>	6.0	7.0	3.0	5.3
<i>Ditylum</i>	-	<0.1	<0.1	<0.1
<i>Guinardia</i>	-	-	0.1	<0.1
<i>Gymnodinium</i>	-	1.2	2.6	1.3
<i>Gyrodinium</i>	0.3	-	0.7	0.3
<i>Navicula</i>	7.0	7.4	5.4	6.6
<i>Nitzschia</i>	2.8	5.7	4.0	4.2
<i>Odontella</i>	-	-	0.4	0.1
<i>Pleurosigma</i>	-	<0.1	0.4	0.2
<i>Prorocentrum</i>	0.3	-	1.1	0.5
<i>Protoperidinium</i>	0.6	0.4	0.4	0.5
<i>Pseudo-nitzschia</i>	2.5	-	1.4	1.3
<i>Rhizosolenia</i>	0.2	<0.1	0.1	0.1
<i>Skeletonema</i>	22.2	18.1	40.8	27.0
<i>Surirella</i>	0.6	-	-	0.2
<i>Thalassionema</i>	0.1	-	-	<0.1
<i>Thalassiosira</i>	40.9	37.8	27.8	35.5
<i>Thalassiothrix</i>	1.0	0.8	-	0.6
<i>Triceratium</i>	0.3	0.4	<0.1	0.3
Total	100	100	100	100

Table 4.6.12: Percentage composition of phytoplankton population off Mahim during April 2016

Name of the genera	BYM4	BYM5	BYM6	Total Avg.
<i>Achnanthes</i>	-	<0.1	-	<0.1
<i>Amphiprora</i>	<0.1	<0.1	-	<0.1
<i>Amphora</i>	<0.1	-	-	<0.1
<i>Asterionellopsis</i>	0.6	-	0.1	0.2
<i>Chaetoceros</i>	78.9	61.7	58.0	66.2
<i>Corethron</i>	-	-	<0.1	<0.1
<i>Coscinodiscus</i>	-	<0.1	-	<0.1
<i>Cylindrotheca</i>	0.5	<0.1	0.2	0.2
<i>Dactyliosolen</i>	0.3	-	0.2	0.2
<i>Ditylum</i>	0.4	0.1	<0.1	0.2
<i>Gonyaulax</i>	<0.1	-	-	<0.1
<i>Guinardia</i>	0.5	<0.1	0.5	0.4
<i>Gymnodinium</i>	<0.1	<0.1	-	<0.1
<i>Gyrodinium</i>	<0.1	-	-	<0.1
<i>Gyrosigma</i>	-	<0.1	-	<0.1
<i>Navicula</i>	0.1	<0.1	<0.1	<0.1
<i>Nitzschia</i>	0.1	<0.1	0.1	0.1
<i>Noctiluca</i>	<0.1	-	<0.1	<0.1
<i>Odontella</i>	0.3	<0.1	0.1	0.1
<i>Peridinium</i>	0.2	0.1	-	0.1

<i>Planktoniella</i>	-	-	<0.1	<0.1
<i>Pleurosigma</i>	0.1	-	<0.1	<0.1
<i>Protoperidinium</i>	0.1	0.2	1.6	0.6
<i>Pseudo-nitzschia</i>	2.9	0.2	0.3	1.1
<i>Rhizosolenia</i>	1.6	0.2	0.6	0.8
<i>Selenastrum</i>	-	<0.1	-	<0.1
<i>Skeletonema</i>	4.1	0.2	1.0	1.8
<i>Surirella</i>	-	<0.1	-	<0.1
<i>Thalassionema</i>	<0.1	0.1	0.1	0.1
<i>Thalassiosira</i>	9.2	36.9	37.2	27.8
Total	100	100	100	100

Table 4.6.13: Range and average (parenthesis) of zooplankton at different stations off Mahim during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
BYM4 (07/12/2015)	6.5-8.5 (7.5)	117.0-252.1 (184.6)	11- (11)	copepods (93.1), lamellibranchs (4.4), gastropods (1.4), decapod larvae (0.4), fish eggs (0.3), polychaetes (0.2), fish larvae(0.1), others (0.1).
BYM5 (07/12/2015)	3.4-4.4 (3.9)	77.9-143.7 (110.8)	9-11 (10)	copepods (99.5), decapod larvae (0.2), lamellibranchs (0.2), others (0.1).
BYM6 (07/12/2015)	4.0-24.7 (10.0)	122.6-712.2 (270.2)	9-14 (12)	copepods (94.3), gastropods (1.9), lamellibranchs (1.8), decapod larvae (0.6), cephalopods (0.5), polychaetes (0.3), chaetognaths (0.2), fish larvae(0.1), <i>Lucifer sp.</i> (0.1), others (0.1).

Table 4.6.14: Range and Average (parenthesis) of Zooplankton at different stations off Mahim during April 2016

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
BYM4 (30/04/2016)	1.2-3.0 (2.1)	18.9-23.4 (21.2)	9-13 (11)	Copepods (83.8), gastropods (8.2), lamellibranchs (6.3), decapod larvae (0.8), polychaetes (0.2), foraminifera (0.1), medusae (0.1), appendicularians (0.1), fish larvae (0.1), others (0.1).
BYM5 (30/04/2016)	3.1-3.4 (3.3)	24.2-31.1 (27.7)	(9)	Copepods (97.3), lamellibranchs (1.6), gastropods (0.8), decapod larvae (0.2), foraminifera (0.1), others (0.1).
BYM6 (30/04/2016)	0.8-4.3 (2.3)	24.7-99.0 (49.3)	8-13 (11)	Copepods (95.5), gastropods (1.8), lamellibranchs (1.3), appendicularians (0.8), mysids (0.2), decapod larvae (0.2), others (0.1).

Table 4.6.15: Abundance of Zooplanktons off Mahim during December 2015

Faunal groups	BYM4	BYM5	BYM6
Siphonophores	+	-	+
Medusae	-	+	+
Ctenophores	+	-	+
Chaetognaths	+	+	+
Polychaetes	+	+	+
Copepods	+	+	+
<i>Lucifer</i> sp.	+	+	+
Decapod larvae	+	+	+
Stomatopods	+	-	-
Cephalopods	-	-	+
Gastropods	+	+	+
Lamellibranchs	+	+	+
Appendicularians	-	+	+
Salpids	-	-	+
Fish Eggs	+	+	+
Fish Larvae	+	+	+
Isopods	-	-	+

Table 4.6.16: Abundance of zooplanktons off Mahim during April 2016

Faunal groups	BYM4	BYM5	BYM6
Foraminiferans	+	+	+
Siphonophores	+	-	+
Medusae	+	-	+
Ctenophores	-	-	+
Chaetognaths	-	-	+
Polychaetes	+	-	+
Cladocerans	-	+	+
Copepods	+	+	+
Cumaceans	-	+	-
Amphipods	+	+	+
Mysids	+	+	+
Lucifer sp.	-	-	-
Decapod larvae	+	+	+
Gastropods	+	+	+
Lamellibranchs	+	+	+
Appendicularians	+	+	+
Fish Eggs	+	-	+
Fish Larvae	+	+	+
Isopods	+	-	+

Table 4.6.17: Range and average of macrofauna off Mahim during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon November 2015									
BYM4	0.16	1.15	0.48	75	175	131	1	2	1
BYM5	1.22	55.65	29.21	25	4350	1294	1	3	2
BYM6	3.18	47.70	16.04	850	2625	1669	2	5	3
Overall	0.16	55.65	15.24	25	4350	1031	1	5	2
Premonsoon April 2016									
BYM4	0.45	56.46	15.53	150	1925	719	4	7	5
BYM5	0.12	0.48	0.23	75	150	125	1	3	2
BYM6	0.01	0.11	0.05	25	150	81	1	4	3
Overall	0.01	56.46	5.27	25	1925	308	1	7	3

Table 4.6.18: Percentage composition of macrofauna off Mahim during December 2015

Phylum	Groups	Stations			Average
		BYM4	BYM5	BYM6	
Annelida	Polychaeta	95.24	97.10	95.86	96.36
Nemertea	Nemertea	0.00	0.48	3.38	2.02
Arthropoda	Amphipoda	4.76	0.48	0.38	0.61
Mollusca	Pelecypoda	0.00	1.45	0.00	0.61
Arthropoda	Decapoda Larvae	0.00	0.48	0.00	0.20
Chordata	Fish larvae	0.00	0.00	0.38	0.20

Table 4.6.19: Percentage composition of macrofauna off Mahim during April 2016

Phylum	Groups	Stations			Average
		BYM4	BYM5	BYM6	
Annelida	Polychaeta	40.00	80.00	23.08	43.92
Arthropoda	Amphipoda	4.35	5.00	15.38	5.41
Arthropoda	Decapoda Larvae	3.48	5.00	30.77	6.08
Arthropoda	Copepoda	0.00	0.00	30.77	2.70
Arthropoda	Mysida	0.87	0.00	0.00	0.68
Cnidaria	Hydrozoa colony	0.87	0.00	0.00	0.68
Cnidaria	Coral	0.87	0.00	0.00	0.68
Mollusca	Pelecypoda	38.26	5.00	0.00	30.41
Mollusca	Gastropoda	1.74	0.00	0.00	1.35
Nemertea	Nemertea	3.48	0.00	0.00	2.70
Phoronida	Phoronida	6.09	5.00	0.00	5.41

Table 4.6.20: Station-wise distribution of meiofauna parameters in Mahim

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon November 2015									
BYM4	19.26	40.26	29.76	33	157	95	6	6	6
BYM5	30.87	61.35	46.11	99	156	127	2	4	3
BYM6	15.78	45.5	30.64	20	197	108	3	4	3
Premonsoon April 2016									
BYM4	203.46	236.42	219.94	318	362	340	5	5	5
BYM5	22.64	38.66	30.65	71	106	88	2	4	3
BYM6	13.96	23.14	18.55	42	115	79	2	4	3

Table 4.6.21: Percentage composition of meiofauna off Mahim during December 2015

Groups	BYM4	BYM5	BYM6	Average
Cnidarians	6.90	0.00	0.67	2.05
Copepods	0.86	0.00	0.00	0.23
Foraminiferans	47.41	54.29	8.72	37.05
Nematodes	38.79	42.86	90.60	57.95
Nemerteans	4.31	0.00	0.00	1.14
Polychaetes	0.86	2.86	0.00	1.36
Sipunculids	0.86	0.00	0.00	0.23

Table 4.6.22: Percentage composition of meiofauna off Mahim during April 2016

Groups	BYM4	BYM5	BYM6	Average
Bivalves	1.11	0.00	0.00	0.73
Copepods	5.78	4.00	0.90	4.66
Foraminiferans	31.56	36.00	54.05	36.01
Nauplius	0.00	0.00	4.50	0.73
Nematodes	59.33	52.00	40.54	54.96
Polychaetes	2.22	8.00	0.00	2.92

Table 4.7.1: Water quality off Bandra during December 2015

Parameter	Level	BYB1			BYB2		
		Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	28.5	30.5	29.5	27.5	30.5	28.9
	B	28.0	29.5	28.8	27.5	30.5	28.6
		(29.0)	(31.0)	(30.0)	(27.0)	(32.0)	(29.5)
SS(mg/l)	S	46	93	69	73	77	75
	B	48	73	60	73	86	79
Turbidity(NTU)	S	2.7	3.7	3.2	6.3	15.4	12.0
	B	5.1	6.0	5.6	7.4	16.0	12.2
pH	S	8.1	8.2	8.2	7.8	8.0	7.9
	B	8.1	8.2	8.2	7.8	8.0	7.9
Salinity(ppt)	S	34.8	35.2	35.0	33.6	35.5	34.7
	B	34.7	35.4	35.1	34.8	35.3	35.1
DO (mg/l)	S	4.5	5.8	5.1	3.8	7.0	5.3
	B	3.5	4.8	4.2	4.5	5.8	5.0
BOD (mg/l)	S	0.6	1.6	1.1	1.6	2.6	2.1
	B	1.3	1.6	1.4	1.6	1.6	1.6
PO ₄ ³⁻ -P (μmol/l)	S	1.5	1.6	1.6	1.9	4.9	3.0
	B	1.5	1.8	1.6	2.1	3.2	2.7
TP(μmol/l)	S	2.5	2.7	2.6	3.3	5.1	4.2
	B	2.4	3.3	2.8	4.7	5.8	5.2
NO ₃ ⁻ -N (μmol/l)	S	14.7	15.0	14.9	15.4	21.2	17.8
	B	15.6	16.6	16.1	15.5	21.7	18.2
NO ₂ ⁻ -N(μmol/l)	S	2.5	2.9	2.7	3.1	4.8	4.1
	B	2.0	2.7	2.4	3.0	4.5	3.9
NH ₄ ⁺ -N(μmol/l)	S	0.8	0.8	0.8	1.0	22.2	7.3
	B	0.8	1.5	1.2	2.3	5.8	3.7
TN(μmol/l)	S	36.0	37.3	36.7	33.6	36.5	35.0
	B	34.5	35.2	34.8	39.3	52.3	45.8
PHc(μg/l)	1m	0.2	0.6	0.4	1.2	1.6	1.4
Phenol (μg/l)	S	57.8	135.8	96.8	51.1	90.2	70.7

Air temperature given in parenthesis

Table 4.7.2: Water quality off Bandra during May 2016

Parameter	Level	BYB1			BYB2		
		Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	27.0	29.0	28.0	26.0	31.5	29.0
	B	27.5	29.5	28.5	26.5	31.0	28.9
		(29.0)	(30.0)	(29.5)	(28.0)	(32.5)	(30.3)
SS(mg/l)	S	93	126	109	89	168	129
	B	73	145	109	95	166	130
Turbidity(NTU)	S	2.6	4.5	3.6	9.0	16.8	12.7
	B	1.9	6.1	4.0	9.2	15.2	11.8
pH	S	8.2	8.2	8.2	8.0	8.4	8.2
	B	8.3	8.3	8.3	8.0	8.4	8.2
Salinity(ppt)	S	29.4	29.4	29.4	29.1	36.1	34.4
	B	36.2	36.2	36.2	29.3	36.4	35.6
DO (mg/l)	S	6.7	6.7	6.7	5.4	7.0	6.2
	B	5.7	5.7	5.7	4.8	6.7	5.8
BOD (mg/l)	S	0.6	1.0	0.8	1.3	2.0	1.6
	B	1.0	1.0	1.0	1.0	1.6	1.3
PO ₄ ³⁻ -P (μmol/l)	S	12.9	13.8	13.3	0.2	6.2	1.8
	B	1.0	1.1	1.1	0.4	5.2	1.0
TP(μmol/l)	S	16.5	19.2	17.8	1.2	6.3	3.7
	B	2.0	2.5	2.2	1.8	7.2	4.5
NO ₃ ⁻ -N (μmol/l)	S	11.8	12.0	11.9	10.1	30.6	16.1
	B	6.3	12.3	9.3	4.7	31.3	13.6
NO ₂ ⁻ -N(μmol/l)	S	0.6	0.7	0.7	1.7	5.3	3.0
	B	0.1	0.1	0.1	1.0	6.3	2.4
NH ₄ ⁺ -N(μmol/l)	S	41.1	47.6	44.4	0.2	17.9	6.1
	B	1.3	1.9	1.6	0.4	11.9	2.3
TN(μmol/l)	S	60.3	65.9	63.1	3.6	78.9	41.2
	B	8.3	12.2	10.2	8.2	21.3	14.7
PHc(μg/l)	1m	0.8	1.0	0.9	1.2	2.5	1.9
Phenol (μg/l)	S	52.3	74.9	63.6	31.2	34.3	32.8

Air temperature given in parenthesis

Table 4.7.3: Sediment quality off Bandra during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BYB1	0.5	95.3	4.2	8.7	149	989	8.2	38	54	94	102	1.6	0.23	24.8	1.1	301	1.0
BYB2	1	79.6	19.4	9.1	152	940	8.1	34	58	107	126	1.1	0.27	17.1	1.2	463	0.7

Remark:

*On dry weight basis except PHc which is in wet wt.

Table 4.7.4: Sediment quality off Bandra during May 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BYB1	10.2	66.8	23.1	7.9	136	900	7.5	34	49	85	93	1.1	0.2	20.0	1.0	273.9	0.9

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.7.5: Microbial counts in surface water (CFU/ml) off Bandra during 2015-16

Type of Bacteria	Population in surface water (CFU/ml)							
	Postmonsoon (December 2015)				Premonsoon (May 2016)			
	BYB1		BYB2		BYB1		BYB2	
	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl
TVC	0.2 x 10 ³	0.3 x 10 ³	18 x 10 ³	20 x 10 ³	5 x 10 ³	6 x 10 ³	7 x 10 ³	10 x 10 ³
TC	ND	ND	400	300	20	ND	20	170
FC	ND	ND	400	200	10	ND	10	140
ECLO	ND	ND	380	200	10	ND	10	90
SHLO	ND	ND	ND	ND	ND	ND	ND	60
SLO	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	10	ND	500	500	ND	ND	20	90
VLO	ND	ND	250	300	ND	ND	180	10
VPLO	ND	ND	ND	ND	ND	ND	120	10
VCLO	ND	ND	250	300	ND	ND	60	10
PALO	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	300	100	80	50	10	70

ND – Below Detectable Level

Table 4.7.6: Microbial counts in sediments (CFU/g) off Bandra during 2015-16

Type of Bacteria	Population in sediment (CFU/g)			
	Postmonsoon (December 2015)		Premonsoon (May 2016)	
	BYB1	BYB2	BYB1	BYB2
TVC	40 x 10 ³	800 x 10 ³	2 x 10 ³	Sample not collected
TC	ND	2000	ND	
FC	ND	1500	ND	
ECLO	ND	1500	ND	
SHLO	ND	ND	ND	
SLO	ND	ND	ND	
PKLO	ND	300	ND	
VLO	800	3000	20	
VPLO	700	ND	ND	
VCLO	100	3000	20	
PALO	ND	ND	ND	
SFLO	ND	ND	ND	

ND – Below Detectable Level

Table 4.7.7: Range and average of phytopigments off Bandra during December 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BYB1	09-12-15	6.5	6.6	2.8	9.0	0.5	0.5	0.8	0.9	13.3	14.3	3.2	12.0
		6.5		5.9		0.5		0.8		13.8		7.6	
BYB2	09-12-15	3.0	14.8	2.7	8.2	0.5	2.8	0.3	2.8	1.7	32.8	1.7	29.4
		6.2		5.7		1.2		1.6		7.5		6.0	

Table 4.7.8: Range and average of phytopigments off Bandra during May 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BYB1	01-05-16	5.9	22.8	7.0	14.2	0.2	0.4	1.1	3.0	13.3	114.1	4.7	6.6
		14.3		10.6		0.3		2.0		63.7		5.7	
BYB2	01-05-16	5.6	32.4	18.2	30.6	0.1	3.0	0.1	2.5	5.8	352.1	7.4	426.6
		21.7		24.2		1.2		1.3		74.8		95.1	

Table 4.7.9: Range and average of phytoplankton population off Bandra during December 2015

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera			
		S		B		S		B					
		Min	Max	Min	Max	Min	Max	Min	Max				
		Avg		Avg		Avg		Avg					
BYB1	09-12-15	97.0	184.6	93.4	175.6	16.0	17.0	13.0	14.0	Skeletonema	Thalassiosira		
		140.8		134.5		16.5		13.5		Thalassiosira	Chaetoceros		
BYB2	09-12-15	93.2	100.6	56.6	185.2	14.0	15.0	11.0	16.0	Skeletonema	Skeletonema		
		96.9		120.9		14.5		13.5		Chaetoceros	Navicula		

Table 4.7.10: Range and average of phytoplankton population off Bandra during May 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera			
		S		B		S		B					
		Min	Max	Min	Max	Min	Max	Min	Max				
		Avg		Avg		Avg		Avg					
BYB1	01-05-16	4031.0	4693.8	532.2	1110.8	17.0	18.0	20.0	20.0	Chaetoceros	Chaetoceros		
		4362.4		821.5		17.5		20.0		Thalassiosira	Pseudo-nitzschia		
BYB2	01-05-16	911.4	4120.0	4029.8	5641.8	15.0	19.0	16.0	18.0	Guinardia	Rhizosolenia		
		2515.7		4835.8		17.0		17.0		Asterionellopsis	Skeletonema		

Table 4.7.11: Percentage composition of phytoplankton population off Bandra during December 2015

Name of the genera	BYB1	BYB2	Total Avg.
<i>Alexandrium</i>	0.7	-	0.3
<i>Amphidinium</i>	-	<0.1	<0.1
<i>Anabaena</i>	-	<0.1	<0.1
<i>Ceratium</i>	0.7	-	0.4
<i>Chaetoceros</i>	12.7	1.4	7.0
<i>Chodatella</i>	-	0.6	0.3
<i>Coscinodiscus</i>	2.6	2.4	2.5
<i>Cylindrotheca</i>	2.3	0.9	1.6
<i>Cymatosira</i>	-	0.5	0.2
<i>Dinophysis</i>	<0.1	-	<0.1
<i>Distephanus</i>	-	3.2	1.6
<i>Ditylum</i>	0.4	-	0.2
<i>Guinardia</i>	0.4	-	0.2
<i>Gyrodinium</i>	5.6	-	2.8
<i>Gyrosigma</i>	-	7.3	3.7
<i>Hemidiscus</i>	-	1.8	0.9
<i>Karenia</i>	0.4	-	0.2
<i>Leptocylindrus</i>	4.0	-	2.0
<i>Lithodesmium</i>	<0.1	-	<0.1
<i>Navicula</i>	2.9	6.9	4.9
<i>Nitzschia</i>	8.7	0.2	4.5
<i>Odontella</i>	-	0.5	0.2
<i>Peridinium</i>	1.5	-	0.7
<i>Phacus</i>	-	1.0	0.5
<i>Pinnularia</i>	-	0.6	0.3
<i>Plagiotropis</i>	-	3.2	1.6
<i>Pleurosigma</i>	0.4	-	0.2
<i>Prorocentrum</i>	3.0	23.3	13.1
<i>Protoperidinium</i>	2.9	-	1.5
<i>Pseudo-nitzschia</i>	1.5	0.6	1.0
<i>Pyramimonas</i>	-	0.7	0.3
<i>Rhizosolenia</i>	0.9	0.5	0.7
<i>Skeletonema</i>	13.4	12.4	12.9
<i>Surirella</i>	<0.1	-	<0.1
<i>Thalassiosira</i>	34.9	31.7	33.3
<i>Triceratium</i>	<0.1	-	<0.1
<i>Trichodesmium</i>	-	0.5	0.2
Total	100	100	100

Table 4.7.12: Percentage composition of phytoplankton population off Bandra during May 2016

Name of the genera	BYB1	BYB2	Total %
<i>Alexandrium</i>	0.1	-	<0.1
<i>Amphiprora</i>	0.1	-	<0.1
<i>Amphora</i>	-	<0.1	<0.1
<i>Asterionellopsis</i>	4.0	1.7	2.8
<i>Astromaphalus</i>	0.1	-	<0.1
<i>Ceratium</i>	<0.1	<0.1	<0.1
<i>Chaetoceros</i>	70.0	83.8	76.9
<i>Chlamydomonas</i>	<0.1	-	<0.1
<i>Corethron</i>	<0.1	<0.1	<0.1
<i>Coscinodiscus</i>	-	<0.1	<0.1
<i>Cyclotella</i>	<0.1	-	<0.1
<i>Cylindrotheca</i>	0.2	-	0.1
<i>Dactyliosolen</i>	0.2	0.3	0.3
<i>Dinophysis</i>	<0.1	-	<0.1
<i>Diploneis</i>	<0.1	<0.1	<0.1
<i>Ditylum</i>	0.6	0.1	0.4
<i>Gonyaulax</i>	-	<0.1	<0.1
<i>Guinardia</i>	3.8	1.2	2.5
<i>Gymnodinium</i>	0.2	0.1	0.2
<i>Gyrodinium</i>	0.2	0.1	0.1
<i>Gyrosigma</i>	-	<0.1	<0.1
<i>Karenia</i>	-	<0.1	<0.1
<i>Navicula</i>	0.1	0.1	0.1
<i>Nitzschia</i>	0.1	<0.1	0.1
<i>Noctiluca</i>	<0.1	-	<0.1
<i>Odontella</i>	0.1	0.1	0.1
<i>Peridinium</i>	0.3	0.1	0.2
<i>Planktoniella</i>	<0.1	-	<0.1
<i>Pleurosigma</i>	0.3	<0.1	0.1
<i>Protoperidinium</i>	0.2	0.2	0.2
<i>Pseudo-nitzschia</i>	4.9	1.9	3.4
<i>Rhizosolenia</i>	5.2	4.1	4.7
<i>Skeletonema</i>	3.2	3.3	3.3
<i>Surirella</i>	<0.1	-	<0.1
<i>Thalassionema</i>	0.3	0.1	0.2
<i>Thalassiosira</i>	5.8	2.8	4.3
Total	100	100	100

Table 4.7.13: Range and average (parenthesis) of zooplankton at different station off Bandra during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
BYB1 (09/12/2015)	0.8-0.9 (0.9)	6.3-19.4 (13.0)	8-9 (9)	copepods (94.5), lamellibranchs (2.4), <i>Lucifer sp.</i> (1.2), polychaetes (0.7), decapod larvae (0.4), fish larvae(0.3), fish eggs (0.2), gastropods (0.2), medusae (0.1), others (0.1).
BYB2 (09/12/2015)	0.6-8.4 (3.5)	2.0-12.0 (6.3)	9-14 (12)	copepods (90.3), lamellibranchs (4.4), decapod larvae (1.7), gastropods (1.0), polychaetes (1.0), appendicularians (0.6), <i>Lucifer sp.</i> (0.5), siphonophores (0.1), ctenophores (0.1), chaetognaths (0.1), others (0.1).

Table 4.7.14: Range and Average (parenthesis) of Zooplankton at different stations off Bandra during May 2016

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
BYB1 (01/05/2016)	0.5-3.6 (2.1)	11.3-35.1 (23.2)	8-9 (8)	Copepods (97.8), <i>Lucifer sp.</i> (0.1), cephalopods (0.3), gastropods (1.3), lamellibranchs (0.1), appendicularians (0.2), doliolids (), salpids (0.1), others (0.1).
BYB2 (01/05/2016)	0.3-3.2 (2.2)	3.4-64.6 (33.1)	6-11 (8)	Copepods (95.8), decapod larvae (1.2), appendicularians (1.0), gastropods (0.9), lamellibranchs (0.8), polychaetes (0.2), fish eggs (0.2), others (0.1).

Table 4.7.15: Abundance of Zooplanktons off Bandra during December 2015

Faunal groups	BYB1	BYB2
Foraminiferans	-	+
Siphonophores	-	+
Medusae	+	+
Ctenophores	+	+
Chaetognaths	-	+
Polychaetes	+	+
Copepods	+	+
Amphipods	-	+
Mysids	-	+
<i>Lucifer</i> sp.	+	+
Decapod larvae	+	+
Gastropods	+	+
Lamellibranchs	+	+
Appendicularians	-	+
Fish Eggs	+	+
Fish Larvae	+	+
Isopods	-	+

Table 4.7.16: Abundance of zooplanktons off Bandra during May 2016

Faunal Groups	BYB1	BYB2
Foraminiferans	+	+
Medusae	+	+
Chaetognaths	+	+
Polychaetes	+	+
Copepods	+	+
<i>Lucifer</i> sp.	+	-
Decapod larvae	-	+
Cephalopods	+	-
Gastropods	+	+
Lamellibranchs	+	+
Appendicularians	+	+
Salpids	+	-
Fish Eggs	+	+
Fish Larvae	-	+
Isopods	-	+

Table 4.7.17: Range and average of macrofauna off Bandra during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
BYb1	0.04	17.35	4.58	25	125	63	1	3	2
BYb2	0.11	10.39	3.14	50	875	350	1	1	1
Overall	0.04	17.35	3.86	25	875	206	1	3	1
Premonsoon May 2016									
BYb1	0.19	1.86	1.20	175	475	331	3	5	4
BYb2	Sample not collected (Rocky bottom)								
Overall	0.19	1.86	1.20	175	475	331	3	5	4

Table 4.7.18: Percentage composition of macrofauna off Bandra during December 2015

Phylum	Groups	Stations		Average
		BYb1	BYb2	
Annelida	Polychaeta	80.00	100.00	96.97
Arthropoda	Amphipoda	10.00	0.00	1.52
Mollusca	Pelecypoda	10.00	0.00	1.52

Table 4.7.19: Percentage composition of macrofauna off Bandra during May 2016

Phylum	Groups	Stations		Average
		BYb1	BYb2	
Annelida	Polychaeta	64.15	Sample not collected (Rocky bottom)	64.15
Phoronida	Phoronida	13.21		13.21
Arthropoda	Amphipoda	7.55		7.55
Nemertea	Nemertea	5.66		5.66
Mollusca	Pelecypoda	3.77		3.77
Arthropoda	Copepoda	1.89		1.89
Arthropoda	Decapoda Larvae	1.89		1.89
Platyhelminthes	Turbellaria	1.89		1.89

Table 4.7.20: Station-wise distribution of meiofauna parameters in Bandra

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
BYB1	112.4	209.16	160.78	212	413	313	6	6	6
BYB2	9.29	17.45	13.368	65	171	118	4	5	4
Premonsoon May 2016									
BYB1	306.96	557.88	432.42	74	170	122	3	4	3
BYB2	Rocky bottom								

Table 4.7.21: Percentage composition of meiofauna off Bandra during December 2015

Groups	BYB1	BYB2	Average
Cnidarians	2.33	0.00	1.69
Copepods	3.49	9.88	5.24
Foraminiferans	31.40	58.64	38.85
Halacaroids	0.00	6.17	1.69
Insects	1.16	0.00	0.84
Nauplius	1.16	0.62	1.01
Nematodes	59.30	24.69	49.83
Polychaetes	1.16	0.00	0.84

Table 4.7.22: Percentage composition of meiofauna off Bandra during May 2016

Groups	BYB1	BYB2	Average
Cnidarians	2.91	Rocky Bottom	2.91
Foraminiferans	13.37		13.37
Nematodes	77.33		77.33
Polychaetes	6.40		6.40

Table 4.8.1: Water quality off Worli during December 2015

Parameter	Level	BYW1	BYW2		
		Avg*	Min	Max	Avg
Temperature(°C)	S	29.0	27.5	30.0	28.8
	B	28.0	27.5	29.5	28.5
		(31.0)	(27.0)	(32.0)	(30.0)
SS(mg/l)	S	75	71	88	79
	B	86	76	77	77
Turbidity(NTU)	S	17.8	10.4	20.3	16.9
	B	13.4	11.3	20.4	17.4
pH	S	8.2	7.9	8.4	8.1
	B	8.2	8.0	8.3	8.1
Salinity(ppt)	S	34.8	34.0	35.0	34.5
	B	35.1	34.3	35.2	35.0
DO (mg/l)	S	6.1	4.5	9.6	6.5
	B	6.4	3.8	8.0	5.6
BOD (mg/l)	S	1.3	4.8	4.8	4.8
	B	1.9	1.0	3.5	2.2
PO ₄ ³⁻ -P (μmol/l)	S	1.7	1.7	3.3	2.5
	B	1.9	0.8	2.3	1.6
TP(μmol/l)	S	2.5	3.3	3.6	3.5
	B	2.7	1.1	2.4	1.7
NO ₃ ⁻ -N (μmol/l)	S	15.1	7.9	18.5	15.3
	B	13.5	7.3	18.9	15.6
NO ₂ ⁻ -N(μmol/l)	S	3.6	1.8	3.7	2.9
	B	3.5	1.8	3.2	2.5
NH ₄ ⁺ -N(μmol/l)	S	3.1	1.5	12.9	5.2
	B	2.6	1.8	10.2	4.1
TN(μmol/l)	S	36.0	29.1	46.2	37.6
	B	34.5	28.0	39.3	33.6
PHc(μg/l)	1m	1.9	1.2	1.4	1.3
Phenol (μg/l)	S	45.6	46.1	72.5	59.3

* Average of two readings

Air temperature given in parenthesis

Table 4.8.2: Water quality off Worli during April 2016

Parameter	Level	BYW1	BYW2		
		Avg*	Min	Max	Avg
Temperature(°C)	S	27.0	27.0	28.0	27.4
	B	26.5	26.5	27.5	27.0
		(29.0)	(28.0)	(30.5)	(29.2)
SS(mg/l)	S	103	88	94	91
	B	81	68	109	88
Turbidity(NTU)	S	18.5	15.9	21.2	18.8
	B	11.1	16.9	20.5	18.3
pH	S	8.0	8.1	8.2	8.1
	B	8.0	8.1	8.2	8.1
Salinity(ppt)	S	36.2	36.0	36.8	36.4
	B	36.3	36.3	36.6	36.4
DO (mg/l)	S	7.6	5.8	7.7	7.3
	B	6.7	5.4	6.4	6.0
BOD (mg/l)	S	2.2	2.9	3.2	3.0
	B	1.9	1.3	1.9	1.6
PO ₄ ³⁻ -P (μmol/l)	S	0.3	0.1	0.8	0.3
	B	0.8	0.6	0.9	0.8
TP(μmol/l)	S	1.3	1.1	2.6	1.8
	B	1.7	2.5	3.1	2.8
NO ₃ ⁻ -N (μmol/l)	S	8.1	3.9	9.4	6.6
	B	7.5	5.3	11.3	7.0
NO ₂ ⁻ -N(μmol/l)	S	0.1	0.1	0.7	0.4
	B	0.1	0.4	1.0	0.6
NH ₄ ⁺ -N(μmol/l)	S	2.9	0.4	5.7	2.0
	B	0.8	0.7	2.0	1.3
TN(μmol/l)	S	13.7	8.2	13.2	10.7
	B	19.2	11.3	16.9	14.1
PHc(μg/l)	1m	2.4	1.2	1.6	1.4
Phenol (μg/l)	S	67.7	49.4	71.8	60.6

*Average of two readings

Air temperature given in parenthesis

Table 4.8.3: Sediment quality off Worli during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BYW1	0.8	76	23.2	9.3	152	932	8.2	36	59	94	106	0.54	0.24	21.2	1.6	1519	0.2
BYW2	1.6	82.2	16.2	8.9	154	897	8.2	39	57	99	116	0.41	0.22	19.0	1.6	1558	0.3

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.8.4: Sediment quality off Worli during April 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BYW1	5.0	88.3	6.7	6.9	122	822	6.5	47	77	105	97	0.17	0.19	14.6	1.5	1220	0.9
BYW2	4.0	77.4	18.6	6.9	138	685	6.8	50	87	112	104	0.33	0.18	14.8	1.4	960	0.5

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.8.5: Microbial counts (CFU/ml) in water off Worli during 2015-16

Type of Bacteria	Population in surface water (CFU/ml)								
	Postmonsoon (December 2015)				Premonsoon (April 2016)				
	BYW		BYW1	BYW2		BYW	BYW1	BYW2	
	Eb	Fl		Fl	Eb			Eb	Fl
TVC	12 x10 ³	9 x 10 ³	7 x 10 ³	15 x 10 ³	22 x 10 ³	5 x 10 ³	10 x 10 ³	5 x 10 ³	3 x 10 ³
TC	30	ND	20	50	80	100	70	ND	ND
FC	10	ND	10	30	30	70	40	ND	ND
ECLO	10	ND	10	10	10	40	20	ND	ND
SHLO	20	ND	ND	70	ND	30	ND	ND	ND
SLO	ND	ND	ND	50	20	ND	ND	ND	ND
PKLO	ND	ND	ND	10	20	ND	ND	ND	ND
VLO	ND	ND	ND	30	60	ND	10	10	ND
VPLO	ND	ND	ND	20	40	ND	ND	ND	ND
VCLO	ND	ND	ND	10	20	ND	10	10	ND
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	20	30	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.8.6: Microbial counts (CFU/g) in sediment off Worli during 2015-16

Type of Bacteria	Population in surface water (CFU/g)					
	Postmonsoon (December 2015)			Premonsoon (April 2016)		
	BYW	BYW1	BYW2	BYW	BYW1	BYW2
TVC	20×10^3	120×10^3	40×10^3	2×10^3	3×10^3	20×10^3
TC	ND	ND	100	70	40	ND
FC	ND	ND	70	60	10	ND
ECLO	ND	ND	50	60	10	ND
SHLO	ND	ND	ND	10	ND	ND
SLO	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	ND	ND	ND
VLO	ND	ND	100	ND	20	ND
VPLO	ND	ND	100	ND	20	ND
VCLO	ND	ND	ND	ND	ND	ND
PALO	ND	ND	20	ND	ND	ND
SFLO	ND	ND	20	ND	ND	ND

ND – Below Detectable Level

Table 4.8.7: Range and average of phytopigments off Worli during December 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BYW1	08-12-15	10.2	12.5	5.0	6.5	0.5	0.5	1.0	1.5	22.2	26.0	4.3	5.3
		11.4		5.8		0.5		1.2		24.1		4.8	
BYW2	08-12-15	1.8	7.9	3.2	6.7	0.8	1.8	0.8	2.5	2.0	7.2	2.1	5.8
		4.4		4.8		1.3		1.2		3.6		4.4	

Table 4.8.8: Range and average of phytopigments off Worli during April 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BYW1	29-04-16	22.6		2.0		0.02		0.5		1130.0		4.2	
BYW2	29-04-16	19.5	28.8	1.5	7.6	0.3	1.2	0.8	9.3	16.2	102.9	1.7	426.6
		24.3		4.0		0.5		1.4		67.8		2.9	

Table 4.8.9: Range and average of phytoplankton population off Worli during December 2015

Station	Date	Cell count (no x 10 ³ Cells/l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
BYW1	08-12-15	929.8		269.8		16.0		13.0		<i>Chaetoceros</i>	<i>Thalassiosira</i>
BYW2	08-12-15	188.6	726.6	216.8	1301.6	15.0	20.0	12.0	17.0	<i>Skeletonema</i>	<i>Skeletonema</i>
		457.6		759.2		17.5		14.5		<i>Thalassiosira</i>	<i>Thalassiosira</i>
										<i>Skeletonema</i>	<i>Chaetoceros</i>
										<i>Nitzschia</i>	<i>Nitzschia</i>
										<i>Chaetoceros</i>	<i>Skeletonema</i>

Table 4.8.10: Range and average of phytoplankton population off Worli during April 2016

Station	Date	Cell count (no x 10 ³ Cells/l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
BYW1	29-04-16	491.8		1650.6		21.0		23.0		<i>Skeletonema</i>	<i>Cylindrotheca</i>
BYW2	29-04-16	106.4		124.8		17.0		17.0		<i>Chaetoceros</i>	<i>Chaetoceros</i>
										<i>Skeletonema</i>	<i>Cylindrotheca</i>
										<i>Cylindrotheca</i>	<i>Thalassiosira</i>
										<i>Nitzschia</i>	<i>Nitzschia</i>

Table 4.8.11: Percentage composition of phytoplankton population off Worli during December 2015.

Name of the genera	BYW1	BYW2	Total Avg.
<i>Alexandrium</i>	-	<0.1	<0.1
<i>Amphiprora</i>	0.2	-	<0.1
<i>Amphora</i>	-	<0.1	<0.1
<i>Ceratium</i>	0.3	<0.1	0.2
<i>Chaetoceros</i>	25.0	12.3	18.7
<i>Coscinodiscus</i>	0.8	0.8	0.8
<i>Cylindrotheca</i>	2.7	0.9	1.8
<i>Ditylum</i>	0.3	<0.1	0.2
<i>Gonyaulax</i>	-	<0.1	<0.1
<i>Guinardia</i>	-	0.3	0.2
<i>Gymnodinium</i>	<0.1	0.2	<0.1
<i>Gyrodinium</i>	0.7	0.3	0.5
<i>Karenia</i>	-	<0.1	<0.1
<i>Leptocylindrus</i>	-	3.0	1.5
<i>Navicula</i>	3.2	2.1	2.6
<i>Nitzschia</i>	1.3	9.7	5.5
<i>Odontella</i>	<0.1	<0.1	<0.1
<i>Peridinium</i>	-	<0.1	<0.1
<i>Pleurosigma</i>	-	<0.1	<0.1
<i>Prorocentrum</i>	0.2	1.0	0.6
<i>Protoperidinium</i>	0.3	-	0.2
<i>Pseudo-nitzschia</i>	1.2	1.9	1.5
<i>Rhizosolenia</i>	0.3	<0.1	0.2
<i>Rhodomonas</i>	-	<0.1	<0.1
<i>Skeletonema</i>	26.8	12.9	19.9
<i>Thalassionema</i>	4.3	<0.1	2.2
<i>Thalassiosira</i>	32.2	53.8	43.0
<i>Thalassiothrix</i>	<0.1	0.3	0.2
Total	100	100	100

Table 4.8.12: Percentage composition of phytoplankton population off Worli during April 2016

Name of the genera	BYW1	BYW2	Total Avg.
<i>Alexandrium</i>	0.1	-	<0.1
<i>Amphiprora</i>	-	0.7	0.3
<i>Amphora</i>	0.1	0.3	0.2
<i>Asterionella</i>	-	2.0	1.0
<i>Ceratium</i>	-	<0.1	<0.1
<i>Chaetoceros</i>	20.1	31.1	25.6
<i>Coscinodiscus</i>	0.6	0.3	0.4
<i>Cyclotella</i>	0.5	-	0.2
<i>Cylindrotheca</i>	13.0	7.7	10.3
<i>Ditylum</i>	0.1	0.7	0.4
<i>Gonyaulax</i>	0.5	-	0.2
<i>Guinardia</i>	6.5	1.6	4.1
<i>Gyrodinium</i>	0.2	0.4	0.3
<i>Lauderia</i>	<0.1	-	<0.1
<i>Leptocylindrus</i>	<0.1	-	<0.1
<i>Lithodesmium</i>	0.2	0.2	0.2
<i>Melosira</i>	-	1.7	0.8
<i>Navicula</i>	<0.1	2.7	1.4
<i>Nitzschia</i>	1.4	7.0	4.2
<i>Odontella</i>	0.5	<0.1	0.3
<i>Peridinium</i>	0.5	0.7	0.6
<i>Pleurosigma</i>	0.2	2.3	1.3
<i>Protoperidinium</i>	<0.1	<0.1	<0.1
<i>Pseudo-nitzschia</i>	4.2	1.0	2.6
<i>Rhizosolenia</i>	5.3	4.7	5.0
<i>Skeletonema</i>	44.6	27.5	36.1
<i>Surirella</i>	<0.1	-	<0.1
<i>Thalassionema</i>	0.6	1.7	1.1
<i>Thalassiosira</i>	0.7	5.3	3.0
<i>Thalassiothrix</i>	0.3	0.3	0.3
Total	100	100	100

Table 4.8.13: Range and average (parenthesis) of zooplankton at different stations off Worli during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
BYW1 (8/12/2015)	0.8-1.9 (1.4)	11.7-13.3 (12.5)	9-10 (9.5)	Copepods (72.3), appendicularians(19.4), lamellibranchs (3.4), polychaetes (3.0), gastropods (0.6), fish eggs (0.5), <i>Lucifer sp.</i> (0.3), Siphonophores(0.1), Chaetognaths(0.1) Fish larvae (0.1), others (0.1).
BYW2 (8/12/2015)	0.3-4.0 (2.0)	9.3-63.4 (29.6)	8-14 (10)	Copepods (84.5), lamellibranchs (6.0), gastropods (5.3), appendicularians(2.1), Decapods larvae (0.6), Siphonophores(0.5), polychaetes (0.3), fish eggs (0.2), <i>Lucifer sp.</i> (0.2), Fish larvae (0.1), others (0.1).

Table 4.8.14: Range and Average (parenthesis) of Zooplankton at different stations off Worli during April 2016

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
BYW1 (29/04/2016)	4.5-5.1 (4.8)	102.7-115.9 (109.3)	9-11 (10)	Copepods (98.5), fish eggs (0.6), lamellibranchs (0.5), decapod larvae (0.3), others (0.1)
BYW2 (29/04/2016)	0.2-7.7 (4.1)	1.1-53.1 (20.1)	9-10 (10)	Copepods (90.3), appendicularians (3.4), lamellibranchs (2.4), decapod larvae (1.6), gastropods (1.1), fish eggs (0.8), polychaetes (0.3), chaetognaths (0.1), others (0.1)

Table 4.8.15: Abundance of Zooplanktons off Worli during December 2015

Faunal Groups	BYW 1	BYW 2
Foraminiferans	-	+
Siphonophores	+	+
Medusae	-	+
Chaetognaths	+	+
Polychaetes	+	+
Copepods	+	+
Mysids	-	+
Lucifer sp.	+	+
Decapod larvae	+	+
Gastropods	+	+
Lamellibranchs	+	+
Appendicularians	+	+
Fish Eggs	+	+
Fish Larvae	+	+
Isopods	-	+

Table 4.8.16: Abundance of zooplanktons off Worli during April 2016

Faunal Groups	BYW1	BYW2
Foraminiferans	+	+
Medusae	+	+
Chaetognaths	+	+
Polychaetes	+	+
Copepods	+	+
Amphipods	-	-
Decapod larvae	+	+
Stomatopods	+	-
Gastropods	+	+
Lamellibranchs	+	+
Appendicularians	+	+
Fish Eggs	+	+
Fish Larvae	+	+

Table 4.8.17: Range and average of macrofauna off Worli during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
BYW1	0.20	26.50	7.10	175	2450	825	1	2	1
BYW2	0.20	2.20	104.00	200	325	237	1	2	1
Overall	0.20	26.50	55.55	175	2450	531	1	2	1
Premonsoon April 2016									
BYW1	0.90	11.90	6.20	525	850	669	1	10	3
BYW2	0.20	11.60	3.80	350	1275	794	1	4	3
Overall	0.20	11.90	5.00	350	1275	732	1	10	3

Table 4.8.18: Percentage composition of macrofauna off Worli during December 2015

Phylum	Group	Stations		Average
		BYW2	BYW1	
Annelida	Polychaeta	97.47	99.27	98.87
Phoronida	Phoronida	0.00	0.73	0.56
Sipuncula	Sipuncula	2.53	0.00	0.56

Table 4.8.19: Percentage composition of macrofauna off Worli during April 2016

Phylum	Group	Stations		Average
		BYW2	BYW1	
Annelida	Polychaeta	9.43	88.79	45.7
Arthropoda	Amphipoda	8.68	1.94	5.6
Arthropoda	Tanaidacea	1.64	0.9	1.3
Arthropoda	Cumacea	0.75	0	0.41
Chordata	Fish larvae	1.64	0	0.89
Mollusca	Pelecypoda	73.96	4.63	42.28
Mollusca	Scaphopoda	0.0	0.9	0.41
Sipuncula	Sipuncula	3.9	2.84	3.42

Table 4.8.20: Station-wise distribution of meiofauna parameters in Worli

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
December 2015									
BYW1	85.94	91.38	88.66	177	265		2	5	3
BYW2	101.45	118.87	110.16	171	321	246	4	5	4
April 2016									
BYW1	60.68	112.06	86.37	92	205	149	3	3	3
BYW2	119.6	155.58	137.59	106	386	246	2	4	3

Table 4.8.21: Percentage composition of meiofauna off Worli during December 2015

Groups	BYW1	BYW2	Average
Cnidarians	0.00	10.45	5.41
Copepods	1.60	4.48	3.09
Foraminiferans	12.82	31.34	22.41
Nauplius	0.00	1.49	0.77
Nematodes	83.33	52.24	67.23
Nemerteans	1.60	0.00	0.77
Polychaetes	0.64	0.00	0.31

Table 4.8.22: Percentage composition of meiofauna off Worli during April 2016

Groups	BYW1	BYW2	Average
Copepods	2.38	0.29	1.08
Foraminiferans	9.52	1.72	4.66
Nematodes	83.33	97.70	92.29
Nemerteans	4.76	0.29	1.97

Table 4.9.1: Water quality off Thane Creek during December 2015

Parameter	Level	BY1	BY2	BY3			BY4			BY5			BY6		
		Avg*	Avg*	Min	Max	Avg									
Temperature(°C)	S	28.5	28.5	28.0	29.5	28.8	28.5	28.5	28.5	27.5	28.0	27.8	27.5	30.0	28.9
	B	28.5	28.5	28.0	29.0	28.5	28.5	28.5	28.5	27.0	28.0	27.5	27.0	29.0	28.4
		(30.0)	(31.0)	(29.0)	(31.5)	(30.3)	(30.0)	(30.0)	(30.0)	(28.5)	(29.0)	(28.8)	(29.0)	(32.5)	(30.3)
SS(mg/l)	S	66	66	58	79	69	64	73	69	22	26	24	83	103	93
	B	79	77	72	83	78	70	93	82	109	154	131	59	126	93
Turbidity(NTU)	S	27.9	25.7	49.3	50.5	49.9	16.3	29.1	20.3	26.5	30.3	28.4	28.6	37.0	33.2
	B	35.3	22.6	47.3	49.3	48.3	17.3	28.3	22.6	29.8	35.0	32.4	29.1	42.0	34.1
pH	S	8.1	8.1	8.1	8.1	8.1	7.8	8.1	8.0	7.7	7.9	7.8	7.5	8.0	7.8
	B	8.1	8.1	8.1	8.2	8.2	7.9	8.1	8.0	7.9	8.0	8.0	7.6	7.9	7.8
Salinity(ppt)	S	34.6	34.6	34.4	34.6	34.5	34.6	35.0	34.8	32.1	32.7	32.4	28.9	32.6	31.1
	B	34.7	34.6	34.4	34.5	34.5	34.6	35.0	34.8	33.7	33.8	33.7	31.5	33.0	32.4
DO (mg/l)	S	6.1	5.8	6.4	6.4	6.4	2.9	6.4	5.0	2.9	7.0	5.0	3.5	9.6	6.9
	B	5.8	5.1	5.1	5.8	5.4	3.2	5.8	4.9	3.2	4.8	4.0	2.6	6.4	4.7
BOD (mg/l)	S	1.9	2.6	2.6	3.2	2.9	1.3	1.9	1.7	1.9	4.5	3.2	6.1	9.0	7.5
	B	1.3	1.3	0.3	1.9	1.1	1.0	1.9	1.4	1.0	1.6	1.3	2.9	4.2	3.5
PO ₄ ³⁻ -P (μmol/l)	S	2.0	1.2	1.7	1.8	1.7	1.7	2.8	2.3	4.7	5.9	5.3	5.0	11.1	6.6
	B	1.5	1.2	2.4	2.4	2.4	2.2	3.0	2.7	4.3	4.5	4.4	4.9	7.3	5.8
TP(μmol/l)	S	2.4	2.3	2.8	3.3	3.0	4.9	4.9	4.9	5.4	6.3	5.8	7.7	13.9	10.8
	B	2.2	2.5	3.3	3.4	3.4	5.4	8.1	5.3	6.8	8.4	7.6	8.4	11.6	10.0
NO ₃ ⁻ -N (μmol/l)	S	25.5	31.9	31.3	33.2	32.2	28.8	35.7	32.0	19.7	33.1	26.4	14.2	25.6	19.8
	B	20.4	30.9	31.9	34.8	33.4	28.3	34.8	31.9	26.7	44.6	35.7	11.5	29.9	20.9
NO ₂ ⁻ -N(μmol/l)	S	0.1	0.4	0.3	0.3	0.3	0.3	0.6	0.4	16.7	29.6	23.1	21.6	28.5	25.6
	B	0.1	0.2	0.1	0.2	0.1	0.2	0.4	0.3	2.7	3.0	2.9	17.9	31.4	23.8
NH ₄ ⁺ -N(μmol/l)	S	2.0	2.9	1.5	3.5	2.5	0.3	1.3	0.6	2.0	3.1	2.5	2.4	36.1	12.3
	B	1.8	1.6	1.2	1.4	1.3	0.5	1.6	0.8	1.4	1.5	1.5	1.6	24.7	6.2
TN(μmol/l)	S	44.1	40.6	39.3	43.2	41.2	41.7	41.7	35.6	100.3	106.3	103.3	82.9	93.7	88.3
	B	40.5	37.3	38.6	41.7	40.1	40.4	51.4	34.6	78.6	103.9	91.2	79.2	106.8	93.0
PHe(μg/l)	1m	2.8	3.3	2.5	2.5	2.5	2.7	3.3	2.9	2.8	3.2	3.0	3.5	3.9	3.7
Phenol (μg/l)	S	28.3	138.4	112.3	112.3	112.3	22.3	100.1	49.2	60.2	70.1	65.2	73.2	333.8	203.5

* Average of two readings

Air temperature given in parenthesis

Table 4.9.2: Water quality off Thane Creek during April 2016

Parameter	Level	BY1	BY2	BY3			BY4			BY5			BY6		
		Avg*	Avg*	Min	Max	Avg									
Temperature(°C)	S	29.0	28.0	29.0	30.0	29.5	28.0	29.5	28.5	27.5	29.0	28.3	27.0	29.5	28.3
	B	28.5	27.5	28.5	29.5	29.0	27.5	28.5	28.2	27.0	28.5	27.8	26.5	29.0	28.0
		(30.0)	(29.0)	(30.0)	(31.0)	(30.5)	(29.0)	(31.0)	(27.7)	(29.0)	(31.0)	(30.0)	(28.0)	(31.5)	(29.8)
SS(mg/l)	S	122	76	114	163	139	98	109	69	245	389	317	106	148	127
	B	105	87	207	290	248	129	262	195	189	225	207	109	139	124
Turbidity(NTU)	S	33.9	25.9	42.6	52.9	47.8	19.3	29.0	23.3	88.4	105.9	97.2	59.0	64.4	61.7
	B	32.1	23.3	96.8	106.9	101.9	17.2	28.9	23.1	90.3	118.2	104.3	60.7	70.5	65.6
pH	S	8.1	8.1	8.0	8.1	8.1	8.0	8.2	8.1	7.9	8.0	8.0	7.9	8.1	8.0
	B	8.1	8.1	8.0	8.1	8.1	8.0	8.2	8.1	7.8	8.1	8.0	7.9	8.1	8.0
Salinity(ppt)	S	36.5	36.4	36.3	36.4	36.4	36.3	36.8	36.5	36.1	36.3	36.2	34.8	36.2	35.7
	B	36.5	36.3	36.3	36.3	36.3	36.3	36.9	36.5	36.0	36.3	36.2	34.3	36.3	35.4
DO (mg/l)	S	6.7	6.7	6.0	6.3	6.2	5.8	6.7	6.2	5.4	6.1	5.8	5.8	6.4	6.0
	B	6.3	6.3	6.0	6.3	6.2	5.4	6.4	6.0	5.8	6.4	6.1	5.4	6.7	5.9
BOD (mg/l)	S	3.8	2.2	2.2	2.5	2.4	3.8	4.2	4.0	2.6	3.5	3.1	4.5	4.8	4.7
	B	2.9	1.6	1.6	2.2	1.9	2.9	2.9	2.9	3.9	4.2	4.0	3.9	4.2	4.0
PO ₄ ³⁻ -P (μmol/l)	S	0.4	0.7	0.4	1.1	0.8	0.5	3.1	1.5	4.5	5.1	4.8	4.9	15.7	7.4
	B	0.4	0.8	0.4	0.9	0.6	0.6	3.3	1.9	3.8	5.4	4.6	5.1	49.4	12.6
TP(μmol/l)	S	1.5	1.5	0.9	2.1	1.5	1.6	5.2	3.4	6.7	6.8	6.7	6.0	22.6	14.3
	B	1.7	2.0	1.2	1.9	1.5	2.8	5.6	4.2	5.2	7.2	6.2	6.6	63.4	35.0
NO ₃ ⁻ -N (μmol/l)	S	16.5	9.5	15.5	16.8	16.2	8.2	28.9	20.4	22.4	26.7	24.6	11.2	48.8	25.1
	B	4.6	14.0	14.7	18.4	16.6	6.6	29.8	21.2	9.6	25.4	17.5	17.3	60.3	29.4
NO ₂ ⁻ -N(μmol/l)	S	0.4	0.6	0.2	1.0	0.6	0.2	1.2	0.5	6.8	10.2	8.5	8.6	10.9	9.8
	B	0.2	0.4	0.3	0.5	0.4	0.2	1.1	0.5	3.5	9.4	6.5	8.0	11.2	9.5
NH ₄ ⁺ -N(μmol/l)	S	3.7	1.9	1.1	4.3	2.7	0.2	1.4	0.8	2.1	2.9	2.5	2.1	8.7	4.9
	B	5.2	1.8	0.9	0.9	0.9	0.3	3.5	1.1	1.4	1.6	1.5	0.9	4.3	2.8
TN(μmol/l)	S	15.3	11.1	9.3	32.2	20.7	13.2	39.3	26.2	35.3	46.2	40.7	66.2	182.6	124.4
	B	12.2	11.9	8.9	9.3	9.1	11.2	41.2	26.2	22.1	40.9	31.5	42.8	146.7	94.7
PHc(μg/l)	1m	1.2	1.6	1.6	2.5	2.1	2.6	2.8	2.7	1.8	4.6	3.2	2.4	7.4	4.9
Phenol (μg/l)	S	42.0	28.1	42.2	80.2	61.2	41.8	62.2	52.0	36.2	37.0	36.6	41.8	162.7	102.2

*Average of two readings

Air temperature given in parenthesis

Table 4.9.3: Sediment quality off Thane Creek during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BY3	2.8	86.2	11.0	8.0	136	796	7.3	34	52	81	90	0.30	0.17	18.4	2.2	1296	0.3
BY4	3.2	78.8	18	8.9	208	1153	9.9	51	78	108	131	0.28	0.17	25.7	1.7	1744	0.2
BY5	1.4	79.6	19.0	5.5	94	549	5.0	24	36	56	62	0.30	0.10	24.0	1.0	894	1.3
BY6	1.8	82.2	16.0	9.3	170	802	8.4	41	65	95	106	0.35	0.20	20.8	2.0	892	0.5

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.9.4: Sediment quality off Thane Creek during April 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
BY4	3.6	82.4	14.0	6.8	117	762	6.8	47	76	102	90	0.17	0.11	15.2	1.4	1436	0.2
BY5	5.3	69.1	25.6	6.7	130	770	6.6	49	79	139	129	0.18	0.20	23.6	2.2	1405	1.2
BY6	5.0	88.3	6.7	6.1	122	818	6.7	49	73	104	85	0.16	0.21	16.1	1.5	796	0.3

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.9.5: Microbial counts in surface water (CFU/ml) off Thane Creek during 2015-16

Type of Bacteria	Population in surface water (CFU/ml)																		
	Postmonsoon December 2015										Premonsoon April 2016								
	BY1	BY2	BY3		BY4		BY5		BY6		BY1	BY2	BY3		BY4		BY5	BY6	
			Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl			Fl	Eb	Fl	Eb		Fl	Eb
TVC	9 x 10 ³	34 x 10 ³	37 x 10 ³	50 x 10 ³	25 x 10 ³	11 x 10 ³	70 x 10 ³	30 x 10 ³	2 x 10 ³	1.8 x 10 ³	17 x 10 ³	8 x 10 ³	14 x 10 ³	4 x 10 ³	52 x 10 ³	11 x 10 ³	35 x 10 ³	64 x 10 ³	34 x 10 ³
TC	ND	ND	ND	ND	100	80	30	ND	20	10	ND	ND	10	ND	ND	80	ND	90	ND
FC	ND	ND	ND	ND	100	50	20	ND	20	10	ND	ND	10	ND	ND	60	ND	60	ND
ECLO	ND	ND	ND	ND	100	50	10	ND	10	10	ND	ND	10	ND	ND	20	ND	ND	ND
SHLO	ND	ND	ND	ND	ND	ND	10	ND	ND	ND	ND	ND	ND	30	ND	210	ND	720	10
SLO	ND	ND	ND	ND	ND	ND	20	ND	ND	ND	ND	ND	ND	ND	ND	20	ND	ND	ND
PKLO	ND	ND	ND	ND	100	10	20	ND	20	10	ND	ND	ND	ND	ND	160	ND	100	ND
VLO	ND	ND	ND	ND	100	20	20	ND	20	ND	50	40	ND	10	ND	1720	ND	1120	30
VPLO	ND	ND	ND	ND	ND	ND	20	ND	10	ND	ND	ND	ND	10	ND	ND	ND	ND	ND
VCLO	ND	ND	ND	ND	100	20	ND	ND	10	ND	50	40	30	ND	ND	1720	10	1120	30
PALO	ND	ND	ND	ND	ND	ND	10	ND	ND	ND	ND	ND	ND	ND	ND	10	ND	ND	60
SFLO	ND	ND	ND	ND	ND	ND	120	20	30	10	ND	ND	ND	ND	ND	10	ND	ND	ND

ND – Below Detectable Level

Table 4.9.6: Microbial counts in sediments (CFU/g) off Thane Creek during 2015-2016

Type of Bacteria	Population in sediment (CFU/g)											
	Postmonsoon (December 2015)						Premonsoon (April 2016)					
	BY1	BY2	BY3	BY4	BY5	BY6	BY1	BY2	BY3	BY4	BY5	BY6
TVC	Hard substratum		100 x 10 ³	600 x 10 ³	800 x 10 ³	200 x 10 ³	Hard substratum		5 x 10 ³	16 x 10 ³	46 x 10 ³	
TC			200	ND	ND	ND			10	ND	ND	
FC			100	ND	ND	ND			ND	ND	ND	
ECLO			100	ND	ND	ND			ND	ND	ND	
SHLO			ND	ND	ND	ND			ND	ND	ND	
SLO			ND	ND	10	ND			ND	ND	ND	
PKLO			ND	ND	ND	ND			ND	ND	ND	
VLO			ND	100	30	30			ND	10	10	
VPLO			ND	ND	30	ND			ND	ND	ND	
VCLO			ND	100	ND	30			ND	10	10	
PALO			ND	ND	20	ND			ND	ND	ND	
SFLO			ND	500	ND	ND			ND	ND	ND	

ND – Below Detectable Level

Table 4.9.7: Range and average of phytopigments off Thane Creek during December 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BY1	05-12-15	1.5	3.4	1.8	1.8	0.5	0.7	0.9	0.9	3.1	4.8	1.9	2.0
		2.5		1.8		0.6		0.9		3.9		2.0	
BY2	05-12-15	2.4	3.6	2.3	2.6	0.4	0.4	0.5	0.6	5.6	8.1	3.9	5.2
		2.5		1.8		0.6		0.9		3.9		2.0	
BY3	05-12-15	2.0	2.1	1.5	2.0	0.4	0.4	0.2	0.6	4.7	5.2	3.6	6.9
		2.0		1.7		0.4		0.4		4.9		5.2	
BY4	04-12-15	0.8	3.2	0.7	1.2	0.8	1.9	0.4	1.6	0.5	2.6	0.4	3.2
		1.4		0.9		1.3		1.3		1.1		0.8	
BY5	03-12-15	7.9	17.1	5.1	6.5	0.2	0.4	0.5	0.7	20.2	94.7	7.0	13.8
		12.5		5.8		0.3		0.6		57.5		10.4	
BY6	03-12-15	11.4	47.0	11.0	38.4	1.3	2.6	0.9	3.6	5.2	35.1	3.0	39.3
		36.7		25.4		2.2		2.0		17.5		15.0	

Table 4.9.8: Range and average of phytopigments off Thane Creek during April 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
BY1	25-04-16	6.6	6.8	6.4	6.5	0.0	0.1	0.0	0.3	47.0	170.3	26.0	639.0
		2.7		2.9		1.3		1.5		2.0		1.8	
BY2	25-04-16	2.7	2.9	2.9	3.1	1.3	1.3	1.5	1.7	2.0	2.2	1.8	2.0
		2.8		3.0		1.3		1.6		2.1		1.9	
BY3	25-04-16	1.8	2.9	1.8	2.8	0.7	0.7	0.7	1.0	2.5	4.4	1.8	4.1
		2.4		2.3		0.7		0.9		3.4		2.9	
BY4	24-04-16	1.1	4.1	0.8	3.5	0.4	1.3	0.9	4.1	1.4	6.2	0.6	3.7
		2.4		2.2		0.8		2.0		3.1		1.2	
BY5	23-04-16	2.0	2.1	1.7	1.7	1.4	1.8	1.3	1.8	1.1	1.5	0.9	1.3
		2.1		1.7		1.6		1.5		1.3		1.1	
BY6	23-04-16	2.1	9.6	1.2	9.8	1.2	3.0	0.9	7.0	1.1	4.3	0.7	3.6
		4.4		4.6		2.1		3.2		2.1		1.8	

Table 4.9.9: Range and average of phytoplankton population off Thane Creek during December 2015

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
BY1	05-12-15	91.4		53.4		13.0		15.0		Anacystis	Skeletonema
BY2	05-12-15	67.8		63.2		15.0		14.0		Prorocentrum	Cylindrotheca
BY3	05-12-15	54.6	55.6	31.2	34.2	11.0	16.0	11.0	13.0	Thalassiosira	Thalassiosira
		55.1		32.7		13.5		12.0		Navicula	Navicula
BY4	04-12-15	43.0	44.8	35.0	57.0	11.0	11.0	8.0	14.0	Peridinium	Cylindrotheca
		43.9		46.0		11.0		11.0		Prorocentrum	Gymnodinium
BY5	03-12-15	2077.0	3332.4	606.0	1103.8	18.0	19.0	13.0	18.0	Thalassiosira	Navicula
		2704.7		854.9		18.5		15.5		Leptocylindrus	Rhizosolenia
BY6	03-12-15	10812.2	13343.4	6132.8	6441.8	14.0	20.0	13.0	16.0	Thalassiosira	Odontella
		12077.8		6287.3		17.0		14.5		Rhizosolenia	Leptocylindrus

Table 4.9.10: Range and average of phytoplankton population off Thane Creek during April 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg		
BY1	25-4-16	932.4		519.8		22.0		16.0		<i>Chaetoceros</i>	<i>Pseudo-nitzschia</i>
										<i>Pseudo-nitzschia</i>	<i>Chaetoceros</i>
										<i>Cylindrotheca</i>	<i>Thalassiosira</i>
										<i>Thalassiosira</i>	<i>Asterionellopsis</i>
BY2	25-4-16	199.6		100.0		16.0		18.0		<i>Pseudo-nitzschia</i>	<i>Odontella</i>
										<i>Chaetoceros</i>	<i>Thalassiosira</i>
										<i>Skeletonema</i>	<i>Pseudo-nitzschia</i>
										<i>Thalassiosira</i>	<i>Thalassionema</i>
BY3	25-4-16	167.8	190.8	76.0	181.6	15.0	16.0	14.0	16.0	<i>Pseudo-nitzschia</i>	<i>Pseudo-nitzschia</i>
		179.3		128.8		15.5		15.0		<i>Chaetoceros</i>	<i>Chaetoceros</i>
BY4	25-4-16	104.8	459.2	97.0	384.8	16.0	23.0	15.0	21.0	<i>Thalassiosira</i>	<i>Thalassiosira</i>
		282.0		240.9		19.5		18.0		<i>Cylindrotheca</i>	<i>Guinardia</i>
BY5	23-4-16	189.8	213.6	137.4	181.4	20.0	20.0	14.0	15.0	<i>Chaetoceros</i>	<i>Skeletonema</i>
		201.7		159.4		20.0		14.5		<i>Pseudo-nitzschia</i>	<i>Thalassiosira</i>
BY6	23-4-16	287.6	315.0	231.2	247.0	21.0	22.0	19.0	19.0	<i>Rhizosolenia</i>	<i>Guinardia</i>
		301.3		239.1		21.5		19.0		<i>Skeletonema</i>	<i>Cylindrotheca</i>
										<i>Cylindrotheca</i>	<i>Thalassiosira</i>
										<i>Thalassiosira</i>	<i>Rhizosolenia</i>
										<i>Pseudo-nitzschia</i>	<i>Skeletonema</i>

Table 4.9.11: Percentage composition of phytoplankton population off Thane Creek during December 2015

Table 4.9.12: Percentage composition of phytoplankton population off Thane creek during April 2016

Table 4.9.13: Range and average (parenthesis) of zooplankton at different stations off Thane Creek during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
BY1 (05/12/2015)	1.1-2.5 (1.8)	11.2-25.7 (18.5)	15-20 (18)	copepods (63.3), decapod larvae (32.1), <i>Lucifer</i> sp. (1.0), stomatopods (1.0), foraminifera (0.8), fish larvae(0.6), chaetognaths (0.6), gastropods (0.2), fish eggs (0.1), lamellibranchs (0.1), others (0.1).
BY2 (05/12/2015)	0.5-0.6 (0.6)	2.8-3.6 (3.2)	10-14 (12)	copepods (66.6), decapod larvae (29.1), fish larvae(1.4), gastropods (0.7), chaetognaths (0.5), <i>Lucifer</i> sp. (0.5), fish eggs (0.4), lamellibranchs (0.3), foraminifera (0.2), stomatopods (0.2), medusae (0.1), others (0.1).
BY3 (05/12/2015)	1-3.8 (2.4)	2.3-47.9 (25.2)	12-18 (15)	copepods (73.9), decapod larvae (21.7), gastropods (0.9), fish eggs (0.7), <i>Lucifer</i> sp. (0.7), foraminifera (0.5), lamellibranchs (0.5), stomatopods (0.4), fish larvae(0.3), chaetognaths (0.2), medusae (0.1), others (0.1).
BY4 (04/12/2015)	0.6-3.8 (1.9)	1.8-21.1 (11.6)	11-19 (15)	copepods (83.2), decapod larvae (7.6), chaetognaths (2.3), gastropods (1.6), lamellibranchs (1.6), <i>Lucifer</i> sp. (1.1), fish larvae(0.4), foraminifera (0.4), medusae (0.4), appendicularians (0.4), polychaetes (0.3), stomatopods (0.3), siphonophores (0.2), fish eggs (0.1), ctenophores (0.1), <i>Acetes</i> sp. (0.1), others (0.1).
BY5 (03/12/2015)	0.2-0.7 (0.5)	0.6-10.1 (5.4)	12-15 (14)	copepods (86.1), decapod larvae (10.6), medusae (2.1), lamellibranchs (0.4), fish eggs (0.2),

				chaetognaths (0.1), amphipods (0.1), <i>Lucifer</i> sp. (0.1), others (0.1).
BY6 (03/12/2015)	0.3-38.9 (11.4)	1.0-72.8 (21.0)	9-10 (11)	copepods (89.4), decapod larvae (7.0), <i>Acetes</i> sp. (1.0), chaetognaths (0.9), fish eggs (0.6), lamellibranchs (0.6), gastropods (0.2), medusae (0.2), ctenophores (0.1), polychaetes (0.1), others (0.1).

Table 4.9.14: Range and Average (parenthesis) of Zooplankton at different stations off Thane Creek during April 2016

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
BY1 (25/04/2016)	2.7-6.2 (4.5)	13.4-44.9 (29.1)	9-13 (11)	Copepods (90.8), decapod larvae (6.1), lamellibranchs (2.2), gastropods (0.6), chaetognaths (0.1), fish eggs (0.1), others (0.1).
BY2 (25/04/2016)	4.6-4.7 (4.7)	10.5-25.4 (17.9)	13-14 (14)	Copepods (80.5), decapod larvae (15.2), chaetognaths (3.9), gastropods (0.1), lamellibranchs (0.1), others (0.1).
BY3 (25/04/2016)	2.3-3.3 (2.8)	18.9-20.8 (23.8)	11-17 (14)	Copepods (71.1), decapod larvae (22.5), lamellibranchs (3.4), gastropods (2.4), chaetognaths (0.2), fish eggs (0.1), fish larvae(0.1), others (0.1).
BY4 (25/04/2016)	0.4-94.4 (25.1)	11.9-46.8 (26.6)	13-16 (14)	Copepods (63.5), decapod larvae (18.2), appendicularians (6.6), fish eggs (5.6), ctenophores (2.4), gastropods (2.2), chaetognaths (0.6), fish larvae(0.3), medusae (0.2), lamellibranchs (0.2), <i>Lucifer</i> sp. (0.1), stomatopods (0.1), others (0.1).
BY5 (23/04/2016)	16.2-22.4 (19.3)	24.2-31.3 (27.8)	11-12 (12)	Copepods (64.5), decapod larvae (13.3), gastropods (8.7), chaetognaths (5.9), ctenophores (3.5), medusae (3.2),

				lamellibranchs (0.6), <i>Lucifer</i> sp. (0.1), stomatopods (0.1), others (0.1).
BY6 (23/04/2016)	22.0-570.8 (156.3)	7.1-147.6 (43.0)	6-14 (10)	Copepods (48.7), <i>Acetes</i> sp. (23.0), gastropods (12.5), chaetognaths (5.6), mysids (3.8), lamellibranchs (2.4), decapod larvae (2.1), ctenophores (1.2), medusae (0.3), siphonophores (0.1), <i>Lucifer</i> sp. (0.1), others (0.1).

Table 4.9.15: Abundance of Zooplanktons off Thane Creek during December 2015

Faunal groups	BY1	BY2	BY3	BY4	BY5	BY6
Foraminiferans	+	+	+	+	+	+
Siphonophores	+	-	+	+	+	-
Medusae	+	+	+	+	+	+
Ctenophores	+	-	+	+	-	+
Chaetognaths	+	+	+	+	+	+
Polychaetes	+	+	+	+	+	+
Ostracods	-	-	-	+	+	-
Copepods	+	+	+	+	+	+
Amphipods	+	+	+	+	+	+
Mysids	+	+	+	-	-	+
<i>Lucifer</i> sp.	+	+	+	+	+	-
Decapod larvae	+	+	+	+	+	+
Stomatopods	+	+	+	+	+	-
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Appendicularians	+	-	-	+	+	+
Fish Eggs	+	+	+	+	+	+
Fish Larvae	+	+	+	+	+	+
Isopods	+	-	+	+	+	+
<i>Acetes</i> sp.	+	-	-	+	-	+
Pycnogonids	+	+	+	+	-	-

Table 4.9.16: Abundance of zooplanktons off Thane Creek during April 2016.

Faunal groups	BY1	BY2	BY3	BY4	BY5	BY6
Foraminiferans	-	-	+	+	-	-
Siphonophores	+	-	+	-	-	+
Medusae	+	+	+	+	+	+
Ctenophores	-	+	-	+	+	+
Chaetognaths	+	+	+	+	+	+
Polychaetes	+	+	+	+	+	+
Ostracods	-	+	+	+	-	+
Copepods	+	+	+	+	+	+
Amphipods	-	+	+	+	-	-
Mysids	-	-	+	+	+	+
Lucifer sp.	+	-	+	+	+	+
Decapod larvae	+	+	+	+	+	+
Stomatopods	+	+	+	+	+	+
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Appendicularians	+	+	+	+	-	+
Fish Eggs	+	+	+	+	+	+
Fish Larvae	+	+	+	+	+	+
Isopods	-	+	-	+	-	+
Acetes sp.	-	+	-	-	+	+

Table 4.9.17: Range and average of macrofauna off Thane Creek during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
BY1	No collection (Rocky bottom)								
BY2	No collection (Rocky bottom)								
BY3	0.62	3.54	1.93	275	1675	813	2	3	2
BY4	0.30	0.70	0.40	75	125	94	1	2	1
BY5	0.66	58.32	23.24	1050	2500	1544	2	9	5
BY6	0.50	217.80	56.20	475	4550	1619	1	7	4
Overall	0.30	217.80	20.44	75	4550	1017	1	9	3
Premonsoon April 2016									
BY1	No collection (Rocky bottom)								
BY2	No collection (Rocky bottom)								
BY3	No collection (Rocky bottom)								
BY4	0.10	3.10	1.70	50	350	181	1	3	2
BY5	13.96	43.08	29.01	2000	2500	2225	5	6	5
BY6	10.40	25.40	16.70	700	2525	1276	4	7	6
Overall	0.10	43.08	15.80	50	2525	1227	1	7	4

Table 4.9.18: Percentage composition of macrofauna off Thane Creek during December 2015

Phylum	Groups	Stations						Average
		BY1	BY2	BY3	BY4)	BY5	BY6	
Annelida	Polychaeta	No collection (Rocky bottom)	No collection (Rocky bottom)	89.23	93.62	74.01	45.18	65.78
Nemertea	Nemertea			7.69	0.00	7.49	0.00	4.28
Phoronida	Phoronida			0.00	0.00	7.49	0.00	2.69
Arthropoda	Brachyura			0.00	0.00	5.73	8.10	5.38
Arthropoda	Amphipoda			0.00	0.00	2.64	37.45	16.32
Arthropoda	Decapoda Larvae			3.08	0.00	0.00	0.00	0.63
Echinodermata	Ophiuroidea			0.00	6.38	1.32	0.80	0.96
Mollusca	Gastropoda			0.00	0.00	0.44	0.00	0.16
Arthropoda	Tanaidacea			0.00	0.00	0.44	5.81	2.54
Platyhelminthes	Turbellaria			0.00	0.00	0.44	0.00	0.16
Nematoda	Nematoda			0.00	0.00	0.00	0.37	0.15
Mollusca	Pelecypoda			0.00	0.00	0.00	1.92	0.79
Arthropoda	Non-penaeid shrimp			0.00	0.00	0.00	0.37	0.15

Table 4.9.19: Percentage composition of macrofauna off Thane Creek during April 2016

Phylum	Groups	Stations						Average
		BY1	BY2	BY3	BY4	BY5	BY6	
Annelida	Polychaeta	No collection (Rocky bottom)	No collection (Rocky bottom)	No collection (Rocky bottom)	58.56	74.44	57.29	67.71
Arthropoda	Amphipoda				13.81	0.00	15.67	6.11
Arthropoda	Tanaidacea				0.00	0.28	7.37	2.72
Arthropoda	Mysida				0.00	0.84	1.02	0.86
Arthropoda	Luciferidae				0.00	0.28	0.00	0.17
Arthropoda	Penaeid shrimp				0.00	0.00	0.47	0.16
Arthropoda	Sergestidea				0.00	0.00	0.47	0.16
Echinodermata	Ophiuroidea				24.31	0.00	0.00	1.20
Mollusca	Pelecypoda				0.00	17.98	13.24	15.45
Mollusca	Gastropoda				0.00	0.28	0.00	0.17
Nemertea	Nemertea				0.00	2.81	0.00	1.70
Phoronida	Phoronida				0.00	3.09	1.49	2.38
Sipuncula	Sipuncula				3.31	0.00	2.98	1.20

Table 4.9.20: Station-wise distribution of meiofauna parameters in Thane creek

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
BY1	Rocky Bottom								
BY2	Rocky Bottom								
BY3	41.32	73.98	57.65	116	182	149	2	3	2
BY4	23.36	47.48	35.42	45	127	86	3	4	3
BY5	8.51	28.29	18.4	7	109	58	1	4	2
BY6	11.69	30.03	20.86	14	326	170	2	5	3
Premonsoon April 2016									
BY1	Rocky Bottom								
BY2	Rocky Bottom								
BY3	Rocky Bottom								
BY4	126.38	169.34	147.86	23	93	58	2	4	3
BY5	1.24	29.22	15.23	1	42	22	1	1	1
BY6	23.56	95.68	59.62	7	85	46	1	3	2

Table 4.9.21: Percentage composition of meiofauna off Thane Creek during December 2015

Groups	BY1	BY2	BY3	BY4	BY5	BY6	Average
Cnidarians	Rocky Bottom	Rocky Bottom	0.00	4.10	0.00	0.00	0.77
Copepods			0.00	0.00	6.25	4.26	2.32
Foraminiferans			38.10	45.90	62.50	65.96	52.70
Insects			0.00	0.82	0.00	0.00	0.15
Nematodes			61.90	45.08	31.25	27.66	42.50
Nemerteans			0.00	4.10	0.00	2.13	1.55

Table 4.9.22: Percentage composition of meiofauna off Thane Creek during April 2016

Groups	BY1	BY2	BY3	BY4	BY5	BY6	Average
Copepods	Rocky Bottom	Rocky Bottom	Rocky Bottom	1.22	0.00	0.00	0.64
Cumaceans				6.10	0.00	0.00	3.18
Nematodes				85.37	100.00	88.89	89.17
Polychaetes				1.22	0.00	11.11	3.82
Turbellarians				6.10	0.00	0.00	3.18

Table 4.10.1: Water quality off Patalganga during December 2015

Parameter	Level	PT4			PT4A			PT5			PT6		
		Min	Max	Avg									
Temperature(°C)	S	25.0	30.0	28.3	28.0	29.5	28.8	28.0	29.5	28.8	28.5	30.6	29.5
	B	24.5	29.5	27.8	28.5	29.5	29.0	27.5	27.5	27.5	28.5	29.0	28.9
		(25.0)	(33.0)	(29.8)	(26.0)	(34.0)	(31.1)	(29.0)	(33.0)	(31.0)	(30.0)	(33.0)	(31.8)
SS(mg/l)	S	13	21	17	11	17	14	13	32	22	9	14	11
	B	27	34	30	26	30	28	26	26	26	16	16	16
Turbidity(NTU)	S	15.2	35.0	22.9	21.5	29.4	25.5	4.7	5.0	4.9	15.8	23.5	19.6
	B	16.3	35.6	23.6	20.3	30.2	25.3	5.0	5.0	5.0	17.8	29.1	21.6
pH	S	7.4	7.6	7.5	7.6	7.7	7.6	8.0	8.0	8.0	7.3	7.4	7.4
	B	7.5	7.7	7.6	7.6	7.7	7.6	8.0	8.0	8.0	7.3	7.5	7.4
Salinity(ppt)	S	25.2	28.4	26.8	18.0	25.3	20.6	10.0	11.5	10.8	8.4	10.7	9.3
	B	25.9	29.2	27.6	18.5	25.8	21.0	14.1	14.1	14.1	9.8	11.1	10.4
DO (mg/l)	S	5.1	7.0	5.8	3.2	6.0	4.5	4.4	6.0	5.2	2.2	4.4	3.9
	B	4.8	6.0	5.3	3.5	4.8	4.5	5.4	5.4	5.4	2.2	4.1	3.5
BOD (mg/l)	S	2.5	2.8	2.7	1.6	2.8	2.2	2.5	3.1	2.8	1.3	3.5	2.4
	B	2.5	2.8	2.7	1.3	1.6	1.5	1.9	1.9	1.9	0.9	0.9	0.9
PO ₄ ³⁻ -P (μmol/l)	S	1.3	2.2	1.7	1.3	2.4	1.8	1.0	2.0	1.5	1.7	2.3	2.0
	B	1.6	2.7	2.0	2.2	2.4	2.2	1.6	1.6	1.6	1.7	1.9	1.8
TP(μmol/l)	S	2.3	2.9	2.6	2.5	2.6	2.6	2.4	3.3	2.9	2.4	3.3	2.9
	B	2.5	3.1	2.8	2.9	3.6	3.3	2.2	2.2	2.2	2.2	2.2	2.2
NO ₃ ⁻ -N (μmol/l)	S	25.4	50.8	36.2	30.5	49.9	41.7	33.2	34.9	34.1	21.0	24.8	23.4
	B	31.0	52.4	40.9	38.7	59.3	51.5	31.7	31.7	31.7	27.4	30.3	28.2
NO ₂ ⁻ -N(μmol/l)	S	1.8	9.8	8.8	9.1	9.6	9.5	9.6	10.2	9.9	9.3	9.8	9.5
	B	1.3	9.6	6.8	7.1	9.9	9.1	9.2	9.2	9.2	9.6	9.9	9.7
NH ₄ ⁺ -N(μmol/l)	S	26.2	44.0	32.1	1.2	16.5	9.7	36.2	37.5	36.8	38.2	41.0	39.8
	B	3.8	21.9	9.1	1.6	8.2	3.9	30.3	30.3	30.3	37.0	38.8	37.9
TN(μmol/l)	S	80.5	89.4	85.0	65.3	67.5	66.4	81.4	115.4	98.4	87.2	89.4	88.3
	B	51.6	59.9	55.8	72.0	83.1	77.6	76.4	76.4	76.4	93.7	93.7	93.7
PHc(μg/l)	1m	4.3	8.1	6.2	7.4	7.4	7.4	5.4	6.3	5.9	8.8	9.4	9.1
Phenol (μg/l)	S	50.6	86.6	68.6	145.4	212.2	178.8	343.0	344.2	343.6	334.8	346.8	340.8

Air temperature given in parenthesis

Table 4.10.1(Contd 1)

Parameter	Level	PT7			PT8			PT9			PT10	PT11
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Avg*	Avg*
Temperature(°C)	S	27.0 (26.5)	28.5 (27.0)	27.8 (26.8)	25.5 (27.5)	30 (34.0)	27.8 (30.8)	25.0 (28.0)	28.0 (33.0)	26.5 (30.5)	25.5 (27.0)	27.5 (32.0)
SS(mg/l)	S	12	16	14	17	23	20	15	40	27	15	16
Turbidity(NTU)	S	19.2	21.0	20.1	30.2	42.8	36.5	5.2	7.2	6.2	2.5	5.2
pH	S	7.3	7.3	7.3	7.3	7.3	7.3	8.0	8.0	8.0	7.0	7.0
Salinity(ppt)	S	1.2	3.5	2.4	0.5	1.0	0.8	0.7	0.9	0.8	0.7	0.1
DO (mg/l)	S	2.2	3.5	2.9	0.6	3.2	1.9	0.3	1.3	0.8	5.9	7.0
BOD (mg/l)	S	6.5	19.4	13.0	6.5	25.9	16.2	25.9	32.3	29.1	3.9	4.1
PO ₄ ³⁻ -P (µmol/l)	S	6.6	8.1	7.4	4.2	10.4	7.3	14.4	27.0	20.7	0.7	3.8
TP(µmol/l)	S	9.2	10.4	9.8	5.1	12.2	8.6	16.9	31.0	23.9	1.8	4.5
NO ₃ ⁻ -N (µmol/l)	S	2.3	2.6	2.4	5.2	12.8	8.9	1.6	2.2	1.9	13.2	29.8
NO ₂ ⁻ -N(µmol/l)	S	1.5	6.7	4.1	0.1	3.7	1.9	ND	0.1	0.1	2.5	4.3
NH ₄ ⁺ -N(µmol/l)	S	21.0	22.7	21.9	21.1	23.3	22.2	3.0	73.8	38.4	22.5	5.1
TN(µmol/l)	S	36.0	46.0	41.0	38.4	51.9	45.1	11.5	23.2	17.4	46.7	54.3
PHc(µg/l)	1m	7.4	12.5	10.0	12.6	14.8	13.7	43.6	112.8	78.2	1.0	1.0
Phenol (µg/l)	S	210.2	307.9	259.1	212.6	221.3	217.0	155.0	159.8	157.4	67.2	58.8

*Average of two readings

Air temperature given in parenthesis

Table 4.10.2: Water quality off Patalganga during April 2016

Parameter	Level	PT4			PT4A			PT5			PT6			PT7		
		Min	Max	Avg												
Temperature(°C)	S	30.0	32.5	31.3	31.0	32.0	31.5	32.0	32.5	32.3	28.5	32.0	30.0	29.5	30.0	29.8
	B	29.0	31.5	30.8	30.5	31.5	31.0	32.0	32.0	32.0	28.5	31.0	30.0	-	-	-
		(30.0)	(36.0)	(33.8)	(33.0)	(35.0)	(34.0)	(34.0)	(35.0)	(34.5)	(30.0)	(34.0)	(32.3)	(32.5)	(34.5)	(33.5)
SS(mg/l)	S	92	115	104	73	145	109	25	39	32	98	183	140	105	118	112
	B	152	181	167	80	163	122	29	29	29	126	126	126	-	-	-
Turbidity(NTU)	S	13.8	35.6	25.3	20.3	25.0	22.7	5.6	6.8	6.2	19.8	30.1	24.1	20.5	32.6	26.6
	B	14.6	30.8	23.6	22.8	29.5	26.2	6.4	9.4	7.9	16.8	29.8	23.5	-	-	-
pH	S	7.6	7.8	7.7	7.5	7.7	7.6	7.4	7.4	7.4	7.3	7.5	7.4	7.4	7.5	7.5
	B	7.6	7.8	7.7	7.5	7.8	7.7	7.6	7.6	7.6	7.4	7.5	7.5	-	-	-
Salinity(ppt)	S	22.5	31.5	27.3	25.9	30.0	28.0	20.8	21.2	21.0	11.2	18.7	13.7	4.0	11.0	7.5
	B	25.5	32.5	29.4	27.3	31.9	29.6	21.3	21.3	21.3	12.0	19.1	16.7	-	-	-
DO (mg/l)	S	4.2	5.8	5.2	3.5	5.1	4.3	3.5	4.1	3.8	4.1	5.7	5.0	1.6	2.9	2.2
	B	2.2	5.8	4.5	4.8	4.8	4.8	3.8	3.8	3.8	3.8	5.7	4.8	-	-	-
BOD (mg/l)	S	1.6	2.5	2.0	2.5	2.8	2.7	1.9	3.5	2.7	4.1	4.8	4.4	19.4	25.9	22.6
	B	0.9	1.3	1.1	2.5	4.1	3.3	2.2	2.2	2.2	4.1	4.1	4.1	-	-	-
PO ₄ ³⁻ -P (μmol/l)	S	1.7	3.1	2.3	2.3	2.3	2.3	2.6	2.8	2.7	1.0	3.9	2.0	1.2	2.9	2.0
	B	2.0	3.3	2.4	2.5	2.7	2.6	2.5	2.5	2.5	1.6	2.7	2.3	-	-	-
TP(μmol/l)	S	2.8	3.9	3.3	3.3	4.0	3.6	3.8	4.1	3.9	1.9	4.9	3.4	1.9	3.6	2.7
	B	3.6	4.2	3.9	3.6	4.1	3.8	3.3	3.9	3.6	2.8	3.9	3.3	-	-	-
NO ₃ ⁻ -N (μmol/l)	S	20.3	35.8	29.3	25.0	33.4	29.2	5.0	9.5	7.2	8.9	28.0	16.8	0.5	15.8	8.1
	B	14.2	34.0	26.7	21.0	33.2	27.1	10.2	10.2	10.2	15.1	32.8	25.9	-	-	-
NO ₂ ⁻ -N(μmol/l)	S	1.3	7.6	5.3	5.5	9.2	7.4	25.8	26.8	26.3	19.3	31.2	24.3	15.1	17.1	16.1
	B	2.2	7.5	5.6	5.2	9.8	7.5	23.0	23.0	23.0	22.4	28.4	25.0	-	-	-
NH ₄ ⁺ -N(μmol/l)	S	7.0	8.9	7.9	3.0	3.6	3.3	27.2	28.7	27.9	26.6	36.7	32.1	30.1	30.4	30.2
	B	6.9	8.7	7.8	2.2	2.5	2.4	31.6	31.6	31.6	26.7	34.3	31.1	-	-	-
TN(μmol/l)	S	68.3	91.2	79.7	63.2	79.2	71.2	76.9	83.4	80.1	66.8	112.5	89.6	65.2	86.3	75.7
	B	71.6	103.2	87.4	58.2	75.6	66.9	88.2	91.5	89.8	72.5	108.9	90.7	-	-	-
PHc(μg/l)	1m	5.6	8.6	7.1	14.5	17.6	16.3	22.1	45.0	33.6	12.0	12.5	12.3	22.8	31.5	27.2
Phenol (μg/l)	S	88.6	139.7	114.1	122.2	135.1	128.6	162.0	178.6	170.3	132.7	139.2	136.0	147.8	156.7	152.3

Air temperature given in parenthesis

Table 4.10.2 (Contd 1)

Parameter	Level	PT8			Avg*	PT10			PT11		
		Min	Max	Avg		Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	31.0	31.0	31.0	25.0	29.5	30.0	29.8	29.0	32.0	30.5
		(34.5)	(36.5)	(35.5)	(28.0)	(33.5)	(34.0)	(33.8)	(32.5)	(33.5)	(33.0)
SS(mg/l)	S	50	60	55	47	48	53	51	58	81	70
Turbidity(NTU)	S	30.4	38.5	34.5	6.7	16.1	20.3	18.2	16.6	19.7	18.2
pH	S	7.6	7.7	7.7	7.3	7.2	7.2	7.2	7.2	7.2	7.2
Salinity(ppt)	S	0.9	1.1	1.0	1.0	0.5	0.5	0.5	0.1	0.2	0.1
DO (mg/l)	S	1.0	2.2	1.6	1.6	5.4	5.7	5.5	6.3	6.3	6.3
BOD (mg/l)	S	12.9	32.3	22.6	35.6	3.5	3.5	3.5	3.1	3.5	3.3
PO ₄ ³⁻ -P (μmol/l)	S	5.3	5.4	5.3	1.1	0.7	0.8	0.7	0.6	0.6	0.6
TP(μmol/l)	S	6.8	7.2	7.0	1.5	1.8	2.2	2.0	1.2	1.3	1.2
NO ₃ ⁻ -N (μmol/l)	S	12.0	12.5	12.2	13.9	9.1	9.7	9.4	6.9	7.9	7.4
NO ₂ ⁻ -N(μmol/l)	S	4.5	8.5	6.5	3.6	2.7	2.7	2.7	0.3	0.3	0.3
NH ₄ ⁺ -N(μmol/l)	S	19.4	31.8	25.6	26.7	0.6	0.6	0.6	1.4	1.5	1.5
TN(μmol/l)	S	88.2	125.8	107.0	28.5	33.5	46.2	39.8	19.8	26.2	23.0
PHc(μg/l)	1m	7.2	10.3	8.8	19.1	15.0	18.9	17.0	18.0	19.1	18.6
Phenol (μg/l)	S	173.5	205.4	189.5	74.6	50.4	93.1	71.8	41.3	74.9	58.1

*Average of two readings

Air temperature given in parenthesis

Table 4.10.3: Sediment quality off Patalganga during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
PT4	8.3	80.0	11.7	5.8	177	750	6.9	34	55	97	90	0.50	0.09	24.5	1.7	1002	1.0
PT4A	17.0	52.4	30.6	6.1	183	854	7.0	31	59	77	88	0.54	0.08	10.8	1.7	1124	1.2
PT5	9.6	50.2	40.2	5.9	174	1143	7.0	34	57	90	85	0.35	0.10	16.4	1.9	1673	4.0
PT6	3.5	41.8	54.7	6.6	199	1094	7.7	37	61	126	100	0.47	0.14	18.6	1.9	1710	4.6
PT7	8.1	85.1	6.8	6.7	232	873	8.2	56	69	338	131	2.10	0.29	18.0	2.2	2188	9.8
PT8	65.2	28.4	6.4	5.5	494	1001	8.9	101	112	377	183	0.62	0.36	15.9	3.2	1957	13.9
PT9	10.7	62.7	26.7	7.5	525	1397	11.8	604	158	264	388	0.57	2.60	31.9	4.0	3673	10.5
PT10	66.2	25.6	8.2	6.3	366	1084	9.2	54	98	124	153	0.52	0.04	27.9	0.6	1873	0.9
PT11	7.5	71.5	21.0	6.7	304	1290	8.0	43	105	112	106	2.10	2.6	13.0	3.2	1657	1.7

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.10.4: Sediment quality off Patalganga during April 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
PT4	67.4	15.6	17.0	6.0	371	1145	8.3	54	86	83	96	0.22	0.10	9.2	0.8	869	1.9
PT4A	7.4	5.5	87.1	6.4	148	689	6.7	51	67	96	72	0.30	0.04	16.5	4.1	1217	1.6
PT5	2.6	49.8	47.6	7.9	182	1512	8.1	61	80	162	98	0.40	0.14	20.9	2.1	2138	3.8
PT7	23.9	54.9	21.2	7.3	224	840	8.1	72	78	402	102	1.80	0.08	18.6	2.0	1695	6.2
PT8	10.7	87.1	2.2	8.0	266	1087	8.7	152	99	488	188	0.30	0.10	24.8	3.0	3908	3.5
PT9	66.8	22.6	10.6	8.3	507	1439	11.2	940	218	468	592	0.42	3.64	33.6	0.3	1949	12.7

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.10.5: Microbial counts (CFU/ml) in water off Patalganga during December 2015

Type of Bacteria	Population in surface water (CFU/ml)															
	Postmonsoon (December 2015)															
	PT4		PT4A		PT5		PT6		PT7		PT8		PT9		PT10	PT11
	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl		
TVC	200 X10 ³	40 X10 ³	100 X10 ³	300 X10 ³	200 X10 ³	900 X10 ³	3000	200 X10 ³	400 X10 ³	300 X10 ³	300 X10 ³	130 X10 ³	3000	200 X10 ³	10 X10 ³	38 X10 ³
TC	110	60	170	130	2400	1200	5500	800	1900	200	1000	320	5500	800	80	100
FC	40	40	70	90	280	470	1500	400	1200	100	200	200	1500	400	70	90
ECLO	20	10	20	50	90	80	400	260	700	100	200	120	400	260	60	80
SHLO	20	10	10	ND	20	90	300	300	60	300	500	900	300	300	20	60
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	ND	ND	ND	ND	10
PKLO	30	ND	ND	ND	40	150	4600	100	180	100	1800	1100	4600	100	70	70
VLO	330	210	440	110	110	330	300	ND	700	600	1500	700	300	ND	70	90
VPLO	120	ND	120	80	70	80	100	ND	500	300	900	500	100	ND	50	30
VCLO	450	210	320	30	40	250	200	100	200	300	600	200	200	100	20	60
PALO	ND	ND	ND	10	ND	60	1500	400	470	100	400	300	1500	400	30	60
SFLO	20	20	10	ND	ND	ND	100	ND	ND	ND	ND	10	100	ND	10	20

ND- Below Detectable Level

Table 4.10.6: Microbial counts (CFU/g) in sediment off Patalganga during December 2015

Type of Bacteria	Population in sediment (CFU/g)								
	Postmonsoon (December 2015)								
	PT4	PT4A	PT5	PT6	PT7	PT8	PT9	PT10	PT11
TVC	9000 X10 ³	1000 X10 ³	1000 X10 ³	4000 X10 ³	1200 X10 ³	2000 X10 ³	1000 X10 ³	4300 X10 ³	1400 X10 ³
TC	100	120	280	1000	1900	200	1200	240	80
FC	90	90	200	300	360	10	100	230	40
ECLO	20	30	190	180	280	ND	130	210	30
SHLO	50	ND	10	ND	110	40	400	ND	ND
SLO	ND	ND	90	ND	300	10	ND	ND	ND
PKLO	30	ND	30	20	320	60	1400	ND	ND
VLO	ND	ND	340	190	410	280	ND	50	ND
VPLO	60	ND	180	100	150	80	100	ND	ND
VCLO	130	ND	160	90	360	200	ND	50	ND
PALO	170	440	ND	130	50	60	200	60	40
SFLO	220	120	10	ND	ND	ND	ND	60	90

ND- Below Detectable Level

Table 4.10.7: Microbial counts (CFU/ml) in water off Patalganga during April 2016

Type of Bacteria	Population in surface water (CFU/ml) Premonsoon (April 2016)											
	PT4		PT4A		PT6		PT7		PT8		PT10	PT11
	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl		
TVC	10 X10 ³	20 X10 ³	34 X10 ³	68 X10 ³	8 X10 ³	7 X10 ³	191 X10 ³	168 X10 ³	121 X10 ³	792 X10 ³	140 X10 ³	372 X10 ³
TC	240	100	50	50	40	60	200	330	470	200	160	510
FC	180	50	40	30	30	50	140	150	180	90	120	470
ECLO	160	10	20	20	20	20	130	90	100	90	100	250
SHLO	90	60	ND	ND	ND	50	ND	ND	ND	ND	140	10
SLO	10	ND	ND	ND	ND	ND	ND	100	10	ND	10	ND
PKLO	70	20	180	40	40	ND	60	350	210	30	240	530
VLO	260	10	274	ND	50	ND	90	180	50	300	470	30
VPLO	ND	10	228	30	50	20	80	ND	ND	20	70	ND
VCLO	260	20	46	ND	ND	80	10	180	50	280	400	30
PALO	ND	ND	ND	ND	ND	ND	60	90	ND	ND	10	ND
SFLO	ND	ND	ND	ND	60	ND	10	10	ND	ND	70	ND

ND- Below Detectable Level

Table 4.10.8: Microbial counts (CFU/g) in sediment off Patalganga during April 2016

Type of Bacteria	Population in sediment (CFU/g) Premonsoon (April 2016)						
	PT4		PT4A		PT6		PT7
	Eb	Fl	Eb	Fl	Eb	Fl	Eb
TVC	12 X10 ³	68 X10 ³		423 X10 ³		420 X10 ³	57 X10 ³
TC	50	100		130		140	140
FC	30	20		40		100	80
ECLO	10	70		30		40	80
SHLO	ND	ND		130		ND	ND
SLO	ND	ND		ND		20	10
PKLO	ND	ND		20		180	110
VLO	ND	ND		ND		1270	220
VPLO	20	10		100		820	130
VCLO	30	20		100		450	90
PALO	ND	ND		ND		40	340
SFLO	ND	ND		170		50	ND

ND- Below Detectable Level

Table 4.10.9: Range and average of phytopigments at different stations off Patalganga during December 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
PT4	12/4/2015	4.1	10.3	3.1	5.3	0.8	2.2	0.5	2.1	2.7	11.4	2.1	11.1
		7.5		4.0		1.3		1.1		6.3		4.2	
PT4A	12/3/2015	3.4	11.1	2.3	5.0	0.4	1.6	0.8	5.0	3.7	18.9	0.6	5.8
		8.0		3.4		1.0		2.0		9.6		2.8	
PT5	12/7/2015	10.0	18.4	15.5	15.5	1.4	2.3	1.3	1.3	7.1	8.1	11.8	11.8
		14.2		15.5		1.8		1.3		7.6		11.8	
PT6	12/7/2015	10.3	26.0	17.0	19.7	0.7	3.3	1.0	2.3	3.2	26.2	8.5	17.3
		19.2		18.8		1.9		1.5		14.5		13.7	
PT7	12/8/2015	20.2	30.7	-	-	7.2	7.8	-	-	2.6	4.3	-	-
		25.5		-		7.5		-		3.4		-	
PT8	12/8/2015	14.5	23.7	-	-	5.3	7.8	-	-	2.7	3.0	-	-
		19.1		-		6.6		-		2.9		-	
PT9	12/8/2015	21.6	22.6	-	-	1.4	2.0	-	-	11.0	16.6	-	-
		22.1		-		1.7		-		13.8		-	
PT10	12/11/2015	23.1	24.7	-	-	6.0	6.7	-	-	3.7	3.9	-	-
		23.9		-		6.3		-		3.8		-	
PT11	12/11/2015	16.6	29.2	-	-	2.2	6.5	-	-	2.5	13.3	-	-
		22.9		-		4.4		-		7.9		-	

Table 4.10.10: Range and average of phytopigments at different stations off Patalganga during April 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
PT4	4/14/2016	1.1	3.3	1.6	4.4	0.3	1.6	0.5	1.7	2.0	4.1	1.6	4.9
		2.3		2.7		0.9		1.0		2.9		2.9	
PT4A	4/14/2016	1.5	2.3	1.3	1.6	0.6	0.7	0.6	0.9	2.7	3.2	1.5	2.7
		1.9		1.5		0.6		0.8		3.0		2.1	
PT6	4/15/2016	15.4	25.2	15.6	24.8	6.6	10.6	5.8	8.5	2.2	3.4	2.4	3.0
		1.9		1.5		0.6		0.8		3.0		2.1	
PT7	4/17/2016	12.7	15.2	-	-	10.1	10.4	-	-	1.2	1.5	-	-
		14.0		-		10.2		-		1.4		-	
PT8	4/17/2016	5.5	14.0	-	-	6.6	10.1	-	-	0.8	1.4	-	-
		9.8		-		8.4		-		1.1		-	
PT9	4/17/2016	5.3	5.8	-	-	3.1	3.1	-	-	1.7	1.8	-	-
		5.5		-		3.1		-		1.8		-	
PT10	4/17/2016	2.0	2.6	-	-	2.4	3.7	-	-	0.7	0.8	-	-
		2.3		-		3.0		-		0.8		-	
PT11	4/17/2016	1.0	1.1	-	-	1.2	1.3	-	-	0.8	0.9	-	-
		1.0		-		1.2		-		0.8		-	

Table 4.10.11: Range and average of phytoplankton at different stations off Patalganga during December 2015

Station	Date	Cell count (no x 10 ³ Cells/l)				Total genera (nos.)				Major genera			
		S		B		S		B					
		Min	Max	Min	Max	Min	Max	Min	Max				
		Avg		Avg		Avg		Avg					
PT4	04/12/2015	816.0	2987.2	179.6	993.4	18	32	17	27	Merismopedia	Merismopedia		
		1901.6		586.5		25		22		Cyclotella	Skeletonema		
PT4A	03/12/2015	160	415.4	151.8	179.6	19	19	15	20	Peridinium	Agmenellum		
		287.7		165.7		19		17		Crucigenia	Cyclotella		
PT6	07/12/2015	5302.2	12479. 2	3171.0		29	29	16	-	Cyclotella	Cyclotella		
		8890.7				29				Plagioselmis	Merismopedia		
PT7	08/12/2015	2974.4	36465. 8	-		28	30	-	-	Dictyosphaerium	Chaetoceros		
		19720.1				29				Cyclotella			
PT8	08/12/2015	12386. 4	96607. 0	-		39	40	-	-	Scenedesmus			
		54496.7				39				Merismopedia			
PT10	11/12/2015	7517.6		-		35		-		Aulacoseira			
PT11	11/12/2015	19614.2		-		52		-		Gleocapsa			
										Dictyosphaerium			
										Merismopedia			
										Microcystis			
										Aulacoseira			
										Eudorina			

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Table 4.10.12: Range and average of phytoplankton at different stations off Patalganga during April 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
		83	103	50	118	18	21	16	22	Coscinodiscus	Thalassiosira
PT4	14/04/2016									Thalassiosira	Thalassionema
		93		84		20		19		Cyclotella	Cyclotella
PT4A	14/04/2016	122	601	119	241	22	26	21	25	Nitzschia	Cylindrotheca
		361		180		24		23		Plagioselmis	Plagioselmis
PT6	15/04/2016	26713	50335	26838		23	32	20		Chlorella	Coscinodiscus
		38524				28				Oocystis	Cyclotella
PT7	17/04/2016	834	2396			27	29			Thalassiosira	Cylindrotheca
		1615				28				Nitzschia	Teleaulax
PT9	17/04/2016	257	910			21	26			Cyanoctysis	Cryptomonas
		584				24				Aulacoseira	--
PT10	17/04/2016	312				22				Thalassiosira	
PT11	17/04/2016	103.8				16				Synedra	
										Scenedesmus	
										Aulacoseira	
										Nitzschia	
										Sphaerocystis	
										Synedra	
										Scenedesmus	
										Fragillaria	

Table 4.10.13: Percentage composition of phytoplankton population off Patalganga during December 2015

Name of the genera	PT4	PT4A	PT5	PT6	PT7	PT8	PT9	Total Avg.
<i>Merismopedia</i>	64.3	0.0	56.0	80.5	88.4	51.5	43.6	54.9
<i>Cyclotella</i>	8.9	54.3	16.3	5.3	0.4	0.9	0.7	12.4
<i>Aulacoseira</i>	0.0	0.2	1.5	0.4	0.8	18.1	9.2	4.3
<i>Dictyosphaerium</i>	0.8	3.5	3.1	5.7	2.3	3.5	1.7	2.9
<i>Microcystis</i>	0.0	0.0	0.0	0.0	0.0	0.0	19.3	2.8
<i>Peridinium</i>	8.0	6.4	0.2	0.0	0.0	0.0	0.1	2.1
<i>Skeletonema</i>	3.8	10.4	0.3	0.2	0.0	0.0	0.0	2.1
<i>Plagioselmis</i>	0.5	0.0	11.7	0.1	0.0	0.0	0.0	1.8
<i>Eudorina</i>	0.0	0.0	0.0	0.0	0.2	1.8	8.6	1.5
<i>Actinastrum</i>	0.0	2.2	2.4	0.2	0.5	2.3	2.8	1.5
<i>Thalassiosira</i>	0.4	7.1	0.0	0.0	0.0	0.0	0.0	1.1
<i>Agmenellum</i>	1.1	0.0	0.0	0.0	3.9	1.7	0.7	1.1
<i>Gleocapsa</i>	0.0	0.0	0.0	0.0	0.8	6.3	0.0	1.0
<i>Scenedesmus</i>	0.0	0.0	1.6	2.8	0.6	0.3	0.7	0.9
<i>Nitzschia</i>	1.0	1.3	0.5	0.9	0.3	1.1	0.4	0.8
<i>Desmodesmus</i>	0.3	1.3	0.0	0.0	0.0	3.4	0.2	0.7
<i>Unknown Diatom</i>	1.6	1.3	0.4	0.4	0.1	0.8	0.5	0.7
<i>Crucigenia</i>	2.2	0.9	0.0	0.2	0.1	0.0	1.0	0.6
<i>Coelastrum</i>	0.0	0.0	0.2	0.6	0.1	2.3	0.6	0.5
<i>Chromulina</i>	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.5
<i>Teleaulax</i>	0.6	1.1	0.8	0.3	0.0	0.0	0.0	0.4
<i>Westella</i>	0.0	0.0	0.0	0.0	0.0	2.0	0.3	0.3
<i>Chaetoceros</i>	0.6	1.1	0.4	0.1	0.0	0.0	0.0	0.3
<i>Navicula</i>	0.2	1.5	0.1	0.1	0.1	0.0	0.1	0.3
<i>Cryptomonas</i>	0.1	0.2	0.0	1.4	0.0	0.1	0.1	0.3
<i>Monoraphidinium</i>	0.1	0.0	1.5	0.1	0.0	0.2	0.0	0.3
<i>Pediastrum</i>	0.0	0.4	0.4	0.2	0.1	0.3	0.6	0.3
<i>Gymnodinium</i>	0.1	0.7	0.0	0.0	0.0	1.0	0.0	0.3
<i>Chlorogonium</i>	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.3
<i>Krichniriella</i>	0.1	0.0	1.4	0.1	0.0	0.0	0.0	0.2
<i>Micratinium</i>	0.0	0.0	0.0	0.0	0.4	0.2	1.1	0.2
<i>Pseudo-nitzschia</i>	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.2
<i>Mallomonas</i>	0.2	0.0	0.6	0.1	0.0	0.0	0.2	0.2
<i>Crucigeniella</i>	0.3	0.0	0.3	0.1	0.1	0.1	0.0	0.1
<i>Sphaerocystis</i>	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.1
<i>Ankistrodesmus</i>	0.0	0.2	0.0	0.0	0.1	0.5	0.0	0.1
<i>Triceratium</i>	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.1
<i>Surirella</i>	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.1
<i>Gonium</i>	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.1
<i>Dinophysis</i>	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.1
<i>Synedra</i>	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.1
<i>Asterionella</i>	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.1
<i>Staurastrum</i>	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.1
<i>Fragilidium</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1
<i>Alexandrium</i>	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.1
<i>Protoperidinium</i>	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1
<i>Asterionellopsis</i>	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1
<i>Coscinodiscus</i>	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1
<i>Tetraselmis</i>	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.1
<i>Synura</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1
<i>Pleurosigma</i>	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1

Table 4.10.14: Percentage composition of phytoplankton population off Patalganga during April 2016

Genera name	PT4	PT4A	PT5	PT6	PT7	PT8	PT9	Total Avg. %
<i>Actinastrum</i>				0.6				<0.1
<i>Alexandrium</i>				<0.1				<0.1
<i>Amphora</i>		0.2				0.6		0.1
<i>Anacystis</i>					1.2			0.2
<i>Ankistrodesmus</i>	2.3	0.2	<0.1	0.3	0.3		0.2	0.5
<i>Aulacoseira</i>			<0.1	0.7	19.7	10.9		4.5
<i>Bellorachea</i>				<0.1				<0.1
<i>Cerataulina</i>	0.6							<0.1
<i>Ceratium</i>		0.2						<0.1
<i>Chlorella</i>		12.0	<0.1	<0.1				1.7
<i>Chlorococcum</i>			<0.1					<0.1
<i>Closterium</i>	0.6	0.7	<0.1	0.1	<0.1	0.6	1.9	0.6
<i>Coccconeis</i>	0.2	1.5		<0.1	<0.1			0.3
<i>Coelastrum</i>		0.7		2.9	5.5	32.7	1.3	6.2
<i>Coscinodiscus</i>	13.0	6.1	<0.1	0.5	2.6	<0.1		3.2
<i>Cosmarium</i>	2.4	0.8		0.2	0.3	<0.1	3.9	1.1
<i>Cryptomonas</i>			<0.1	0.1		<0.1		<0.1
<i>Cyclotella</i>	9.6	3.9	<0.1	0.7	2.2		1.9	2.6
<i>Cylindrotheca</i>	4.5	4.3	<0.1	0.9				1.4
<i>Dactyliosolen</i>	4.7	0.2	<0.1	0.4	2.4	0.4		1.2
<i>Ditylum</i>	0.6	<0.1		<0.1				<0.1
<i>Eutreptiella</i>				<0.1	<0.1	3.8		0.6
<i>Fragillaria</i>					4.3		11.6	2.3
<i>Golenkinia</i>				<0.1		0.6		<0.1
<i>Gonyaulax</i>		0.2						<0.1
<i>Guinardia</i>	0.6	0.2						0.1
<i>Gymnodinium</i>	0.1	1.3	<0.1					0.2
<i>Gyrodinium</i>	4.0	0.7						0.7
<i>Gyrosigma</i>	1.8							0.3
<i>Lauderia</i>					<0.1			<0.1
<i>Licmophora</i>	0.6	<0.1		<0.1			1.9	0.4
<i>Lithodesmium</i>	1.1	1.3						0.3
<i>Mallomonas</i>	4.0	0.4	<0.1	0.6	0.2			0.7
<i>Melosira</i>			<0.1					<0.1
<i>Navicula</i>	4.0	2.1	<0.1	0.6	2.1	0.6	3.9	1.9
<i>Nitzschia</i>	6.3	0.8	0.1	2.4	26.2	5.8	1.9	6.2
<i>Noctiluca</i>	0.6	0.4						0.1
<i>Odontella</i>		<0.1	<0.1		0.3			<0.1
<i>Oocystis</i>		5.6		<0.1	0.1	1.9		1.1
<i>Pediastrum</i>				0.4			2.1	0.4
<i>Peridinium</i>	2.3	3.1	<0.1	0.2				0.8
<i>Phytoconis</i>				0.5	3.1			0.5
<i>Plagioselmis</i>	1.3	37.0	<0.1					5.5
<i>Pleurosigma</i>	1.7	0.2	<0.1	0.1	0.5	<0.1		0.4
<i>Prorocentrum</i>	0.7	0.4	<0.1	0.1				0.2
<i>Protoperidinium</i>	<0.1	<0.1						<0.1
<i>Pseudo-nitzschia</i>	1.1	<0.1	<0.1	<0.1		<0.1		0.2
<i>Pyramimonas</i>	0.6	2.4						0.4
<i>Rhizosolenia</i>	<0.1	0.2			1.1			0.2
<i>Scenedesmus</i>			<0.1	1.7	5.3	25.0	13.5	6.5
<i>Skeletonema</i>		1.5	<0.1	0.6				0.3

<i>Sphaerocystis</i>			0.2		1.9		25.0	3.9
<i>Spirulina</i>					0.5	1.3		0.3
<i>Staurastrum</i>	0.1	0.2				1.9		0.3
<i>Surirella</i>	<0.1	0.7			0.2			0.1
<i>Synechocystis</i>			98.9	79.9				25.5
<i>Synedra</i>					7.7	1.9	17.3	3.9
<i>Teleaulax</i>			<0.1					<0.1
<i>Thalassionema</i>	6.2	1.7	<0.1	0.7	1.0			1.4
<i>Thalassiosira</i>	16.9	6.1	<0.1	2.5	9.4	3.8	5.8	6.4
<i>Thalassiothrix</i>	1.8	0.4		0.1	0.5			0.4
<i>Trachyneis</i>							1.9	0.3
<i>Triceratium</i>	2.8	<0.1	<0.1		0.2			0.4
<i>Trichodesmium</i>		0.2		0.1	2.7	5.1	5.8	2.0
<i>Tropidoneis</i>	2.8	1.8	<0.1	0.3	1.4			0.9
<i>Ulothrix</i>				1.9				0.3
<i>Unknown Diatom</i>						2.6		0.4
Total	100.0							

Table 4.10.15: Range and average (parenthesis) of zooplankton at different stations off Patalganga December 2015

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
PT4 (4/12/2015)	0.3-6.1 (1.5)	0.3-13.5 (3.4)	4-11 (8)	Copepods (71.5), decapod larvae (27.1), chaetognaths (0.7), fish larvae(0.2), medusae (0.1), ctenophores (0.1), gastropods (0.1), others (0.2).
PT4A (3/12/2015)	0.1-6.1 (1.7)	0.1-22.2 (5.2)	3-10 (6)	Copepods (62.3), decapod larvae (33.0), lamellibranchs (2.6), chaetognaths (1.2), gastropods (0.7), <i>Lucifer sp.</i> (0.1), others (0.1).
PT5 (7/12/2015)	0.5	1.7	7	Copepods (89.1), medusae (6.2), decapod larvae (4.0), gastropods (0.5), polychaetes (0.2), foraminifera (0.1), ctenophores (0.1), others (0.1).
PT6 (7/12/2015)	2.3-2.4 (2.4)	7.1-28.2 (17.7)	8-10 (9)	Copepods (88.1), gastropods (10.5), decapod larvae (0.8), medusae (0.4), others (0.1).

Table 4.10.16: Range and average (parenthesis) of zooplankton at different stations off Patalganga April 2016

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
PT4	0.5-27.0 (8.1)	14.6-119.4 (40.5)	14-18 (15)	Decapod larvae (53.2), copepods (42.4), gastropods (1.7), mysids (1.0), chaetognaths (0.4), stomatopods (0.4), ctenophores (0.3), fish larvae (0.2), foraminifera (0.1), medusae (0.1), <i>Lucifer</i> sp. (0.1), others (0.1).
PT4A	3.5-12.9 (8.2)	16.6-283.3 (141.6)	14-16 (15)	Copepods (63.8), decapod larvae (33.9), gastropods (1.2), mysids (0.3), foraminifera (0.2), chaetognaths (0.2), fish larvae (0.1), medusae (0.1), others (0.1).
PT6	0.1-0.7 (0.3)	1.5-5.8 (3.8)	5-9- (6)	Copepods (56.3), decapod larvae (26.3), gastropods (16.8), amphipods (0.3), isopods (0.2), others (0.1).

Table 4.10.17: Abundance of zooplanktons off Patalganga during December 2015

Faunal groups	PT4	PT4A	PT5	PT6
Foraminiferans	-	-	+	+
Medusae	+	+	+	+
Ctenophores	+	+	+	-
Chaetognaths	+	+	-	+
Polychaetes	-	-	+	+
Copepods	+	+	+	+
Amphipods	+	+	-	+
Mysids	+	+	-	-
Lucifer sp.	+	+	-	+
Decapod larvae	+	+	+	+
Stomatopods	+	-	-	-
Gastropods	+	+	+	+
Lamellibranchs	+	+	-	+
Appendicularians	+	-	-	-
Fish Eggs	+	+	-	-
Fish Larvae	+	+	-	+
Isopods	-	+	-	-
Acetes sp.	+	+	-	-

Table 4.10.18: Abundance of zooplanktons off Patalganga during April 2016

Faunal groups	PT4	PT4A	PT6
Foraminiferans	+	+	-
Medusae	+	+	-
Ctenophores	+	+	-
Chaetognaths	+	+	+
Polychaetes	+	+	+
Cladocerans	-	-	+
Copepods	+	+	+
Cumaceans	+	+	+
Amphipods	+	+	+
Mysids	+	+	+
<i>Lucifer</i> sp.	+	+	-
Decapod larvae	+	+	+
Stomatopods	+	+	+
Gastropods	+	+	+
Lamellibranchs	+	-	+
Appendicularians	+	+	-
Fish Eggs	+	+	-
Fish Larvae	+	+	+
Isopods	+	+	+

Table 4.10.19: Range and average of macrofauna off Patalganga during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (December 2015)									
PT4	0.51	5.53	2.35	375	775	556	1	4	3
PT4A	0.13	0.80	0.40	100	475	200	2	3	2
PT5	0.60	2.80	1.40	200	825	506	1	4	2
PT6	1.20	5.40	3.00	475	950	657	1	2	2
PT7	0.60	3.80	2.00	825	1125	982	1	4	3
PT8	1.40	5.10	3.00	1650	5700	3594	2	3	2
PT9	0.10	0.30	0.20	50	175	425	1	1	1
PT10	1.60	14.10	7.40	775	2000	1306	1	1	1
PT11	0.42	5.69	1.84	25	100	44	1	1	1
Overall	0.10	14.10	2.40	25	5700	919	1	4	2
Premonsoon (April 2016)									
PT4	1.14	6.62	3.34	625	3000	1594	4	8	6
PT4A	3.71	25.51	15.00	1800	2650	2325	2	3	2
PT5	0.03	0.50	0.2	50.00	400	231	1	1	1
PT6	0.29	1.21	0.60	250	1100	531	1	1	1
PT7	0.01	1.90	0.50	100	275	176	1	5	3
PT8	0.08	0.34	0.20	225	475	394	1	2	1
PT9	11.44	19.56	15.03	12350	15725	14075	2	2	2
PT10	No collection								
PT11									
Overall	0.01	25.51	4.98	50	15725	2761	1	8	2

Table 4.10.20: Percentage composition of macrofauna off Patalganga during December 2015

Phylum	Groups	Stations									Average
		PT4	PT4A	PT5	PT6	PT7	PT8	PT9	PT10	PT11	
Annelida	Polychaeta	79.78	78.00	83.99	89.50	75.15	94.44	0.00	0.00	0.00	69.46
Annelida	Oligochaeta	0.00	0.00	9.88	0.00	13.34	1.75	100.00	100.00	100.00	24.41
Arthropoda	Amphipoda	0.00	3.00	0.00	0.00	10.18	3.64	0.00	0.00	0.00	2.87
Arthropoda	Insecta larvae	14.61	19.00	1.19	10.50	0.00	0.00	0.00	0.00	0.00	2.35
Arthropoda	Brachyura	0.00	0.00	3.75	0.00	1.32	0.00	0.00	0.00	0.00	0.39
Arthropoda	Caridean shrimp	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
Arthropoda	Decapoda Larvae	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
Chordata	Fish larvae	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Mollusca	Pelecypoda	0.00	0.00	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.07
Nemertea	Nemertea	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.07

Table 4.10.21: Percentage composition of macrofauna off Patalganga during April 2016

Phylum	Groups	Stations									Average
		PT4	PT4A	PT5	PT6	PT7	PT8	PT9	PT10	PT11	
Annelida	Oligochaeta	2.35	0.00	0.00	0.00	0.00	95.18	99.64	No collection	74.71	
Annelida	Polychaeta	88.24	41.57	100.00	100.00	3.53	0.00	0.36		16.52	
Arthropoda	Amphipoda	0.78	0.00	0.00	0.00	0.00	0.00	0.00		0.06	
Arthropoda	Brachyura	1.18	57.92	0.00	0.00	0.00	0.00	0.00		7.08	
Arthropoda	Insecta larvae	0.00	0.00	0.00	0.00	73.53	4.82	0.00		0.75	
Arthropoda	Insecta	0.00	0.00	0.00	0.00	7.65	0.00	0.00		0.07	
Arthropoda	Cumacea	1.57	0.00	0.00	0.00	0.00	0.00	0.00		0.13	
Arthropoda	Mysida	1.18	0.26	0.00	0.00	0.00	0.00	0.00		0.13	
Arthropoda	Ostracoda	0.00	0.00	0.00	0.00	7.65	0.00	0.00		0.07	
Arthropoda	Copepoda	0.39	0.00	0.00	0.00	0.00	0.00	0.00		0.03	
Arthropoda	Tanaidacea	0.39	0.00	0.00	0.00	0.00	0.00	0.00		0.03	
Mollusca	Pelecypoda	1.18	0.26	0.00	0.00	0.00	0.00	0.00		0.13	
Nemertea	Nemertea	1.96	0.00	0.00	0.00	0.00	0.00	0.00		0.16	
Phoronida	Phoronida	0.78	0.00	0.00	0.00	0.00	0.00	0.00		0.06	
Platyhelminthes	Turbellaria	0.00	0.00	0.00	0.00	7.65	0.00	0.00		0.07	

Table 4.10.22: Station-wise distribution of meiofauna parameters in Patalganga

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
PT4	53.29	74.21	63.75	75	217	146	7	7	7
PT4A	366.36	929.18	647.77	512	664	588	7	7	7
PT5	450.53	472.23	461.38	937	1035	986	7	7	7
PT6	5317.71	5341.05	5329.38	552	669	611	4	5	4
PT7	1057.07	2782.81	1919.94	1280	2606	1943	7	8	7
PT8	172.19	673.83	423.01	37	68	52	5	6	5
PT9	93.93	201.26	147.59	50	85	67	8	8	8
PT10	97.35	117.48	58.74	31	41	36	4	4	4
PT11	2.85	7.51	5.18	28	30	33	2	3	2
Premonsoon April 2016									
PT4	22.0	69.58	45.79	11	13	12	2	5	3
PT4A	107.42	311.24	209.33	115	341	228	6	6	6
PT5	8.32	11.98	10.15	28	50	39	2	2	2
PT6	31.28	34.67	32.97	10	23	16	2	5	3
PT7	13634.22	22651.78	18143	2936	4069	3502	6	8	7
PT8	64.28	739.22	401.75	25	333	179	3	5	4
PT9	1636.68	6068.43	3852.55	136	542	339	5	5	5
PT10	No collection								
PT11	6944.96	8679.04	7812	7161	7691	7426	7	9	8

Table 4.10.23: Percentage composition meiofauna off Patalganga during December 2015

Groups	PT4	PT4A	PT5	PT6	PT7	PT8	PT9	PT10	PT11	Average
Cladocerans	0.00	0.12	0.00	0.00	0.00	4.48	6.32	0.00	0.00	0.16
Copepods	3.40	0.48	1.17	0.93	0.98	74.63	6.32	0.00	0.00	1.88
Foraminiferans	34.95	1.45	6.48	0.00	0.58	1.49	1.05	1.96	58.27	3.49
Gastropods	0.00	0.00	0.00	0.23	0.18	0.00	0.00	0.00	0.00	0.11
Halacaroids	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Insects	0.00	0.12	0.00	0.00	0.00	0.00	7.37	5.88	0.00	0.18
Nauplius	2.91	0.00	0.44	0.00	0.00	1.49	0.00	0.00	0.00	0.21
Nematodes	55.34	95.88	91.48	44.38	97.23	16.42	44.21	13.73	28.06	84.29
Nemerteans	0.97	1.21	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.21
Oligochaetes	0.00	0.00	0.00	16.22	0.55	0.00	15.79	0.00	0.00	2.71
Ostracods	0.97	0.00	0.00	0.00	0.00	1.49	0.00	0.00	0.00	0.05
Polychaetes	0.00	0.36	0.15	38.24	0.40	0.00	1.05	1.96	0.00	5.55
Rotifers	0.00	0.36	0.22	0.00	0.07	0.00	17.89	74.51	4.11	1.04
Sipunculids	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.03
Tanaids	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.01
Tardigrades	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	1.34	0.03
Turbellarians	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.03
Zoea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44	0.01

Table 4.10.24: Percentage composition meiofauna off Patalganga during April 2016

Groups	PT4A	PT5	PT6	PT7	PT8	PT9	PT10	PT11	Average
Bivalves	0.00	0.00	0.00	0.00	0.00	0.00		0.01	0.01
Cladocerans	0.00	0.00	4.35	0.00	0.00	0.00		0.00	0.01
Copepods	8.31	0.00	4.35	0.20	1.98	0.00		0.00	0.25
Foraminiferans	4.98	63.64	0.00	0.32	3.95	5.43		0.70	1.06
Gastropods	0.00	0.00	0.00	0.02	0.00	0.00		0.00	0.01
Halacaroids	0.00	0.00	0.00	0.02	0.00	0.00		0.01	0.01
Insects	0.00	0.00	0.00	0.00	2.37	18.79		0.02	0.59
Nauplius	3.32	0.00	0.00	0.20	0.00	0.00		0.02	0.13
Nematodes	73.09	36.36	73.91	77.87	75.49	7.72		95.74	87.15
Nemerteans	9.97	0.00	0.00	0.02	0.00	0.00		0.00	0.19
Oligochaetes	0.00	0.00	4.35	0.20	1.98	51.36		1.20	2.35
Polychaetes	0.33	0.00	13.04	21.14	14.23	0.00		0.30	6.77
Rotifers	0.00	0.00	0.00	0.00	0.00	16.70		1.45	1.41
Tardigrades	0.00	0.00	0.00	0.00	0.00	0.00		0.10	0.07

Table 4.11.1: Water quality off Amba during December 2015

Parameter	Level	AB4			AB5	AB6			AB7			AB8		
		Min	Max	Avg		Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
Temperature(°C)	S	26.0	30.0	28.4	30.0	28.5	28.5	28.5	28.0	28.5	28.3	28.5	29.0	30.0
	B	27.0	29.5	28.3	31.0	27.5	28.0	27.8	28.0	28.0	28.0	28.5	28.5	31.0
		(25.0)	(33.0)	(28.9)	(32.5)	(29.0)	(29.0)	(29.0)	(29.0)	(29.0)	(29.0)	(29.0)	(31.0)	(32.5)
SS(mg/l)	S	26	28	27	36	24	27	26	44	48	46	31	72	51
	B	34	35	34	43	40	58	49	62	69	66	60	60	60
Turbidity(NTU)	S	2.0	5.8	3.4	10.9	5.5	6.3	5.9	2.4	3.3	2.8	11.2	12.4	11.8
	B	1.6	7.1	4.7	9.0	2.4	4.0	3.2	5.1	6.2	5.7	11.0	11.0	11.0
pH	S	7.5	7.6	7.6	7.6	7.5	7.6	7.6	7.5	7.5	7.5	7.4	7.5	7.5
	B	7.5	7.7	7.6	7.7	7.6	7.7	7.7	7.5	7.6	7.6	7.6	7.6	7.6
Salinity(ppt)	S	28.9	33.6	30.7	31.8	30.0	30.4	30.2	22.8	27.5	25.2	18.9	21.2	20.1
	B	31.3	33.6	32.5	32.2	29.1	31.6	30.3	22.8	27.9	25.4	21.4	21.4	21.4
DO (mg/l)	S	5.7	7.9	6.8	4.3	7.3	7.6	7.4	6.0	6.3	6.2	6.0	6.7	6.3
	B	5.7	7.3	6.5	5.1	5.7	6.7	6.2	5.4	5.7	5.5	5.7	5.7	5.7
BOD (mg/l)	S	2.5	3.8	3.1	1.3	3.8	4.4	4.1	3.5	3.8	3.6	3.8	5.0	4.4
	B	1.6	2.8	2.2	0.9	1.9	4.7	3.3	1.6	3.5	2.5	2.8	2.8	2.8
PO ₄ ³⁻ -P (μmol/l)	S	1.3	2.3	1.6	1.7	2.0	3.5	2.7	2.3	2.8	2.6	2.1	2.5	2.3
	B	1.9	2.6	2.2	2.0	2.4	2.8	2.6	2.3	3.0	2.6	2.3	2.3	2.3
TP(μmol/l)	S	2.1	2.2	2.1	16.4	2.9	3.8	3.3	3.0	3.7	3.3	10.9	11.1	11.0
	B	2.4	2.6	2.5	10.8	3.0	3.3	3.2	3.3	3.8	3.5	12.3	15.7	14.0
NO ₃ ⁻ -N (μmol/l)	S	14.5	27.6	20.5	45.3	5.4	10.4	7.9	8.1	8.5	8.3	8.3	18.2	13.3
	B	16.4	26.4	19.3	31.7	5.2	7.0	6.1	7.9	17.6	12.8	18.2	18.2	18.2
NO ₂ ⁻ -N(μmol/l)	S	2.5	6.5	4.1	9.5	2.1	3.1	2.6	1.7	2.0	1.9	1.3	1.9	1.6
	B	3.0	5.6	4.5	8.9	2.0	4.7	3.3	1.5	1.8	1.7	1.3	1.3	1.3
NH ₄ ⁺ -N(μmol/l)	S	0.1	0.8	0.3	32.4	1.9	2.2	2.0	3.6	3.8	3.7	4.3	4.7	4.5
	B	ND	0.7	0.3	10.4	3.7	6.0	4.8	2.1	4.9	3.5	5.7	5.7	5.7
TN(μmol/l)	S	29.1	33.9	31.5	38.6	13.5	18.4	15.9	16.3	19.3	17.8	58.8	66.4	62.6
	B	36.5	38.2	37.3	40.6	19.7	22.8	21.3	17.8	29.1	23.4	61.2	72.0	66.6
PHc(μg/l)	1m	3.1	8.7	5.9	4.6	6.2	7.7	7.0	4.8	5.3	5.1	4.5	6.8	5.7
Phenol (μg/l)	S	115.7	298.3	207.0	163.4	239.0	260.9	250	587.5	592.1	589.8	444.2	461.3	452.8

Air temperature given in parenthesis

Table 4.11.1(Contd 1)

Parameter	Level	AB9		
		Min	Max	Avg
Temperature(°C)	S	27.0	27.0	27.0
	B	28.2	28.2	28.2
		(26.0)	(26.0)	(26.0)
SS(mg/l)	S	24	38	31
	B	43	44	44
Turbidity(NTU)	S	10.4	12.5	11.4
	B	9.5	11.2	10.3
pH	S	7.6	7.6	7.6
	B	7.7	7.7	7.7
Salinity(ppt)	S	0.3	0.4	0.4
	B	0.7	0.9	0.8
DO (mg/l)	S	6.3	6.7	6.5
	B	6.0	7.0	6.5
BOD (mg/l)	S	2.8	3.8	3.3
	B	1.9	3.8	2.8
PO ₄ ³⁻ -P (μmol/l)	S	1.6	1.7	1.7
	B	2.4	2.7	2.6
TP(μmol/l)	S	2.8	2.9	2.9
	B	2.7	3.6	3.2
NO ₃ ⁻ -N (μmol/l)	S	28.8	28.9	28.9
	B	23.4	28.5	26.0
NO ₂ ⁻ -N(μmol/l)	S	3.0	3.1	3.0
	B	3.3	3.6	3.5
NH ₄ ⁺ -N(μmol/l)	S	0.2	0.2	0.2
	B	0.1	0.2	0.2
TN(μmol/l)	S	51.6	57.5	54.6
	B	47.5	56.9	52.2
PHc(μg/l)	1m	5.0	5.4	5.2
Phenol (μg/l)	S	162.7	162.7	162.7

Air temperature given in parenthesis

Table 4.11.2: Water quality off Amba during May 2016

Parameter	Level	AB4			AB5			AB6			AB7			AB8		
		Min	Max	Avg	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
Temperature(°C)	S	28.0	31.0	29.8	32.5	31.0	32.0	31.6	29.0	32.5	31.3	32.0	32.0	32.0	32.0	
	B	28.0	30.5	29.4	30.0	31.0	32.0	31.2	29.0	32.0	31.0	31.5	31.5	31.5	31.5	
		(29.5)	(31.0)	(30.3)	(30.0)	(29.0)	(33.0)	(31.4)	(32.0)	(35.5)	(34.1)	(28.0)	(34.0)	(31.0)		
SS(mg/l)	S	44	61	52	74	32	40	37	35	43	39	23	29	26		
	B	69	69	69	117	35	46	40.2	70	88	79	34	56	45		
Turbidity(NTU)	S	2.5	3.3	2.9	10.4	1.2	5.3	2.6	7.4	9.2	8.3	11.6	14.8	13.2		
	B	2.7	2.7	2.7	11.9	1.1	7.8	4.1	8.1	10.1	9.1	12.7	15.2	14.0		
pH	S	7.5	7.9	7.8	7.9	7.5	7.9	7.8	7.7	7.9	7.8	7.6	7.8	7.7		
	B	7.6	7.9	7.8	8.0	7.6	7.9	7.8	7.7	7.9	7.8	7.7	7.8	7.8		
Salinity(ppt)	S	34.9	36.3	35.9	36.0	34.2	36.2	35.4	33.0	35.2	34.5	27.6	30.9	29.2		
	B	34.8	36.3	35.8	36.0	34.5	36.5	35.5	33.5	35.5	34.5	27.4	31.2	29.3		
DO (mg/l)	S	3.2	5.4	4.6	5.4	4.4	5.4	4.9	3.5	6.7	5.6	4.8	4.8	4.8		
	B	2.9	5.5	4.1	3.8	4.4	5.4	4.9	3.5	6.7	5.4	4.4	4.4	4.4		
BOD (mg/l)	S	1.9	2.2	2.0	2.5	2.8	3.1	3.0	1.3	3.1	2.2	2.5	3.1	2.8		
	B	1.9	3.5	2.7	0.9	2.8	3.1	3.0	1.9	2.8	2.4	2.5	2.8	2.7		
PO ₄ ³⁻ -P (μmol/l)	S	2.2	5.9	4.2	14.7	2.3	5.4	3.4	3.9	7.4	5.4	7.6	8.6	8.1		
	B	2.9	11.4	5.3	10.9	3.1	5.3	4.0	4.3	8.7	6.0	8.9	10.7	9.8		
TP(μmol/l)	S	12.9	13.6	13.3	16.4	4.3	4.3	4.3	7.4	17.2	12.3	10.9	11.1	11.0		
	B	15.6	15.8	15.7	10.8	5.1	5.4	5.3	8.7	19.1	13.9	12.3	15.7	14.0		
NO ₃ ⁻ -N (μmol/l)	S	9.2	36.1	23.5	9.1	14.6	63.4	32.8	20.9	71.6	43.2	35.2	51.6	43.4		
	B	11.9	34.1	23.5	8.0	13.1	51.8	29.7	24.0	54.5	36.5	39.8	53.7	46.8		
NO ₂ ⁻ -N(μmol/l)	S	0.2	1.0	0.6	2.3	0.7	5.9	1.8	0.1	4.9	2.4	3.1	7.0	5.1		
	B	0.2	0.8	0.5	1.7	0.6	5.7	1.9	0.3	4.6	2.1	0.4	6.5	3.4		
NH ₄ ⁺ -N(μmol/l)	S	0.5	2.1	1.2	11.1	3.7	19.6	6.6	0.6	4.7	1.7	0.7	1.4	1.0		
	B	0.8	2.7	1.5	3.3	3.6	15.1	6.6	1.3	4.8	2.4	1.3	2.1	1.7		
TN(μmol/l)	S	52.3	63.1	57.7	38.6	57.9	93.7	75.8	47.3	103.3	75.3	58.8	66.4	62.6		
	B	46.2	58.8	52.5	40.6	72.5	98.1	85.3	49.7	85.7	67.7	61.2	72.0	66.6		
PHc(μg/l)	1m	4.2	6.9	5.6	6.2	6.5	7.4	7.0	4.3	8.1	6.2	4.9	7.2	6.1		
Phenol (μg/l)	S	2.6	23.8	13.2	32.4	24.7	48.7	36.7	26.2	40.8	33.5	45.6	72.2	58.9		

*Average of two reading

Air temperature given in parenthesis

Table 4.11.3: Sediment quality off Amba during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
AB4	1.0	42.6	56.4	6.1	307	778	7.3	31	104	73	89	0.15	0.09	19.4	1.7	1548	2.5
AB5	2.6	53.6	43.8	2.3	95	183	3.7	25	26	34	10	0.17	0.06	10.2	1.4	1258	1.8
AB6	4.2	86.2	9.6	6.8	172	588	6.9	53	80	97	78	0.18	0.06	20.2	1.4	1085	1.8
AB7	3.8	74.8	21.4	6.6	170	851	7.4	54	78	105	87	0.15	0.14	28.3	2.3	1104	1.1
AB8	44.6	27.6	27.8	6.1	149	1023	6.3	49	72	97	83	0.23	0.15	27.4	2.6	1068	1.7
AB9	36.1	47.3	16.6	7.5	225	1187	8.4	67	94	132	109	0.15	0.04	28.7	2.6	1099	3.0

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.11.4: Sediment quality off Amba during May 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
AB4	4.2	61.4	34.4	6.6	161	889	7.7	36	88	87	99	0.23	0.08	17.0	1.6	1070	2.1
AB5	1.8	78.6	19.6	7.3	175	773	7.7	54	74	104	76	0.23	0.10	15.9	2.6	1364	1.7
AB6	2.6	84.8	12.6	8.1	210	1124	8.6	62	87	139	103	0.29	0.11	16.7	0.8	1059	0.8
AB7	1.4	51.4	47.2	5.1	111	877	5.1	41	56	64	53	0.28	0.11	8.4	2.6	1000	1.1
AB8	0.9	89.9	9.2	7.6	176	1421	7.8	55	83	111	104	0.22	0.11	14.5	1.7	1096	0.7

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.11.5: Microbial counts (CFU/ml) in water off Amba Estuary during 2015-16

Types of Bacteria	Population in surface water (CFU/ml)															
			Postmonsoon (December 2015)						Premonsoon (May 2016)							
	AB4		AB5		AB6		AB7		AB4		AB5		AB6		AB7	
	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl
TVC	30 x 10 ³	10 x10 ³	20 x 10 ³	30 x 10 ³	20 x10 ³	110	20 x10 ³	1 x10 ³	11 x 10 ³	18 x10 ³	16 x 10 ³	14 x10 ³	17 x10 ³	14 x10 ³	12 x10 ³	10 x10 ³
TC	40	50	ND	ND	40	20	60	40	60	110	70	90	120	60	130	90
FC	20	30	ND	ND	30	20	50	10	30	70	50	80	90	40	110	60
ECLO	ND	10	ND	ND	10	10	10	ND	10	50	40	60	80	30	90	40
SHLO	ND	ND	10	10	ND	10	30	40	ND	20	ND	20	ND	ND	ND	ND
SLO	ND	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	40	10	ND	ND	ND	10	10	40	70	40	70	90	40	20	ND
VLO	120	40	40	170	ND	20	20	ND	110	20	80	60	240	100	90	60
VPLO	30	10	10	ND	ND	20	10	ND	80	20	50	60	200	60	20	30
VCLO	90	30	30	170	ND	ND	10	ND	30	ND	30	ND	40	40	70	30
PALO	ND	10	ND	ND	ND	ND	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.11.5 (Contd 1)

Types of Bacteria	Population in surface water (CFU/ml)					
	Postmonsoon (December 2015)				Premonsoon (May 2016)	
	AB8		AB9		AB8	
	Eb	Fl	Eb	Fl	Eb	Fl
TVC	100 x10 ³	10 x10 ³	100 x10 ³	100 x10 ³	5x10 ³	11 x10 ³
TC	50	30	ND	10	20	30
FC	40	10	ND	10	10	20
ECLO	ND	10	ND	ND	10	10
SHLO	40	20	10	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	ND	20	10
VLO	40	30	70	110	130	40
VPLO	10	10	10	ND	50	40
VCLO	30	20	60	110	80	ND
PALO	10	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND

Table 4.11.6: Microbial counts (CFU/g) in sediment off Amba Estuary during 2015-16

Type of Bacteria	Population in sediment (CFU/g)										
	Postmonsoon (December 2015)						Premonsoon (May 2016)				
	AB4	AB5	AB6	AB7	AB8	AB9	AB4	AB5	AB6	AB7	AB8
TVC	3000 x 10 ³	100 x 10 ³	1000 x 10 ³	1000 x 10 ³	7000 x 10 ³	300 x 10 ³	180 x 10 ³	150 X10 ³	140 x 10 ³	120 x 10 ³	100 x 10 ³
TC	ND	ND	ND	100	60	ND	50	80	30	50	ND
FC	ND	ND	ND	90	60	ND	30	70	10	40	ND
ECLO	ND	ND	ND	20	50	ND	10	60	10	20	ND
SHLO	ND	ND	ND	80	320	ND	ND	20	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	20	40	ND	30	70	ND	ND	ND
VLO	40	ND	ND	280	390	40	20	70	ND	30	ND
VPLO	ND	ND	ND	190	190	40	20	50	ND	20	ND
VCLO	40	ND	ND	90	200	ND	ND	20	ND	10	ND
PALO	ND	ND	ND	ND	10	ND	ND	30	ND	ND	ND
SFLO	ND	140	ND	ND	10	ND	ND	10	ND	ND	ND

ND – Below Detectable Level

Table 4.11.7: Range and average of phytopigments at different stations off Amba Estuary during December 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
AB4	12/6/2015	2.7	6.6	2.4	7.4	0.8	1.9	0.8	2.6	2.3	7	1.2	3.7
		4.8		3.7		1.4		1.6		3.6		2.5	
AB6	12/9/2015	3.4	4.8	2.8	3	0.6	0.9	1.6	1.6	3.8	7.7	1.7	1.9
		4.1		2.9		0.8		1.6		5.7		1.8	
AB7	12/9/2015	2.8	3.2	2.1	2.4	1.1	1.4	1.4	1.8	2	3.1	1.1	1.7
		3		2.2		1.2		1.6		2.5		1.4	
AB8	12/9/2015	3.4	4	2	2	1.1	1.5	1.6	1.6	2.6	3.3	1.3	1.3
		3.7		2		1.3		1.6		2.9		1.3	

Table 4.11.8: Range and average of phytopigments at different stations off Amba Estuary during May 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
AB4	5/6/2016	7.1	15.4	7.8	20.2	0.1	5.1	2.5	6.3	1.7	60.3	2.1	5.0
		11.4		13.2		2.7		4.3		10.6		3.2	
AB6	5/7/2016	8.6	16.1	8.5	12.8	0.8	4.3	3.5	6.4	3.0	19.9	1.3	3.0
		11.4		10.1		2.6		4.5		6.8		2.3	
AB7	5/5/2016	5.7	22.2	9.8	24.5	0.9	3.8	1.9	3.3	3.8	24.9	2.9	11.6
		15.1		18.2		2.1		2.8		10.1		7.1	
AB8	5/5/2016	4.0	5.3	3.1	6.6	2.0	2.3	2.5	3.9	1.8	2.6	1.2	1.7
		4.7		4.8		2.2		3.2		2.2		1.5	

Table 4.11.9: Range and average of phytoplankton at different stations off Amba Estuary during December 2015

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
AB4	12/6/2015	131.2	236.0	54.2	115.4	19.0	25.0	17.0	23.0	<i>Thalassiosira</i>	<i>Skeletonema</i>
		183.6		84.8		22.0		20.0		<i>Gonyaulax</i>	<i>Thalassiosira</i>
AB6	12/9/2015	63.0	101.0	52.6	101.2	12.0	15.0	10.0	12.0	<i>Spirulina</i>	<i>Surirella</i>
		82.0		76.9		13.5		11.0		<i>Peridinium</i>	<i>Cylindrotheca</i>
AB7	12/9/2015	35.2	71.0	21.0	23.0	11.0	16.0	10.0	13.0	<i>Skeletonema</i>	<i>Skeletonema</i>
		53.1		22.0		13.5		11.5		<i>Pyromimonas</i>	<i>Thalassionema</i>
AB8	12/9/2015	22.6	35.6	24.8		8.0	12.0	11.0		<i>Prorocentrum</i>	<i>Cyclotella</i>
		29.1				10.0				<i>Thalassiosira</i>	<i>Thalassiosira</i>
										<i>Alexandrium</i>	<i>Pleurosigma</i>
										<i>Coscinodiscus</i>	<i>Thalassionema</i>
										<i>Navicula</i>	<i>Navicula</i>
										<i>Thalassionema</i>	<i>Coscinodiscus</i>
										<i>Alexandrium</i>	<i>Nitzschia</i>
										<i>Navicula</i>	<i>Navicula</i>

Table 4.11.10: Range and average of phytoplankton at different stations off Amba Estuary during May 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B		S	B
		Min	Max	Min	Max	Min	Max	Min	Max		
		Avg		Avg		Avg		Avg			
AB4	6/5/2016	269.2	394.4	133.4	363.6	23.0	27.0	19.0	21.0	<i>Prorocentrum</i>	<i>Coscinodiscus</i>
		331.8		248.5		25.0		20.0		<i>Thalassiosira</i>	<i>Ditylum</i>
AB6	7/5/2016	208.4	301.4	188.8	203.2	22.0	24.0	20.0	21.0	<i>Ditylum</i>	<i>Thalassiosira</i>
		254.9		196.0		23.0		20.5		<i>Odontella</i>	<i>Odontella</i>
AB7	5/5/2016	470.8	1700.2	492.6	2866.4	26	32	24	29	<i>Skeletonema</i>	<i>Skeletonema</i>
		1085.5		1679.5		29		27		<i>Cylindrotheca</i>	<i>Cylindrotheca</i>
AB8	5/5/2016	182.8	524.8	180.6	602.6	22	22	17.0	18.0	<i>Nitzschia</i>	<i>Nitzschia</i>
		353.8		391.6		22		17.5		<i>Thalassiosira</i>	<i>Thalassiothrix</i>
										<i>Asterionellopsis</i>	<i>Pleurosigma</i>

Table 4.11.11: Percentage composition of phytoplankton population at different station off Amba Estuary during December 2015

Genera Name	AB4	AB5	AB6	AB7	AB8	AB9	Total Avg.
<i>Skeletonema</i>	7.5	No collection	47.8	5.7		No collection	15.3
<i>Thalassiosira</i>	19.0		6.9	1.5	14.5		10.5
<i>Navicula</i>	5.7		5.1	17.3	9.6		9.4
<i>Thalassionema</i>	3.7		5.7	14.6	11.1		8.8
<i>Coscinodiscus</i>	3.0		2.0	17.4	12.5		8.7
<i>Alexandrium</i>	6.0		0.8	6.7	19.3		8.2
<i>Pyromimonas</i>	1.9		8.2	4.0	4.8		4.7
<i>Prorocentrum</i>	1.1		5.7	2.7	4.8		3.6
<i>Pleurosigma</i>	0.8		2.0	6.8	2.7		3.0
<i>Surirella</i>	5.6		0.7	5.3			2.9
<i>Nitzschia</i>	0.2		0.1	3.1	7.2		2.7
<i>Gonyaulax</i>	8.6		1.2				2.5
<i>Peridinium</i>	6.7			2.7			2.3
<i>Spirulina</i>	8.6						2.1
<i>Protoperidinium</i>	4.5		0.8		2.4		1.9
<i>Mallomonas</i>	1.1		4.4	1.3			1.7
<i>Thalassiothrix</i>	0.1		0.6	1.7	2.7		1.3
<i>Cylindrotheca</i>	3.7			1.3			1.2
<i>Actinastrum</i>	4.8						1.2
<i>Guinardia</i>	0.1		2.0		2.7		1.2
<i>Rhizosolenia</i>	<0.1		0.1	1.5	2.7		1.1
<i>Pseudo-nitzschia</i>	0.1			1.5	2.7		1.1
<i>Cyclotella</i>	0.2		3.8				1.0
<i>Odontella</i>	0.9		1.4	0.4	0.2		0.7
<i>Euglina</i>	1.5						0.4
<i>Asterionella</i>	1.2			0.3			0.4
<i>Ceratium</i>	<0.1		0.1	1.3			0.4
<i>Diploneis</i>	0.1			1.3			0.4
<i>Ditylium</i>	<0.1			1.3			0.3
<i>Triceratium</i>	0.4		0.6				0.3
<i>Eucampia</i>	0.7						0.2
<i>Gyrosigma</i>	-		0.1	0.3	0.2		0.1
<i>Lithodesmium</i>	0.4						0.1
<i>Corethron</i>	0.4						0.1
<i>Gymnodinium</i>	0.4						0.1
<i>Pyrodinum</i>	0.4						0.1
<i>Aulacoseira</i>	0.2						<0.1
<i>Distephanus</i>	0.1						<0.1
<i>Cymatosira</i>	<0.1						<0.1
<i>Leptocylindrus</i>	<0.1						<0.1
Total	100.0		100.0	100.0	100.0	100.0	100.0

Table 4.11.12: Percentage composition of phytoplankton population at different station off Amba Estuary during May 2016

Genera name	AB4	AB5	AB6	AB7	AB8	AB9	TOTAL %
<i>Alexandrium</i>	-		0.44	0.43			0.22
<i>Amphiprora</i>	-				0.54		0.13
<i>Asterionella</i>	-			1.38			0.34
<i>Asterionellopsis</i>	-				3.62		0.91
<i>Bacillaria</i>	-		<0.1				<0.1
<i>Bellorachea</i>	-			0.14	1.21		0.34
<i>Cerataulina</i>	0.53			<0.1			0.14
<i>Ceratium</i>	0.40		0.49	0.11			0.25
<i>Chaetoceros</i>	0.69			0.40	1.88		0.74
<i>Coccconeis</i>	0.17			0.14			<0.1
<i>Corethon</i>	1.21		0.89	0.26	2.15		1.12
<i>Coscinodiscus</i>	10.3		4.70	2.53	0.54		4.53
<i>Cyclotella</i>	4.83		2.44	0.69	1.34		2.32
<i>Cylindrotheca</i>	1.74		3.33	8.72	48.3		15.52
<i>Dactyliosolen</i>	1.91		3.55	3.28			2.19
<i>Diploneis</i>	-			0.18			<0.1
<i>Ditylum</i>	14.13		6.65	1.28	0.12		5.55
<i>Eutreptiella</i>	-				0.13		<0.1
<i>Guinardia</i>	2.58		1.20	0.15	1.07		1.25
<i>Gymnodinium</i>	<0.1			<0.1	0.27		<0.1
<i>Gyrodinium</i>	0.88		<0.1	<0.1	0.27		0.32
<i>Gyrosigma</i>	0.59		0.29	0.22			0.27
<i>Lauderia</i>	-		0.71	0.22			0.23
<i>Lithodesmium</i>	-		11.98	4.70			4.17
<i>Mallomonas</i>	-		0.22	0.11			<0.1
<i>Melosira</i>	-			<0.1			<0.1
<i>Navicula</i>	3.98		2.00	1.19	0.94		2.03
<i>Nitzschia</i>	4.48		17.30	6.58	17.17		11.38
<i>Noctiluca</i>	-		<0.1	<0.1			<0.1
<i>Odontella</i>	10.68		5.32	2.06	0.31		4.59
<i>Peridinium</i>	<0.1		<0.1	0.16	0.54		0.20
<i>Pleurosigma</i>	1.24		1.77	0.61	4.02		1.91
<i>Prorocentrum</i>	11.37						2.84
<i>Protoperidinium</i>	0.40		0.24	<0.1			0.16
<i>Pseudo-nitzschia</i>	3.27		0.89	1.45	2.95		2.14
<i>Pyramimonas</i>	-			<0.1			-
<i>Rhizosolenia</i>	0.69		4.21	1.99	<0.1		1.73
<i>Skeletonema</i>	7.25		17.74	51.36			19.09
<i>Surirella</i>	-		<0.1		0.82		0.22
<i>Thalassionema</i>	2.79		3.33	4.20	0.80		2.78
<i>Thalassiosira</i>	12.75		6.88	3.44	5.10		7.04
	-						-
	-						-
<i>Thalassiothrix</i>	0.22		2.02	1.19	5.50		2.23
<i>Triceratium</i>	0.60		1.13	0.16	0.27		0.54

<i>Trichodesmium</i>	0.17		<0.1			<0.1
<i>Tropidoneis</i>	-		0.43	0.13		0.14
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 4.11.13: Range and average (parenthesis) of zooplankton at different stations off Amba during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
AB4 (06/12/2015)	0.9-10.0 (2.5)	1.4-7.9 (3.5)	6-12 (9)	Copepods (59.2), decapod larvae (37.7), lamellibranchs (1.3), medusae (0.9), gastropods (0.3), fish eggs (0.2), foraminifera (0.1), ctenophores (0.1), appendicularians (0.1), others (0.1).
AB6 (09/12/2015)	2.8-6.2 (4.5)	15.2-24.7 (20.0)	14-15 (15)	Copepods (82.9), decapod larvae (9.1), gastropods (3.6), chaetognaths (2.9), medusae (0.5), ctenophores (0.5), <i>Lucifer sp.</i> (0.1), lamellibranchs (0.1), <i>Acetes sp.</i> (0.1), others (0.1).
AB7 (9/12/2015)	0.9-3.8 (2.4)	2.9-10.2 (6.6)	13-14 (14)	Copepods (81.8), ctenophores (7.0), decapod larvae (4.3), gastropods (3.9), chaetognaths (2.0), lamellibranchs (0.7), medusae (0.1), others (0.1).
AB8 (09/1/2015)	3.2	61.5	11	Copepods (94.0), gastropods (5.6), decapod larvae (0.2), ctenophores (0.1), others (0.1).

Table 4.11.14: Range and average (parenthesis) of zooplankton at different stations off Amba during May 2016

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
AB4 (06/05/2016)	3.4-16.8 (9.1)	12.8-99.0 (34.4)	11-14 (12)	Copepods (89.8), chaetognaths (3.6), decapod larvae (2.4), gastropods (1.6), lamellibranchs (0.8), medusae (0.6), mysids (0.5), <i>Acetes</i> sp. (0.3), fish larvae(0.2), ctenophores (0.1), <i>Lucifer</i> sp. (0.1), others (0.1).
AB7 (05/05/2016)	8.1-15.8 (10.6)	9.8-14.4 (12.6)	9-13 (11)	Copepods (86.8), <i>Lucifer</i> sp. (3.8), ctenophores (3.3), chaetognaths (3.2), decapod larvae (2.5), fish larvae (0.1), <i>Acetes</i> sp. (0.1), gastropods (0.1), lamellibranchs (0.1), others (0.1).
AB8 (06/05/2016)	2.3-7.3 (4.8)	2.2-22.2 (12.2)	9-11 (10)	Copepods (64.5), chaetognaths (30.6), decapod larvae (2.6), ctenophores (1.3), <i>Acetes</i> sp. (0.4), <i>Lucifer</i> sp. (0.3), fish larvae (0.1), gastropods (0.1), others (0.1).

Table 4.11.15: Abundance of zooplanktons off Amba during December 2015

Faunal groups	AB4	AB6	AB7	AB8
Foraminiferans	+	+	+	-
Medusae	+	+	+	+
Ctenophores	+	+	+	+
Chaetognaths	+	+	+	+
Polychaetes	-	+	+	+
Ostracods	+	-	-	-
Copepods	+	+	+	+
Amphipods	+	+	+	-
Mysids	-	+	-	+
<i>Lucifer sp.</i>	-	+	+	+
Decapod larvae	+	+	+	+
Stomatopods	+	+	+	-
Gastropods	+	+	+	+
Lamellibranchs	+	+	+	+
Appendicularians	+	+	+	-
Fish Eggs	+	-	+	-
Fish Larvae	+	+	+	+
Isopods	-	+	+	-
<i>Acetes sp.</i>	-	+	+	-

Table 4.11.16: Abundance of zooplanktons off Amba during May 2016

Faunal Groups	AB6	AB4	AB7
Foraminiferans	+	-	-
Siphonophores	-	-	-
Medusae	+	+	+
Ctenophores	+	+	+
Chaetognaths	+	+	+
Polychaetes	+	-	-
Copepods	+	+	+
Cumaceans	+	-	-
Amphipods	+	+	+
Mysids	+	-	-
<i>Lucifer sp.</i>	+	+	+
Decapod larvae	+	+	+
Pteropods	+	-	-
Cephalopods	+	+	-
Gastropods	+	+	+
Lamellibranchs	+	+	+
Appendicularians	+	+	-
Fish Eggs	+	+	-
Fish Larvae	+	+	+
<i>Acetes sp.</i>	+	+	+

Table 4.11.17: Range and average (parenthesis) of macrofauna off Amba estuary during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (December 2015)									
AB4	0.60	1.40	1.00	475	725	606	2	4	3
AB5	0.30	1.10	0.60	275	625	431	1	5	3
AB6	0.60	3.00	1.80	125	600	331	4	7	5
AB7	0.59	2.40	1.40	175	950	575	1	2	1
AB8	0.03	24.30	6.60	125	1300	443	1	2	2
AB9	0.30	2.70	1.20	575	1875	1175	3	4	4
Overall	0.03	24.30	2.10	125	1875	594	1	7	3
Premonsoon (May 2016)									
AB4	1.20	9.10	4.80	100	500	282	2	4	3
AB5	1.20	9.10	4.80	100	500	275	2	4	3
AB6	0.10	1.90	1.03	425	925	700	3	7	5
AB7	0.17	0.79	0.43	200	1250	582	2	3	3
AB8	0.00	0.26	0.07	0	250	93	0	3	2
AB9	0.20	0.90	0.50	100	675	450	3	8	5
Overall	0.00	9.10	1.94	0	1250	397	0	8	4

Table 4.11.18: Percentage composition of macrofauna off Amba estuary during December 2015

Phylum	Groups	Stations						Average
		AB4	AB5	AB6	AB7	AB8	AB9	
Annelida	Polychaeta	83.5	75.41	24.47	98.96	69.07	82.98	77.56
Arthropoda	Brachyura	0	0	1.81	0	29.57	0	3.85
Arthropoda	Amphipoda	0.99	12.99	22.66	0	0	1.62	4.38
Arthropoda	Decapod larvae	0	0	22.66	0	0	0	2.11
Arthropoda	Tanaidacea	0	1.39	5.74	0	0	0.51	0.87
Arthropoda	Stomatopoda	0	0	1.81	0	0	0	0.17
Echinodermata	Ophiuroidea	0	0	5.74	0	0	0	0.53
Mollusca	Pelecypoda	4.13	3.02	7.55	1.04	1.35	6.38	4.21
Mollusca	Gastropoda	0.99	0	7.55	0	0	2.64	1.74
Sipuncula	Sipuncula	10.4	7.19	0	0	0	5.87	4.58

Table 4.11.19: Percentage composition of macrofauna off Amba estuary during May 2016

Phylum	Groups	Stations						Average
		AB4	AB5	AB6	AB7	AB8	AB9	
Annelida	Polychaeta	51.06	52.17	49.07	60.14	86.21	62.58	56.29
Arthropoda	Cumacea	6.74	6.88	3.57	17.18	0	0	6.86
Arthropoda	Amphipoda	0	0	16.12	3.26	6.9	2.9	6.53
Arthropoda	Mysida	6.74	6.88	0	0	0	1.34	1.85
Arthropoda	Brachyura	0	0	0.86	0	0	1.34	0.5
Arthropoda	Sergestidae	0	0	0	2.23	0	0	0.55
Arthropoda	Ostracoda	0	0	0.86	0	0	1.34	0.5
Arthropoda	Tanaidacea	0	0	0.86	0	0	0	0.25
Echinodermata	Ophiuroidea	0	0	0.86	0	0	0	0.25
Mollusca	Pelecypoda	35.46	34.06	23.25	17.18	6.9	23.61	23.94
Mollusca	Gastropoda	0	0	0.86	0	0	1.34	0.5
Phoronida	Phoronida	0	0	1.85	0	0	1.34	0.8
Sipuncula	Sipuncula	0	0	1.85	0	0	4.23	1.35

Table 4.11.20: Station-wise distribution of meiofauna parameters in Amba

Table 4.11.21: Percentage composition of meiofauna off Amba estuary during December 2015

Groups	AB4	AB5	AB6	AB7	AB8	AB9	Average
Copepods	6.90	No collection	0.00	9.21	0.00	No collection	6.14
Foraminiferans	5.75		0.00	7.24	17.75		9.70
Insects	1.15		0.00	0.00	0.00		0.08
Nauplius	0.00		0.00	5.92	0.00		3.64
Nematodes	70.11		86.54	75.00	82.25		77.12
Nemerteans	6.90		11.54	0.66	0.00		1.37
Ostracods	0.00		0.00	0.66	0.00		0.40
Polychaetes	6.90		1.92	0.00	0.00		0.57
Rotifers	1.15		0.00	0.66	0.00		0.49
Turbellarians	1.15		0.00	0.66	0.00		0.49

Table 4.11.22: Percentage composition of meiofauna off Amba estuary during May 2016

Groups	AB4	AB5	AB6	AB7	AB8	AB9	Average
Amphipods	0.00	No collection	0.00	0.15	0.00	No collection	0.05
Bivalves	0.70		0.00	4.53	0.00		1.84
Cnidarians	2.79		1.18	71.00	25.77		27.40
Copepods	5.02		3.55	2.27	25.77		4.79
Foraminiferans	2.09		16.59	3.78	30.93		7.38
Gastropods	0.70		1.18	0.00	0.00		0.53
Nauplius	2.09		2.37	1.51	11.34		2.42
Nematodes	80.89		69.91	12.08	5.15		50.58
Nemerteans	0.70		1.18	0.15	0.00		0.58
Ostracods	0.14		0.00	0.76	1.03		0.37
Polychaetes	3.49		3.55	3.78	0.00		3.42
Rotifers	0.00		0.24	0.00	0.00		0.05
Turbellarians	1.39		0.24	0.00	0.00		0.58

Table 4.12.1: Water quality at Thal DP during December 2015

Parameter	Level	THAL DP		
		Min	Max	Avg
Temperature(°C)	S	28.0	29.5	28.7
	B	27.5	28.5	28.1
		(30.0)	(33.0)	(31.2)
SS(mg/l)	S	118	172	145
	B	266	363	315
Turbidity(NTU)	S	36.2	70.5	49.3
	B	32.1	76.3	57.9
pH	S	7.6	7.9	7.8
	B	7.8	7.9	7.9
Salinity(ppt)	S	34.5	35.3	34.6
	B	34.6	35.5	35.0
DO (mg/l)	S	3.8	4.8	4.3
	B	3.5	5.1	4.0
BOD (mg/l)	S	1.9	2.2	2.0
	B	2.2	2.5	2.4
PO ₄ ³⁻ (μmol/l)	S	1.8	2.6	2.1
	B	2.1	2.7	2.4
TP(μmol/l)	S	3.6	4.4	4.0
	B	4.0	4.9	4.4
NO ₃ ⁻ -N (μmol/l)	S	21.5	30.1	27.1
	B	24.7	41.4	34.7
NO ₂ ⁻ -N(μmol/l)	S	0.7	1.0	0.8
	B	0.7	1.2	1.0
NH ₄ ⁺ -N(μmol/l)	S	3.9	7.0	4.7
	B	3.7	6.1	5.1
TN(μmol/l)	S	124.9	128.4	126.6
	B	126.0	132.0	129.0
PHc(μg/l)	1m	9.9	12.3	11.1
Phenol (μg/l)	S	89.0	367.7	228.4

Air temperature given in parenthesis

Table 4.12.2: Water quality at Thal DP during April 2016

Parameter	Level	THAL DP		
		Min	Max	Avg
Temperature(°C)	S	29.0	30.5	29.7
	B	29.0	30.0	29.3
		(29.0)	(31.5)	(30.2)
SS(mg/l)	S	104	136	120
	B	110	129	119
Turbidity(NTU)	S	23.5	60.5	43.8
	B	45.4	78.0	63.1
pH	S	7.7	7.9	7.9
	B	7.8	7.9	7.9
Salinity(ppt)	S	36.2	36.3	36.2
	B	36.2	36.7	36.3
DO (mg/l)	S	5.1	6.0	5.4
	B	5.1	6.0	5.7
BOD (mg/l)	S	2.8	3.8	3.3
	B	2.8	3.1	3.0
PO ₄ ³⁻ -P (μmol/l)	S	2.0	3.7	2.9
	B	2.4	3.6	3.0
TP(μmol/l)	S	15.2	15.2	15.2
	B	9.8	9.8	9.8
NO ₃ ⁻ -N (μmol/l)	S	7.0	10.4	9.3
	B	5.9	12.3	9.1
NO ₂ ⁻ -N(μmol/l)	S	0.6	2.1	1.1
	B	0.5	1.3	0.8
NH ₄ ⁺ -N(μmol/l)	S	0.6	3.5	1.3
	B	0.7	2.8	1.2
TN(μmol/l)	S	50.3	50.3	50.3
	B	45.8	45.8	45.8
PHc(μg/l)	1m	9.2	10.7	10.0
Phenol (μg/l)	S	84.5	279.6	182.0

Air temperature given in parenthesis

Table 4.12.3: Sediment quality at Thal DP during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/l}$)
THAL DP	2.6	81.8	15.6	7.1	182	882	8.2	68	69	124	93	0.17	0.02	15.8	1.3	1715	1.0

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.12.4: Sediment quality at Thal DP during April 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/l}$)
THAL DP	1.5	85.3	13.2	6.9	193	973	8.5	63	73	123	92	0.15	0.06	13.3	1.2	1625	1.6

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.12.5: Microbial counts (CFU/ml) in water at Thal DP during 2015-16

Type of Bacteria	Population in surface water (CFU/ml)			
	Postmonsoon (December 2015)		Premonsoon (April 2016)	
	Thal DP		Thal DP	
	Eb	Fl	Eb	Fl
TVC	35 X 10 ³	28 X 10 ³	430 X 10 ³	31 X 10 ³
TC	430	140	350	430
FC	400	70	270	220
ECLO	270	60	170	150
SHLO	310	130	220	110
SLO	ND	ND	ND	ND
PKLO	30	50	240	240
VLO	200	90	5000	4500
VPLO	200	50	ND	ND
VCLO	ND	40	5000	4500
PALO	ND	ND	80	60
SFLO	220	120	30	10

ND – Below Detectable Level

Table 4.12.6: Microbial counts (CFU/g) in sediment at Thal DP during 2015-16

Type of Bacteria	Population in sediment (CFU/g)	
	Premonsoon (December 2015)	Premonsoon (April 2016)
		Thal DP
TVC	320x 10 ³	1000x 10 ³
TC	50	360
FC	10	190
ECLO	10	ND
SHLO	ND	510
SLO	ND	ND
PKLO	70	30
VLO	70	390
VPLO	50	20
VCLO	20	370
PALO	ND	ND
SFLO	ND	ND

ND – Below Detectable Level

Table 4.12.7: Range and average of phytopigments at Thal DP during December 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
Thal DP	15/12/2015	4	19	1	4	1	2	2	7	2	38	1	1
		6.6		2.48		1.27		3.53		8.34		0.73	

Table 4.12.8: Range and average of phytopigments at Thal DP during April 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
Thal DP	08/04/2016	1.3	1.7	1.1	1.8	1.3	2.9	1.0	3.6	0.6	1.2	0.5	1.7
		1.5		1.5		1.8		2.2		0.9		0.8	

Table 4.12.9: Range and average of phytoplankton at Thal DP during December 2015

Station	Date	Cell count				Total genera				Major genera	
		(no x 10 ³ Cells/ l)				(nos.)					
		S		B		S		B		S	B
		Min	Max	Min	Max	Min	Max	Min	Max		
		Avg		Avg		Avg		Avg			
Thal DP	15/12/2015	78.6	150.4	57.6	112.8	16.0	22.0	21.0	22.0	Prorocentrum	Asterionella
										Thalassiosira	Pseudo-nitzschia
		114.5		85.2		19.0		21.5		Pseudo-nitzschia	Skeletonema
										Cyclotella	Thalassionema

Table 4.12.10: Range and average of phytoplankton at Thal DP during April 2016

Station	Date	Cell count				Total genera				Major genera	
		(no x 10 ³ Cells/ l)				(nos.)					
		S		B		S		B		S	B
		Min	Max	Min	Max	Min	Max	Min	Max		
		Avg		Avg		Avg		Avg			
Thal DP	08/04/2016	38.6	45.0	24.8	43.4	9.0	12.0	9.0	10.0	Gymnodinium	Thalassiosira
										Thalassiosira	Nitzschia
		41.8		34.1		10.5		9.5		Nitzschia	Guinardia
										Navicula	Cylindrotheca

Table 4.12.11: Percentage composition of phytoplankton population at Thal DP during December 2015

Genera name	Thal DP	Total%
<i>Prorocentrum</i>	22.53	22.53
<i>Pseudo-nitzschia</i>	13.02	13.02
<i>Thalassiosira</i>	11.12	11.12
<i>Asterionella</i>	10.57	10.57
<i>Skeletonema</i>	6.16	6.16
<i>Navicula</i>	5.51	5.51
<i>Thalassionema</i>	5.16	5.16
<i>Guinardia</i>	4.56	4.56
<i>Cyclotella</i>	4.06	4.06
<i>Coscinodiscus</i>	3.11	3.11
<i>Gonyaulax</i>	2.50	2.50
<i>Nitzschia</i>	2.00	2.00
<i>Bellarachea</i>	1.60	1.60
<i>Alexandrium</i>	1.20	1.20
<i>Triceratium</i>	1.00	1.00
<i>Lithodesmium</i>	0.90	0.90
<i>Pleurosigma</i>	0.60	0.60
<i>Mallomonas</i>	0.60	0.60
<i>Cylindrotheca</i>	0.55	0.55
<i>Ditylium</i>	0.55	0.55
<i>Surirella</i>	0.50	0.50
<i>Euglina</i>	0.50	0.50
<i>Oscillatoria</i>	0.50	0.50
<i>Protoperidinium</i>	0.25	0.25
<i>Gyrosigma</i>	0.2	0.2
<i>Diploneis</i>	0.2	0.2
<i>Odontella</i>	0.2	0.2
<i>Rhizosolenia</i>	0.15	0.15
<i>Aulacoseira</i>	0.1	0.1
<i>Thalassiothrix</i>	<0.1	<0.1
<i>Ceratium</i>	<0.1	<0.1
Total	100.0	100.0

Table 4.12.12: Percentage composition of phytoplankton population at Thal DP during April 2016

Genera name	Thal DP	Total%
<i>Amphiprora</i>	1.32	1.32
<i>Corethron</i>	1.32	1.32
<i>Cyclotella</i>	6.85	6.85
<i>Cylindrotheca</i>	6.59	6.59
<i>Diploneis</i>	1.45	1.45
<i>Ditylum</i>	1.84	1.84
<i>Guinardia</i>	7.91	7.91
<i>Gymnodinium</i>	15.81	15.81
<i>Navicula</i>	6.59	6.59
<i>Nitzschia</i>	13.18	13.18
<i>Pleurosigma</i>	4.35	4.35
<i>Pseudo-nitzschia</i>	1.32	1.32
<i>Rhizosolenia</i>	2.90	2.90
<i>Thalassionema</i>	4.22	4.22
<i>Thalassiosira</i>	22.66	22.66
<i>Triceratium</i>	1.71	1.71
Total	100.0	100.0

Table 4.12.13: Range and average (parenthesis) of zooplankton at Thal DP during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
Thal DP (14/12/2015)	1.8-6.0 (3.1)	20.9-43.7 (25)	15-17 (16)	Copepods (84.6), lamellibranchs (7.8), decapod larvae (2.4), <i>Lucifer</i> sp. (1.4), chaetognaths (1.8), gastropods (0.6), foraminifera (0.6), polychaetes (0.3), fish larvae (0.1), isopods (0.1), others (0.1).

Table 4.12.14: Range and Average (parenthesis) of Zooplankton at Thal DP during April 2016

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
Thal D.P. 8/04/2016	1.1-8.3 (3.4)	28.4-150.3 (73.2)	7-14 (10)	Copepods (58.0), foraminifera (36.0), lamellibranchs (3.0), decapod larvae (1.2), chaetognaths (1.1), gastropods (0.6), others (0.1).

Table 4.12.15: Abundance of zooplankton at Thal DP during December 2015

Faunal groups	Thal DP
Foraminiferans	+
Siphonophores	+
Medusae	+
Ctenophores	+
Chaetognaths	+
Polychaetes	+
Copepods	+
Amphipods	+
<i>Lucifer</i> sp.	+
Decapod larvae	+
Stomatopods	+
Gastropods	+
Lamellibranchs	+
Appendicularians	+
Fish Eggs	+
Fish Larvae	+
Isopods	+

Table 4.12.16: Abundance of zooplanktons at Thal DP during April 2016

Faunal groups	Thal
Foraminiferans	+
Siphonophores	+
Medusae	+
Chaetognaths	+
Ostracods	+
Copepods	+
Amphipods	+
<i>Lucifer</i> sp.	+
Decapod larvae	+
Gastropods	+
Fish Eggs	+
Fish Larvae	+
Isopods	+

Table 4.12.17: Range and average of macrofauna at Thal DP during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (December 2015)									
Thal DP	0.10	1.10	0.40	25	150	82	1	2	2
Premonsoon (April 2016)									
Thal DP	0.10	0.70	0.50	175	625	350	1	2	2

Table 4.12.18: Percentage composition of macrofauna at Thal DP during December 2015

Phylum	Groups	Station	Average
		Thal DP	
Mollusca	Pelecypoda	23.2	23.2
Annelida	Polychaeta	76.8	76.8

Table 4.12.19: Percentage composition of macrofauna at Thal DP during April 2016

Phylum	Groups	Station	Average
		Thal DP	
Sipuncula	Sipuncula	3.60	3.60
Annelida	Polychaeta	96.40	96.40

Table 4.12.20: Station-wise distribution of meiofauna parameters at Thal DP

Station	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (December 2015)									
Thal DP	104.68	131.02	117.85	183	327	255	6	7	6
Premonsoon (April 2016)									
Thal DP	101.25	597.27	349.26	35	290	163	2	5	3

Table 4.12.21: Percentage composition of meiofauna at Thal DP during December 2015

Groups	Average
Cnidarians	4.46
Copepods	1.67
Foraminiferans	6.96
Nauplius	3.06
Nematodes	80.78
Polychaetes	2.79
Rotifers	0.28

Table 4.12.22: Percentage composition of meiofauna at Thal DP during April 2016

Groups	Average
Copepods	4.35
Foraminiferans	2.17
Kinorhynchs	2.17
Nematodes	90.87
Nemerteans	0.43

Table 4.13.1: Water quality off Kundalika during December 2015

Parameter	Level	K1			K2			K3			K4			K5		
		Min	Max	Avg												
Temperature(°C)	S	28.0	28.5	28.3	27.0	28.5	27.8	27.0	28.5	27.8	26.5	28.0	27.1	26.0	27.5	26.8
	B	27.5	28.0	27.8	26.5	28.0	27.3	26.5	28.0	27.3	26.0	27.5	26.7	26.0	27.0	26.5
		(30.0)	(31.0)	(30.5)	(28.5)	(31.0)	(29.8)	(28.5)	(31.0)	(29.8)	(23.0)	(29.0)	(26.2)	(26.0)	(26.0)	(26.0)
SS(mg/l)	S	107	109	108	112	134	123	123	126	125	102	141	122	56	247	151
	B	168	194	181	131	169	150	133	161	147	129	197	163	79	263	171
Turbidity(NTU)	S	39.0	46.5	42.7	36.5	50.6	43.5	92.3	105.1	98.7	61.4	119.0	83.6	42.3	48.9	45.6
	B	52.7	62.4	57.5	42.5	48.5	45.5	79.0	85.3	82.2	42.7	103.0	81.6	53.8	61.2	57.5
pH	S	7.7	7.8	7.8	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.8	7.8	7.7	7.9	7.8
	B	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.9	7.9
Salinity(ppt)	S	34.3	35.4	34.8	34.1	34.2	34.1	34.5	35.3	34.9	32.9	35.4	34.5	32.5	34.9	33.7
	B	34.4	35.6	35.0	34.8	35.0	34.9	34.5	35.7	35.1	33.6	35.1	34.6	33.1	34.9	34.0
DO (mg/l)	S	5.7	6.7	6.2	5.1	6.0	5.5	4.8	6.0	5.4	4.1	6.3	5.8	5.7	6.3	6.0
	B	5.7	6.0	5.9	5.7	5.7	5.7	6.0	6.0	6.0	5.1	6.3	6.0	5.7	6.3	6.0
BOD (mg/l)	S	2.8	4.1	3.5	2.5	3.1	2.8	1.9	2.8	2.4	1.9	2.2	2.0	2.5	2.8	2.7
	B	2.5	3.1	2.8	2.8	3.1	3.0	2.2	2.5	2.4	1.9	1.9	1.9	2.5	3.8	3.1
PO ₄ ³⁻ -P (μmol/l)	S	2.8	4.4	3.6	1.3	1.9	1.6	3.2	4.1	3.6	0.7	3.9	2.4	0.8	1.0	0.9
	B	1.9	3.3	2.6	0.7	2.5	1.6	2.4	3.6	3.0	0.2	3.0	2.1	1.1	1.7	1.4
TP(μmol/l)	S	4.1	5.0	4.5	3.5	4.1	3.8	5.4	6.3	5.8	3.7	3.9	3.8	1.7	2.8	2.2
	B	3.2	3.8	3.5	3.8	4.3	4.0	4.3	6.5	5.6	3.5	3.6	3.6	2.3	2.7	2.5
NO ₃ ⁻ -N (μmol/l)	S	8.0	8.5	8.2	11.3	12.1	11.7	16.9	18.7	17.8	2.8	15.6	8.5	4.4	4.9	4.6
	B	6.4	6.4	6.4	7.8	8.6	8.2	12.7	13.9	13.3	3.3	10.6	6.9	4.7	6.5	5.6
NO ₂ ⁻ -N(μmol/l)	S	1.4	2.2	1.8	0.9	1.9	1.4	0.8	1.3	1.0	0.2	2.1	0.8	1.9	2.5	2.2
	B	2.0	2.2	2.1	1.3	1.9	1.6	0.9	1.3	1.1	0.3	1.8	1.0	1.9	2.0	1.9
NH ₄ ⁺ -N(μmol/l)	S	3.2	4.0	3.6	3.9	3.9	3.9	6.4	7.4	6.9	2.1	5.3	3.7	2.6	4.4	3.5
	B	3.9	4.8	4.3	6.3	6.3	6.3	5.3	6.2	5.8	2.0	5.5	3.7	4.0	4.9	4.4
TN(μmol/l)	S	15.6	19.5	17.6	17.6	25.0	21.3	30.8	36.5	33.6	22.1	29.1	25.6	20.0	23.0	21.5
	B	23.0	29.0	26.0	22.0	28.0	25.0	24.0	32.0	28.0	20.8	22.1	21.5	22.0	25.0	24.0
PHe(μg/l)	1m	3.0	5.0	4.0	6.7	9.6	8.2	2.1	9.3	5.7	10.6	10.8	10.7	9.4	14.1	11.8
Phenol (μg/l)	S	241.4	365.3	303.4	334.6	414.7	374.6	108.5	143.0	125.8	431.5	570.7	431.5	436.3	465.6	451.0

Air temperature given in parenthesis

Table 4.13.1 (Contd 1)

Parameter	Level	K6			K7			K8			K9			K10		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	28.0	28.5	28.3	27.0	28.5	27.8	28.0	29.5	28.7	27.5	28.5	28.0	27.0	28.0	27.5
	B	28.0	28.0	28.0	26.5	28.0	27.3	27.5	28.5	28.1	28.0	28.0	28.0	-	-	-
		(29.0)	(29.0)	(29.0)	26.5	27.0	26.8	(30.0)	(33.0)	(31.2)	(28.5)	(30.0)	(29.3)	(23.0)	(28.0)	(25.5)
SS(mg/l)	S	98	127	112	76	119	98	90	183	136	61	61	64	144	158	151
	B	111	326	218	80	202	141	122	152	137	100	100	100	-	-	-
Turbidity(NTU)	S	44.0	70.0	57.0	90.2	91.3	90.8	42.3	79.5	46.3	42.5	48.2	45.4	71.2	80.2	75.7
	B	62.0	65.0	63.5	83.3	89.5	86.4	48.2	71.2	53.7	53.8	53.8	53.8	-	-	-
pH	S	7.8	7.9	7.9	7.3	7.4	7.4	7.2	7.4	7.3	7.2	7.3	7.3	7.8	7.8	7.8
	B	7.8	7.9	7.9	7.4	7.4	7.4	7.2	7.4	7.3	7.3	7.3	7.3	-	-	-
Salinity(ppt)	S	32.5	34.9	33.1	9.5	15.8	13.3	1.4	9.6	4.6	0.1	0.3	0.2	0.1	0.1	0.1
	B	33.1	34.9	34.0	13.3	16.1	14.7	1.8	9.5	5.4	0.5	0.5	0.5	-	-	-
DO (mg/l)	S	5.7	6.0	5.9	2.9	4.4	3.6	1.9	3.2	2.5	2.2	2.5	2.4	6.3	7.0	6.7
	B	6.3	6.3	6.3	3.8	4.4	4.1	1.6	3.5	2.4	2.9	2.9	2.9	-	-	-
BOD (mg/l)	S	2.2	3.8	3.0	0.9	2.2	1.6	2.5	12.3	7.4	6.5	19.4	13.0	4.1	5.0	4.5
	B	3.8	3.8	3.8	1.9	2.2	2.0	2.5	6.5	4.5	12.3	12.3	12.3	-	-	-
PO ₄ ³⁻ (μmol/l)	S	2.0	2.2	2.1	5.3	5.5	5.4	2.2	6.1	4.1	5.3	6.5	5.9	13.0	13.4	13.2
	B	2.0	2.0	2.0	6.1	6.2	6.1	1.7	6.5	3.9	6.2	6.2	6.2	-	-	-
TP(μmol/l)	S	3.2	3.6	3.4	7.7	7.9	7.8	5.1	10.1	7.6	7.4	8.8	8.1	16.0	16.0	16.0
	B	2.9	3.0	3.0	8.3	8.6	8.5	3.1	9.4	6.2	8.0	8.0	8.0	-	-	-
NO ₃ ⁻ -N (μmol/l)	S	5.9	12.3	9.1	29.4	38.4	33.9	35.1	70.4	47.3	44.3	46.3	45.3	12.9	14.2	13.5
	B	5.3	7.2	6.2	26.9	39.7	33.3	30.1	52.5	39.4	44.0	44.0	44.0	-	-	-
NO ₂ ⁻ -N(μmol/l)	S	1.5	1.7	1.6	5.1	9.1	7.1	5.7	11.5	9.2	4.0	4.0	4.0	1.1	1.6	1.4
	B	1.2	1.3	1.3	3.2	7.2	5.2	6.4	9.4	7.9	4.5	4.5	4.5	-	-	-
NH ₄ ⁺ -N(μmol/l)	S	2.7	4.5	3.6	24.3	27.2	25.8	24.9	29.8	27.8	22.1	26.5	24.3	10.4	16.6	13.5
	B	4.1	5.0	4.6	28.0	28.0	28.0	22.5	29.0	27.6	26.5	26.5	26.5	-	-	-
TN(μmol/l)	S	20.2	28.2	24.2	76.1	76.5	76.3	91.6	123.9	107.7	93.5	96.8	95.2	37.1	37.1	37.1
	B	21.0	27.0	24.0	74.6	77.6	76.1	81.4	96.3	88.9	93.5	93.5	93.5	-	-	-
PHc(μg/l)	1m	8.0	13.1	10.6	3.6	3.9	3.8	16.8	19.9	18.4	17.0	24.0	21.0	1.9	2.5	2.2
Phenol (μg/l)	S	362.9	420.5	391.7	162.2	187.9	175.1	468.7	922.3	695.5	262.1	343.7	302.9	339.6	426.0	382.8

Air temperature given in parenthesis

Table 4.13.2: Water quality off Kundalika during April 2016

Parameter	Level	K1	K2	K3	K4			K5			K6		
		Avg*	Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	29.0	29.5	29.5	28.5	30.5	29.1	28.5	29.5	29.0	29.5	30.5	30.0
	B	28.5	29.0	29.0	28.0	29.5	28.6	29.1	29.1	29.1	29.0	30.0	29.5
		(28.0)	(29.0)	(29.5)	(27.0)	(34.0)	(30.9)	(27.0)	(33.0)	(30.0)	(29.0)	(32.0)	(30.5)
SS(mg/l)	S	88	113	105	113	116	115	115	126	120	84	108	97
	B	98	156	122	141	141	141	151	151	151	169	187	178
Turbidity(NTU)	S	64.9	37.5	84.2	69.4	121.0	93.0	25.4	36.7	31.1	62.0	70.6	66.3
	B	50.3	93.9	103.4	66.6	114.0	91.8	73.3	73.3	73.3	65.0	70.2	67.6
pH	S	8.0	7.9	7.9	7.6	7.9	7.8	7.6	7.6	7.6	7.8	7.9	7.9
	B	7.9	7.9	7.8	7.7	7.9	7.8	7.7	7.7	7.7	7.8	7.9	7.9
Salinity(ppt)	S	36.2	36.1	35.7	35.0	36.0	35.6	26.6	35.9	31.3	32.0	35.1	33.6
	B	36.7	36.3	36.3	35.0	35.7	35.5	36.1	36.1	36.1	33.5	35.0	34.3
DO (mg/l)	S	6.1	5.8	5.7	4.8	6.1	5.4	6.1	6.1	6.1	5.7	6.0	5.9
	B	6.0	5.7	5.7	4.5	5.8	5.3	5.5	5.5	5.5	6.3	6.3	6.3
BOD (mg/l)	S	4.5	2.8	2.4	2.8	6.0	4.8	3.1	3.5	3.3	2.2	3.8	3.0
	B	4.7	2.8	2.2	3.8	5.6	5.0	3.1	3.1	3.1	3.8	3.8	3.8
PO ₄ ³⁻ -P (μmol/l)	S	1.6	2.1	3.8	2.8	17.9	9.5	1.8	2.2	2.0	2.0	2.2	2.1
	B	2.9	2.2	3.0	5.4	15.3	10.8	2.3	2.3	2.3	2.0	2.0	2.0
TP(μmol/l)	S	2.8	3.4	5.4	4.5	13.0	8.8	3.3	4.1	3.7	3.7	3.8	3.8
	B	4.6	4.0	4.2	15.7	15.7	15.7	4.4	4.4	4.4	3.7	4.5	4.1
NO ₃ ⁻ -N (μmol/l)	S	9.0	13.3	18.0	12.9	17.6	15.4	25.5	30.5	28.0	21.6	40.3	31.0
	B	7.9	15.0	14.0	15.4	18.6	16.7	34.5	34.5	34.5	18.8	24.4	21.6
NO ₂ ⁻ -N(μmol/l)	S	0.4	0.9	0.6	0.1	2.0	0.7	1.1	3.8	2.4	1.5	1.7	1.6
	B	1.0	0.3	1.1	0.1	1.2	0.6	3.9	3.9	3.9	1.2	1.3	1.3
NH ₄ ⁺ -N(μmol/l)	S	0.7	1.2	5.8	0.9	1.7	1.2	1.9	2.9	2.4	2.7	4.5	3.6
	B	3.4	0.7	4.6	1.0	1.8	1.4	2.1	2.1	2.1	4.1	5.0	4.6
TN(μmol/l)	S	36.9	99.5	48.3	41.9	43.8	42.9	44.3	46.7	45.5	43.8	50.3	47.1
	B	40.4	96.7	46.4	50.8	50.8	50.8	44.7	44.7	44.7	43.2	45.8	44.5
PHc(μg/l)	1m	3.4	3.5	4.6	8.2	8.6	8.4	9.1	10.8	10.0	10.6	12.3	11.5
Phenol (μg/l)	S	62.2	62.9	20.6	83.5	114.7	99.1	88.8	208.3	148.6	362.9	420.5	391.7

*Average of two readings

Air temperature given in parenthesis

Table 4.13.2 (Contd 1)

Parameter	Level	K7			K8			K9			K10		
		Min	Max	Avg									
Temperature(°C)	S	29.0	30.5	30.0	29.0	30.5	29.6	29.0	30.0	29.5	29.5	30.5	30.0
	B	29.0	30.0	29.5	28.5	30.0	29.1	29.5	29.5	29.5	-	-	-
		(29.0)	(32.0)	(30.5)	(28.5)	(32.0)	(30.2)	(29.0)	(31.0)	(30.0)	(29.0)	(32.0)	(30.5)
SS(mg/l)	S	106	113	109	108	121	115	80	106	93	204	230	217
	B	322	327	324	104	137	120	107	107	107	-	-	-
Turbidity(NTU)	S	81.7	85.0	83.4	39.2	88.0	63.9	26.4	32.4	29.4	75.2	83.9	79.6
	B	127.0	149.0	138.0	42.0	96.3	66.0	42.7	42.7	42.7	-	-	-
pH	S	7.4	7.7	7.6	7.2	7.4	7.3	7.2	7.2	7.2	7.4	7.5	7.5
	B	7.5	7.7	7.6	7.2	7.4	7.3	7.3	7.3	7.3	-	-	-
Salinity(ppt)	S	16.3	25.4	20.9	5.7	17.4	11.8	2.2	2.6	2.4	0.1	0.1	0.1
	B	17.0	28.0	22.5	5.1	19.7	12.2	2.0	2.0	2.0	-	-	-
DO (mg/l)	S	4.2	5.1	4.6	1.6	2.2	2.0	2.3	2.3	2.3	5.7	6.0	5.9
	B	3.5	4.8	4.2	1.9	2.5	2.3	2.6	2.6	2.6	-	-	-
BOD (mg/l)	S	2.2	2.5	2.4	0.9	12.3	3.4	6.5	19.4	12.9	3.5	3.5	3.5
	B	1.9	2.5	2.2	1.3	6.5	2.8	12.2	12.2	12.2	-	-	-
PO ₄ ³⁻ -P (μmol/l)	S	3.2	4.0	3.6	5.7	8.5	6.7	5.4	5.9	5.7	1.7	4.5	3.1
	B	2.9	4.6	3.7	7.7	9.7	8.6	6.2	6.2	6.2	-	-	-
TP(μmol/l)	S	4.2	5.2	4.7	8.7	12.1	10.4	10.8	12.8	11.8	5.8	8.8	7.3
	B	4.5	6.0	5.3	13.9	15.9	14.9	14.1	14.1	14.1	-	-	-
NO ₃ ⁻ -N (μmol/l)	S	17.0	21.0	19.0	29.7	43.3	33.8	20.2	27.7	24.0	9.2	9.5	9.4
	B	13.7	23.5	18.6	30.6	41.4	35.3	20.3	20.3	20.3	-	-	-
NO ₂ ⁻ -N(μmol/l)	S	8.0	8.3	8.2	3.9	14.7	10.5	10.7	13.5	12.1	0.9	1.0	1.0
	B	4.8	9.4	7.1	6.7	13.9	11.1	10.9	10.9	10.9	-	-	-
NH ₄ ⁺ -N(μmol/l)	S	15.8	27.7	21.7	10.7	19.5	15.2	20.4	23.5	21.9	12.4	15.5	13.9
	B	22.2	23.6	22.9	10.8	27.1	18.0	24.2	24.2	24.2	-	-	-
TN(μmol/l)	S	50.3	52.3	51.3	80.7	90.1	85.4	53.8	73.6	63.7	67.5	74.2	70.9
	B	46.2	47.1	46.7	95.7	95.9	95.8	65.3	65.3	65.3	-	-	-
PHc(μg/l)	1m	12.6	14.2	13.4	15.4	16.3	15.9	18.2	19.4	18.8	1.8	2.9	2.4
Phenol (μg/l)	S	161.3	178.3	169.8	94.3	159.1	126.7	10.8	20.9	15.8	168.5	178.3	173.4

*Average of two readings

Air temperature given in parenthesis

Table 4.13.3: Sediment quality off Kundalika during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
K1	0.3	89.5	10.2	6.0	107	610	5.9	29	55	67	81	0.42	0.11	10.9	1.3	1210	1.7
K2	23.3	46.2	30.5	5.4	137	919	7.2	35	55	68	78	0.35	0.11	10.4	0.9	1312	0.6
K3	90.8	1.8	7.4	4.0	254	1397	9.5	45	85	53	82	0.42	0.12	12.2	0.1	1908	2.4
K4	1.2	65.0	33.8	5.0	162	828	7.6	41	57	82	83	0.43	0.37	11.5	1.4	1274	1.1
K5	66	26.6	7.4	4.7	138	837	7.0	34	51	74	73	0.29	0.23	9.9	1.9	1325	3.6
K6	5.9	67.1	27.0	5.8	153	767	7.6	39	58	83	82	1.7	0.38	10.0	1.7	1380	0.7
K7	33.3	59.1	7.6	7.0	158	1238	7.6	40	70	111	95	0.20	0.18	11.3	2.2	1376	3.8
K8	3.1	83.1	13.8	7.4	160	1054	7.9	41	70	118	101	1.8	0.40	9.92	2.1	1430	5.6
K9	4.9	88.5	6.6	7.3	185	1118	8.1	46	73	154	114	0.36	0.50	27.6	2.4	1558	6.1
K10	98.0	1.2	0.8	6.9	138	1527	7.9	47	55	84	103	0.41	0.12	4.7	0.2	1182	0.9

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.13.4: Sediment quality off Kundalika during April 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
K1	0.6	90	9.4	7.5	161	712	7.3	51	74	101	82	0.18	0.12	17.6	1.7	786	2.8
K2	86.6	6.6	6.8	4.6	205	1097	8.9	60	68	85	68	0.22	0.04	13.8	0.5	1964	1.0
K3	94.6	4.2	1.2	4.4	179	1228	8.9	53	77	62	60	0.26	0.02	17.0	0.3	2123	2.2
K4	67.0	23.6	9.4	6.0	218	1066	9.3	59	77	88	74	0.28	0.05	15.3	0.8	1697	0.7
K5	16.8	77.0	6.2	6.6	198	1107	8.7	61	77	112	84	0.22	0.07	8.4	2.0	1677	3.6
K6	13.2	53.0	33.8	7.2	186	904	8.3	60	78	124	85	0.22	0.11	24.5	2.7	1589	0.8
K7	10.0	68.6	21.4	8.4	242	1715	9.9	74	95	152	106	0.11	0.07	17.3	2.5	1803	1.0
K8	41.8	37.4	20.8	7.9	268	1301	10.1	83	99	151	109	0.57	0.09	32.0	1.6	1552	4.4
K9	2.8	87.2	10.0	6.8	232	1069	9.3	67	81	120	95	0.37	0.06	28.3	1.5	1667	5.0
K10	94.4	2.4	3.2	7.7	275	1817	11.2	76	85	119	116	0.17	0.02	10.7	0.1	1658	0.7

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.13.5: Microbial count (CFU/ml) in water off Kundalika Estuary during 2015-16

Type of Bacteria	Population in surface water (CFU/ml)												
	Postmonsoon (December 2015)								Premonsoon (April 2016)				
	K1		K2		K3		K4		K1	K2	K3	K4	
	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl				Eb	Fl
TVC	17x10 ³	12x10 ³	14x10 ³	15x10 ³	15x10 ³	13x10 ³	16x10 ³	19x10 ³	31x10 ³	37x10 ³	30x10 ³	560x10 ³	25x10 ³
TC	320	90	50	130	110	70	250	70	740	640	350	480	350
FC	220	60	30	100	60	60	210	40	630	330	240	350	200
ECLO	170	40	20	80	50	40	180	80	600	50	30	80	120
SHLO	ND	ND	20	90	140	10	140	20	ND	40	30	ND	ND
SLO	10	ND	ND	30	30	ND	30	ND	ND	ND	ND	ND	ND
PKLO	90	ND	ND	ND	30	ND	ND	ND	560	210	150	570	1680
VLO	130	140	30	100	70	20	230	30	500	350	280	4600	3000
VPLO	ND	40	30	70	10	ND	190	10	ND	ND	ND	ND	ND
VCLO	130	100	ND	30	60	20	40	20	500	350	280	4600	3000
PALO	ND	ND	ND	ND	ND	ND	ND	ND	20	ND	ND	ND	160
SFLO	ND	10	40	70	170	20	120	20	120	ND	ND	80	ND

ND – Below Detectable Level

Table 4.13.5 (Contd 1)

Type of Bacteria	Population in surface water (CFU/ml)											
	Postmonsoon (December 2015)						Premonsoon (April 2016)					
	K5		K6		K7		K5		K6		K7	
	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl
TVC	25x10 ³	22x10 ³	17x10 ³	21x10 ³	21x10 ³	19x10 ³	170x10 ³	55x10 ³	10x10 ³	19x10 ³	30x10 ³	16x10 ³
TC	470	310	170	190	370	210	990	350	ND	ND	50	ND
FC	290	230	150	140	290	190	980	320	ND	ND	10	ND
ECLO	220	140	130	70	240	180	910	130	ND	ND	10	ND
SHLO	180	70	70	90	270	40	230	340	90	170	490	400
SLO	70	10	ND	10	130	70	ND	ND	ND	ND	ND	ND
PKLO	10	40	30	NG	170	50	240	260	ND	10	10	20
VLO	370	120	210	130	200	40	2960	2760	40	150	160	230
VPLO	170	70	170	110	130	10	ND	60	40	60	90	20
VCLO	200	40	40	20	70	30	2960	2700	ND	90	70	210
PALO	ND	ND	ND	30	170	60	ND	10	ND	10	10	ND
SFLO	210	40	ND	40	120	30	230	40	ND	ND	10	ND

ND – Below Detectable Level

Table 4.13.5 (Contd 2)

Type of Bacteria	Population in surface water (CFU/ml)											
	Postmonsoon (December 2015)						Premonsoon (April 2016)					
	K8		K9		K10		K8		K9		K10	
	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl	Eb	Fl
TVC	25x10 ³	19x10 ³	35x10 ³	25x10 ³	21x10 ³	19x10 ³	20x10 ³	1x10 ³	100x10 ³	11x10 ³	110x10 ³	8x10 ³
TC	170	90	170	130	370	210	120	100	160	30	210	200
FC	150	60	100	70	290	190	20	20	150	10	110	150
ECLO	140	40	80	50	240	180	10	ND	120	10	10	140
SHLO	20	ND	40	30	270	40	600	50	500	300	60	360
SLO	40	10	70	ND	130	70	ND	ND	ND	ND	ND	10
PKLO	30	ND	50	ND	20	50	20	140	250	20	110	150
VLO	180	120	80	120	200	40	80	30	70	30	40	200
VPLO	130	90	50	70	130	10	120	130	60	40	10	150
VCLO	50	30	30	50	70	30	80	30	70	30	40	200
PALO	ND	ND	ND	ND	170	60	ND	ND	250	ND	10	70
SFLO	30	ND	30	70	120	30	50	10	ND	10	ND	ND

ND – Below Detectable Level

Table 4.13.6: Microbial counts (CFU/g) in sediment off Kundalika Estuary during 2015-16

Type of Bacteria	Population in sediment (CFU/g)							
	Postmonsoon (December 2015)				Premonsoon (April 2016)			
	K1	K2	K3	K4	K1	K2	K3	K4
TVC	180X10 ³	150X10 ³	210X10 ³	250X10 ³	1170X10 ³	1800X10 ³	700X10 ³	500X10 ³
TC	30	ND	40	40	ND	40	30	ND
FC	10	ND	30	20	ND	ND	ND	ND
ECLO	10	ND	20	20	ND	ND	ND	ND
SHLO	ND	ND	40	ND	ND	ND	ND	ND
SLO	ND	ND	20	ND	ND	ND	ND	ND
PKLO	30	ND	30	ND	ND	ND	200	ND
VLO	ND	ND	40	20	10	200	470	580
VPLO	ND	ND	10	ND	10	70	470	ND
VCLO	ND	ND	30	20	ND	130	ND	580
PALO	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	10	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.13.6 (Contd 1)

Type of Bacteria	Population in sediment (CFU/g)					
	Postmonsoon (December 2015)			Premonsoon (April 2016)		
	K5	K6	K7	K5	K6	K7
TVC	300x10 ³	260x10 ³	150x10 ³	21x10 ³	5x10 ³	3x10 ³
TC	90	100	10	10	ND	ND
FC	40	80	10	10	ND	ND
ECLO	30	50	10	10	ND	ND
SHLO	ND	10	10	ND	30	ND
SLO	ND	ND	20	ND	ND	ND
PKLO	10	ND	ND	ND	ND	ND
VLO	20	90	10	380	10	ND
VPLO	20	90	10	20	10	ND
VCLO	ND	ND	ND	360	ND	ND
PALO	ND	ND	ND	ND	10	ND
SFLO	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.13.6 (Contd 2)

Type of Bacteria	Population in sediment (CFU/g)					
	Postmonsoon (December 2015)			Premonsoon (April 2016)		
	K8	K9	K10	K8	K9	K10
TVC	250x10 ³	320x10 ³	1300x10 ³	800x10 ³	3000x10 ³	100x10 ³
TC	40	80	150	80	330	40
FC	20	40	110	70	200	10
ECLO	20	40	100	70	100	20
SHLO	ND	200	150	290	380	30
SLO	ND	ND	120	ND	80	ND
PKLO	ND	100	170	370	320	20
VLO	20	250	130	840	580	60
VPLO	ND	50	ND	110	10	20
VCLO	20	200	130	730	570	40
PALO	ND	ND	40	10	100	20
SFLO	ND	ND	80	110	40	ND

ND – Below Detectable Level

Table 4.13.7: Range and average of phytopigments at different stations off Kundalika Estuary during December 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
K1	16/12/2015	2.7	3.5	2.2	2.4	0.6	0.8	2.1	2.4	4.4	4.8	1.0	1.1
		3.1		2.3		0.7		2.2		4.6		1.0	
K2	16/12/2015	2.6	3.5	2.2	2.2	1.0	1.4	2.5	2.8	1.8	3.7	0.8	0.9
		3.1		2.2		1.2		2.6		2.8		0.8	
K3	16/12/2015	1.7	2.2	1.6	2.3	1.5	1.6	1.5	1.7	1.1	1.4	1.0	1.4
		2.0		2.0		1.5		1.6		1.3		1.2	
K4	14/12/2015	2.1	6.0	2.2	3.6	1.2	2.5	1.7	3.9	1.1	4.1	0.6	1.4
		3.6		2.8		2.0		2.7		1.9		1.1	
K8	17/12/2015	2.4	20.8	1.1	19.0	0.6	1.9	1.4	1.9	2.2	37.2	0.8	10.0
		12.5		8.7		1.1		1.7		15.1		5.0	
K9	17/12/2015	21.7	25.4	24.9	24.9	1.7	2.9	2.4	2.4	7.5	15.1	10.6	10.6
		23.5		24.9		2.3		2.4		11.3		10.6	
K10	15/12/2015	2.3	3.0	-	-	1.2	2.1	-	-	1.4	1.9	-	-
		2.6		-		1.6		-		1.7		-	

Table 4.13.8: Range and average of phytopigments at different stations off Kundalika Estuary during April 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
K1	8/4/2016	2.4	2.7	2.2	2.2	1.6	1.9	1.6	2.0	1.4	1.5	1.1	1.4
		2.5		2.2		1.8		1.8		1.4		1.2	
K2	8/4/2016	3.6	4.0	2.7	3.0	1.9	2.0	2.2	2.8	1.9	2.0	1.1	1.2
		3.8		2.8		2.0		2.5		2.0		1.1	
K3	8/4/2016	3.1	4.1	3.6	4.4	2.9	3.4	3.0	4.4	1.1	1.2	1.0	1.2
		3.6		4.0		3.1		3.7		1.1		1.1	
K4	8/4/2016	2.7	5.6	3.2	5.1	1.1	3.3	1.8	3.8	1.3	5.1	1.3	2.3
		4.2		4.3		2.4		2.6		2.0		1.7	
K5	8/4/2016	3.4	4.0	3.5	3.5	1.2	2.5	3.1	3.1	1.4	3.4	1.1	1.1
		3.7		3.5		1.8		3.1		2.4		1.1	
K6	10/4/2016	2.3	3.7	3.2	3.2	1.8	2.9	3.0	3.5	1.3	1.3	0.9	1.1
		3.0		3.2		2.4		3.2		1.3		1.0	
K7	10/4/2016	1.3	2.7	1.5	2.5	1.9	3.0	3.5	3.5	0.4	1.4	0.4	0.7
		2.0		2.0		2.4		3.5		0.9		0.6	
K8	8/4/2016	1.7	4.0	1.9	5.6	1.9	3.4	3.4	6.3	0.6	1.5	0.4	1.4
		2.4		3.3		2.5		4.4		1.0		0.8	
K9	9/4/2016	9.5	20.2	21.1	21.1	0.3	0.7	0.3	0.3	27.7	37.8	75.4	75.4
		14.8		21.1		0.5		0.3		32.7		75.4	
K10	9/4/2016	9.5	13.1	-	-	1.9	3.3	-	-	2.9	6.9	-	-
		11.3		-		2.6		-		4.9		-	

Table 4.13.9: Range and average of phytoplankton at different stations off Kundalika Estuary during December 2015

Station	Date	Cell count (no x 10 ³ Cells/l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
K1	16/12/20 15	168.8	268.0	138.2	176.2	18.0	19.0	14.0	14.0	<i>Pseudo-nitzschia</i>	<i>Pseudo-nitzschia</i>
		218.4		157.2		18.5		14.0		<i>Thalassiosira</i>	<i>Thalassiosira</i>
		164.2		165.4		101.0		125.6		<i>Cylindrotheca</i>	<i>Gymnodinium</i>
		164.8		113.3		16.0		11.5		<i>Gymnodinium</i>	<i>Cylindrotheca</i>
K2	16/12/20 15	164.2		165.4		101.0		125.6		<i>Thalassiosira</i>	<i>Thalassiosira</i>
		164.8		113.3		16.0		11.5		<i>Pyrodinium</i>	<i>Pseudo-nitzschia</i>
		101.0		144.0		87.0		91.4		<i>Pseudo-nitzschia</i>	<i>Thalassiosira</i>
		122.5		89.2		13.0		15.0		<i>Gymnodinium</i>	<i>Navicula</i>
K3	16/12/20 15	159.6		329.2		169.4		175.0		<i>Pseudo-nitzschia</i>	<i>Cylindrotheca</i>
		244.4		172.2		18.5		12.5		<i>Thalassiosira</i>	<i>Gymnodinium</i>
		107.6		972.0		92.8		875.4		<i>Nitzschia</i>	<i>Cylindrotheca</i>
		539.8		484.1		10.0		13.0		<i>Thalassiosira</i>	<i>Pseudo-nitzschia</i>
K4	14/12/20 15	2451.8		2724.7		19.0		22.0		<i>Asterionella</i>	<i>Cylindrotheca</i>
		20.5		20.0		12.0		15.0		<i>Cylindrotheca</i>	<i>Asterionella</i>
		107.6		972.0		92.8		875.4		<i>Chlamydomonas</i>	<i>Thalassiosira</i>
		539.8		484.1		11.5		13.5		<i>Aulacoseira</i>	<i>Gymnodinium</i>
K8	17/12/20 15	2507.6		2941.8		2451.8		19.0		<i>Chlamydomonas</i>	<i>Chlamydomonas</i>
		2724.7		20.5		20.0		20.0		<i>Thalassiosira</i>	<i>Thalassiosira</i>
		362.2		378.2		17.0		20.0		<i>Aulacoseira</i>	<i>Aulacoseira</i>
		370.2		18.5		17.0		20.0		<i>Gomphonema</i>	<i>Gomphonema</i>
K10	15/12/20 15	362.2		378.2		2724.7		17.0		<i>Dictyosphaerium</i>	<i>Dictyosphaerium</i>
		370.2		18.5		17.0		20.0		<i>Nitzschia</i>	<i>Dictyosphaerium</i>
		362.2		378.2		2724.7		17.0		<i>Aulacoseira</i>	<i>Nitzschia</i>
		370.2		18.5		17.0		20.0		<i>Gomphonema</i>	<i>Dictyosphaerium</i>

Table 4.13.10: Range and average of phytoplankton at different stations off Kundalika Estuary during April 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera					
		S		B		S		B							
		Min	Max	Min	Max	Min	Max	Min	Max	S	B				
		Avg		Avg		Avg		Avg							
K1	8/4/2016	80.8		57.6		13.0		12		<i>Thalassiosira</i>	<i>Thalassiosira</i>				
										<i>Cylindrotheca</i>	<i>Pleurosigma</i>				
										<i>Guinardia</i>	<i>Pseudo-nitzschia</i>				
										<i>Pleurosigma</i>	<i>Nitzschia</i>				
K2	8/4/2016	107.6		93.0		15.0		14.0		<i>Thalassiosira</i>	<i>Thalassiosira</i>				
										<i>Pseudo-nitzschia</i>	<i>Guinardia</i>				
										<i>Cylindrotheca</i>	<i>Thalassionema</i>				
										<i>Guinardia</i>	<i>Cylindrotheca</i>				
K3	8/4/2016	59.0		81.0		12.0		12.0		<i>Thalassiosira</i>	<i>Thalassiosira</i>				
										<i>Nitzschia</i>	<i>Guinardia</i>				
										<i>Chaetoceros</i>	<i>Cylindrotheca</i>				
										<i>Navicula</i>	<i>Pseudo-nitzschia</i>				
K4	8/4/2016	89.4		91.2		91.0		12.0		13.0					
				90.3											
										<i>Thalassiosira</i>	<i>Cyclotella</i>				
										<i>Guinardia</i>	<i>Pseudo-nitzschia</i>				
										<i>Cylindrotheca</i>	<i>Guinardia</i>				
										<i>Pseudo-nitzschia</i>	<i>Cylindrotheca</i>				
K8	8/4/2016	38.8		169.0		101.2		216.8		9.0					
				103.9		159.0		10.0							
										9.0					
K9	9/4/2016	493.0		903.0		783.0		10.0		9.0					
				698.0				10.5							
K10	9/4/2016	1061.0		1570.0		1315.5		12.0		13.0					
										<i>Aulacoseira</i>					
										<i>Cyclotella</i>					
										<i>Oscillatoria</i>					
										<i>Nitzschia</i>					

Table 4.13.11: Percentage composition of phytoplankton population at different station off Kundalika Estuary during December 2015

Name of the genera	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	Total Avg.
<i>Thalassiosira</i>	21.0	28.8	23.6	23.8	No collection	No collection	No collection	74.2	22.8	4.6	28.4
<i>Pseudo-nitzschia</i>	29.3	13.3	28.3	25.2				2.1	0.8	1.6	14.4
<i>Chlamydomonas</i>								2.6	54.9	3.0	8.6
<i>Cylindrotheca</i>	13.3	5.8	15.6	8.9				2.6	0.1		6.6
<i>Aulacoseira</i>	1.1							5.7	10.0	27.8	6.4
<i>Gymnodinium</i>	11.7	6.6	5.7	5.0				2.4	0.3	0.5	4.6
<i>Navicula</i>	1.7	7.6	0.9	2.9				2.4	0.6	4.9	3.0
<i>Nitzschia</i>	0.7	2.9	6.1	2.4				0.8	1.1	6.8	3.0
<i>Asterionella</i>		6.8	1.9	11.8							2.9
<i>Gomphonema</i>								0.6	15.4		2.3
<i>Dictyosphaerium</i>								0.9	3.2	9.8	2.0
<i>Thalassionema</i>	3.2	7.9	1.5	1.2				<0.1			2.0
<i>Peridinium</i>	2.9	1.1		1.2				0.4	2.4	3.1	1.6
<i>Pleurosigma</i>	1.5	1.3	4.0	1.9				0.3	<0.1		1.3
<i>Guinardia</i>	0.9	1.8	4.3	1.9							1.3
<i>Prorocentrum</i>	2.2	3.2	1.4	0.8							1.1
<i>Pyrodinium</i>		7.2									1.0
<i>Amphora</i>	1.1	0.4	<0.1					0.7	4.6		1.0
<i>Gyrodinium</i>	2.7	0.4	0.1	1.2				<0.1	0.1	0.5	0.7
<i>Coscinodiscus</i>	1.1	1.9	0.6					0.3			0.6
<i>Lithodesmium</i>				3.6							0.5
<i>Fragillaria</i>								<0.1	3.5		0.5
<i>Oscillatoria</i>								0.5	3.0		0.5
<i>Cyclotella</i>			0.5					2.3	0.3		0.4
<i>Protoperidinium</i>	0.2			2.6							0.4
<i>Ankistrodesmus</i>								0.5	2.2		0.4
<i>Gonyaulax</i>	1.1	0.1	0.5	1.0							0.4
<i>Karenia</i>	1.6	0.7						<0.1			0.3
<i>Distephanus</i>	0.3	0.8	0.5	0.7							0.3
<i>Merismopedia</i>										2.3	0.3
<i>Coccconeis</i>										2.2	0.3
<i>Ditylum</i>	0.7	0.8	0.2	0.3				0.1			0.3
<i>Gyrosigma</i>								1.4	<0.1	0.5	0.3

Table 4.13.12: Percentage composition of phytoplankton population at different station off Kundalika Estuary during April 2016

Genera name	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	Total%
<i>Amphipora</i>	1.45										0.21
<i>Amphora</i>									<0.1	<0.1	
<i>Ankistrodesmus</i>								0.18	0.68	0.12	
<i>Aulacoseira</i>							5.33	11.84	60.36	11.07	
<i>Bacillaria</i>	2.89										0.41
<i>Chaetoceros</i>			2.86								0.41
<i>Corethron</i>		1.00	1.43								0.35
<i>Coscinodiscus</i>		0.40	2.86	2.28			1.52	0.18			1.03
<i>Cyclotella</i>				11.78			73.79	79.58	27.21	27.48	
<i>Cylindrotheca</i>	13.44	11.96	8.57	10.31			3.04	1.84	0.91	7.15	
<i>Dictyosphaerium</i>								1.10			0.16
<i>Dinophysis</i>		1.00									0.14
<i>Diploneis</i>	1.59			0.81			<0.1				0.35
<i>Ditylum</i>	1.73	1.99	0.29	3.68			0.15				1.12
<i>Fragillaria</i>									1.44		0.21
<i>Gomphonema</i>							<0.1				
<i>Guinardia</i>	5.78	13.96	11.43	16.94			1.90				7.14
<i>Gymnodinium</i>	3.18	1.99	1.43	0.37			0.15				1.02
<i>Gyrodinium</i>		1.99					<0.1	<0.1			0.30
<i>Gyrosigma</i>									<0.1		
<i>Lithodesmium</i>	1.45	1.00	0.29	1.47			<0.1				0.61
<i>Navicula</i>	5.78	3.99	2.86	4.42			4.56	1.93	1.22		3.54
<i>Nitzschia</i>	4.34	2.99	4.29	1.47			1.52	0.48	1.52		2.37
<i>Odontella</i>		1.99	0.29	1.55			<0.1				0.55
<i>Oscillatoria</i>								0.64	4.48		0.73
<i>Pediastrum</i>									1.51		0.22
<i>Peridinium</i>		2.29	0.29	1.47				<0.1	<0.1		0.59
<i>Pleurosigma</i>	13.01	4.29	4.29	2.43			2.70	0.57	0.18		3.92
<i>Prorocentrum</i>		2.19	2.86	0.29							0.76
<i>Pseudo-nitzschia</i>	10.12	7.98	5.71	10.31				2.66	0.76		5.36
<i>Rhizosolenia</i>	4.34	1.00						1.52			0.98

<i>Scenedesmus</i>									0.73		0.10
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Table 4.13.13: Range and average (parenthesis) of zooplankton at different stations off Kundalika during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
K1 (16/12/2015)	1.7-1.8 (1.8)	2.5-8.5 (5.5)	11-15 (13)	Copepods (70.5), decapod larvae (15.1), <i>Lucifer</i> sp. (6.0), foraminifera (3.7), fish eggs (2.2), fish larvae (0.7), lamellibranchs (0.5), ctenophores (0.5), chaetognaths (0.2), gastropod (0.2), medusae (0.2), others (0.1).
K2 (16/12/2015)	0.3-4.8 (2.6)	1.3-8.3 (4.8)	12-15 (14)	Copepods (85.4), decapod larvae (5.4), lamellibranchs (3.2), foraminifera (1.5), <i>Lucifer</i> sp. (1.3), ctenophores (0.9), fish eggs (0.6), fish larvae (0.6), polychaetes (0.2), chaetognaths (0.2), gastropods (0.2), medusae (0.2), siphonophores (0.1), others (0.1).
K3 (16/12/2015)	0.4-6.6 (3.5)	2.3-6.8 (4.5)	16-17 (17)	Copepods (72.6), foraminifera (7.3), decapod larvae (6.7), fish larvae (4), <i>Lucifer</i> sp. (3.9), lamellibranchs (3.8), chaetognaths (0.7), medusae (0.3), polychaetes (0.2), fish eggs (0.1), gastropods (0.1), ctenophores (0.1), siphonophores (0.1), appendicularians (0.1), isopods (0.1), others (0.1).
K4 (14/12/2015)	3.3-10.6 (6.9)	9.8-71.4 (33.3)	16-18 (17)	Copepods (64.8), <i>Lucifer</i> sp. (16.2), foraminifera (7.4), decapod larvae (6.6), lamellibranchs (1.5), chaetognaths (1.3), fish larvae (0.4), gastropods (0.4), mysids (0.3), medusae (0.3), ctenophores (0.3), polychaetes (0.1), siphonophores (0.1), isopods (0.1), others (0.1).

K5 (17/12/2015)	1-4.5 (2.8)	14.5-30 (22.2)	17-18 (18)	Copepods (68), chaetognaths (9.1), ctenophores (1.3), decapod larvae (1.2), <i>Lucifer</i> sp. (1.2), lamellibranchs (0.9), foraminifera (0.8), fish larvae (0.8), medusae (0.4), gastropods (0.3), isopods (0.1), others (0.1).
K6 (14/12/2015)	2.4-4.0 (3.2)	12.8-13.3 (13)	17-18 (18)	Copepods (68), decapod larvae (13.2), chaetognath (9.1), <i>Lucifer</i> sp. (4), lamellibranchs (1.6), ctenophores (1.3), gastropods (1), foraminifera (0.8), medusae (0.4), fish larvae (0.3), isopods (0.1), others (0.1).
K7 (17/12/2015)	0.7-1.9 (1.3)	7-15.5 (11.3)	12-13 (13)	Copepods (79.9), gastropods (13.3), decapod larvae (3.4), <i>Lucifer</i> sp. (1.7), lamellibranchs (0.8), foraminifera (0.5), chaetognaths (0.1), medusae (0.1), others (0.1).
K8 (17/12/2015)	0.1-0.7 (0.3)	0.3-1.9 (4.5)	9-12 (10)	Copepods (55.7), gastropods (27.3), decapod larvae (7.7), <i>Lucifer</i> sp. (4.2), fish larvae (2.4), polychaetes (0.6), lamellibranchs (0.6), foraminifera (0.6), amphipods (0.3), isopods (0.3), chaetognaths (0.2), medusae (0.2), cladocerans (0.1), others (0.1).
K9 (17/12/2015)	0.2	0.1	7	Copepods (82), gastropods (6.8), decapod larvae (4.3), fish larvae (4.3), <i>Lucifer</i> sp. (0.9), medusae (0.9), amphipods (0.9), others (0.1).

Table 4.13.14: Range and Average (parenthesis) of Zooplankton at different stations off Kundalika during April 2016

Station (Date)	Biomass (ml/100m³)	Population (nox10³/100m³)	Total Groups (no)	Major group (%)
K1 8/04/2016	2.4-26.1 (14.3)	39.2-692.9 (366.0)	11-14 (13)	Copepods (96.8), foraminifera (0.8), chaetognaths (0.7), decapod larvae (0.6), lamellibranchs (0.6), gastropods (0.4), others (0.1).
K2 8/04/2016	3.5-6.8 (5.2)	166.9-232.2 (199.6)	12-13 (13)	Copepods (37.0), foraminifera (23.9), chaetognaths (1.0), decapod larvae (0.4), gastropods (0.4), lamellibranchs (0.4), others (0.1).
K3 8/04/2016	13.2-15.2 (14.2)	345.1-457.4 (401.3)	10-12 (11)	Foraminifera (61.6), copepods (37.0), lamellibranchs (0.5), gastropods (0.4), chaetognaths (0.2), decapod larvae (0.1), <i>Acetes sp.</i> (0.1), others (0.1).
K4 8/04/2016	2.9-15.0 (6.3)	20.0-79.2 (53.1)	8-11 (10)	Copepods (56.2), foraminifera (20.6), decapod larvae (20.4), gastropods (1.9), lamellibranchs (0.5), chaetognaths (0.3), others (0.1).
* K5 8/04/2016	2.6	27.9	9	Copepods (37.0), decapod larvae (0.8), chaetognaths (0.3), gastropods (0.1), others (0.1).
K6 10/04/2016	8.1-9.3 (8.7)	58.4-183.5 (120.9)	11-13 (12)	Copepods (98.4), decapod larvae (0.7), gastropods (0.4), foraminifera (0.2), chaetognaths (0.2), others (0.1).
K7 10/04/2016	18.1	346.1	10	Copepods (51.0), decapod larvae (0.2), gastropods (0.2), chaetognaths (0.1), others (0.1).
K8 9/04/2016	3.0-6.1 (2.6)	1.6-80.5 (32.8)	7-11 (9)	Copepods (92.2), gastropods (4.3), foraminifera (1.3), chaetognaths (1.1), decapod larvae (0.7), lamellibranchs (0.3), others (0.1).
K9 9/04/2016	2.3	213.3	9	Copepods (37.0), gastropods (11.6), decapod larvae (1.7), others (0.1).

Table 4.13.15: Abundance of zooplankton off Kundalika during December 2015

Table 4.13.16: Abundance of zooplanktons off Kundalika during April 2016

Faunal groups	K1	K2	K3	K4	K5	K6	K7	K8	K9
Foraminiferans	+	+	+	+	-	+	+	+	+
Siphonophores	+	+	+	-	+	+	+	-	-
Medusae	+	+	+	+	+	+	+	+	-
Ctenophores	-	-	-	-	-	+	+	-	-
Chaetognaths	+	+	+	+	+	+	+	+	+
Polychaetes	-	-	-	-	-	+	+	+	-
Ostracods	+	-	-	-	-	+	+	-	-
Copepods	+	+	+	+	+	+	+	+	+
Cumaceans	-	-	-	-	-	-	-	+	-
Amphipods	-	-	-		-	+	+	+	-
Mysids	-	-	-	-	-	+	-	+	-
<i>Lucifer</i> sp.	-	+	-	+	-	+	+	+	+
Decapod larvae	+	+	+	+	+	+	+	+	+
Stomatopods	+	+	+	+	+	+	-	-	-
Gastropods	+	+	+	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+	-	+	+
Fish Eggs	+	+	+	+	-	+	-	-	-
Fish Larvae	+	+	+	+	+	+	+	+	+
Isopods	+	+	-	+	-	-	-	-	-
<i>Acetes</i> sp.	+	+	+	+	-	+	+	+	+

Table 4.13.17: Range and average of macrofauna off Kundalika estuary during postmonsoon and premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (December 2015)									
K1	1.70	9.30	3.70	325	775	488	1	5	3
K2	2.40	7.00	4.40	725	2400	1631	2	6	4
K3	0.00	0.02	0.01	0	25	13	0	1	1
K4	0.20	0.60	0.50	225	900	669	3	7	5
K5	0.30	2.50	1.40	225	1375	831	3	6	4
K6	0.20	1.00	0.40	75	475	300	1	3	2
K7	0.20	0.70	0.30	75	375	188	1	2	1
K8	0.70	9.50	4.00	700	3075	1963	2	4	3
K9	0.00	1.10	0.50	0	75	38	0	1	1
K10	4.90	8.00	6.10	1025	1600	1281	1	1	1
Overall	0.00	9.50	2.13	0	3075	740	0	7	3
Premonsoon (April 2016)									
K1	0.00	3.50	1.60	0	600	306	0	6	4
K2	0.04	0.50	0.20	100	1000	519	2	5	4
K3	0.01	2.30	1.1	25.00	100	63	1	2	2
K4	1.20	12.70	7.60	175	675	388	2	5	4
K5	0.50	9.10	2.90	125	350	238	2	3	2
K6	0.30	3.40	1.60	125	2350	844	1	3	2
K7	0.00	1.50	0.40	0	150	65	0	3	1
K8	2.50	17.10	11.60	425	1525	1056	2	2	2
K9	0.70	15.70	8.20	425	1875	1400	2	3	3
K10	7.10	27.00	17.30	225	1100	625	1	2	2
Overall	0.00	27.00	5.25	0.00	2350	550	0	6	3

Table 4.13.18: Percentage composition of macrofauna off Kundalika during December 2015

Phylum	Groups	Stations										Average
		K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	
Annelida	Polychaeta	91	83.9	0	59.8	71.5	68.8	93.3	81.8	83.3	100	82.5
Annelida	Oligochaeta	0	0	0	2.8	17.3	29.2	6.7	0	0	0	3.6
Arthropoda	Amphipoda	0	5	50	14.9	1.5	0	0	1.9	0	0	3.2
Arthropoda	Tanaidacea	0	0	0	0	0	0	0	15.6	0	0	4.1
Arthropoda	Cumacea	0	0.8	0	4.7	0	0	0	0	0	0	0.6
Arthropoda	Copepoda	0	0	0	0	1.5	0	0	0	0	0	0.2
Arthropoda	Brachyura	0	0.8	0	0	0	0	0	0	0	0	0.2
Chordata	Fish Larvae	2.6	0	0	0	0	0	0	0.6	16.7	0	0.4
Echinodermata	Ophiuroidea	0	3.1	0	2.8	0	2.1	0	0	0	0	1.0
Mollusca	Pelecypoda	2.6	5.4	0	0.9	0.8	0	0	0	0	0	1.5
Nematoda	Nematoda	0	0.4	0	0.9	0	0	0	0	0	0	0.2
Nemertea	Nemertea	1.3	0	0	0	0	0	0	0	0	0	0.1
Sipuncula	Sipuncula	2.6	0.8	50	12.1	7.5	0	0	0	0	0	2.4

Table 4.13.19: Percentage composition of macrofauna off Kundalika during April 2016

Phylum	Groups	Stations										Average
		K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	
Annelida	Polychaeta	38.8	60.2	20.0	50.0	84.2	81.5	51.6	81.7	27.7	86.0	60.9
Annelida	Oligochaeta	0.00	0.00	0.00	0.00	0.00	17.8	0.00	18.3	71.0	0.00	24.3
Arthropoda	Amphipoda	24.5	27.7	10.0	8.10	0.00	0.00	9.70	0.00	0.00	0.00	4.80
Arthropoda	Tanaidacea	2.00	4.80	0.00	1.60	0.00	0.00	25.8	0.00	0.00	0.00	1.00
Arthropoda	Isopoda	0.00	0.00	0.00	0.00	0.00	0.70	12.9	0.00	0.00	0.00	0.30
Arthropoda	Brachyura	2.00	0.00	0.00	1.60	0.00	0.00	0.00	0.00	0.40	0.00	0.30
Arthropoda	Cumacea	0.00	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
Echinodermata	Ophiuroidea	10.2	0.00	0.00	6.50	2.60	0.00	0.00	0.00	0.00	0.00	1.10
Mollusca	Pelecypoda	14.3	4.80	60.	30.6	2.60	0.00	0.00	0.00	0.40	0.00	4.30
Mollusca	Gastropoda	0.00	0.00	0.00	0.00	2.60	0.00	0.00	0.00	0.40	14.00	1.80
Nemertea	Nemertea	2.00	0.00	10.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
Phoronida	Phoronida	4.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
Sipuncula	Sipuncula	2.00	1.20	0.00	1.60	7.90	0.00	0.00	0.00	0.00	0.00	0.70

Table 4.13.20: Station-wise distribution of meiofauna parameters in Kundalika

Stations	Biomass			Population			Total groups		
	($\mu\text{g}/10\text{cm}^2$)			(Ind./ 10cm^2)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (December 2015)									
K1	274.68	635.4	455.04	177	531	354	5	5	5
K2	226.7	263.96	245.33	328	364	346	5	5	5
K3	3.14	5.52	4.33	16	45	30	1	3	2
K4	48.6	66.02	57.31	115	142	128	3	5	4
K5	No collection								
K6	No collection								
K7	No collection								
K8	0.64	7.62	4.13	1	21	11	1	4	3
K9	74.32	136.16	105.24	290	856	573	3	8	6
K10	3.11	5.27	4.19	10	21	16	2	4	3
Premonsoon (April 2016)									
K1	186.72	1314.8	750.76	58	885	471	5	7	6
K2	124.36	153.8	139.08	102	277	190	5	6	6
K3	102.39	478.77	290.58	31	191	111	4	4	4
K4	58.64	118.76	88.7	96	161	129	5	7	6
K5	No collection								
K6	No collection								
K7	No collection								
K8	114.51	282.19	198.35	74	156	115	5	5	5
K9	1315.68	3777.12	2546.4	198	660	429	5	7	6
K10	13.31	28.43	20.87	28	42	35	3	5	4

Table 4.13.21: Percentage composition of meiofauna off Kundalika during December 2015

Groups	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	Average
Bivalves	1.00	0.00	0.00	0.00	No collection	No collection	No collection	0.00	0.62	0.00	0.50
Cnidarians	0.00	2.35	0.00	0.00				0.00	0.00	0.00	0.55
Copepods	12.00	9.19	0.00	0.00				31.2	1.24	0.00	5.90
Foraminiferans	9.00	6.62	28.9	39.7				0.00	8.70	61.9	11.5
Nauplius	2.00	0.00	0.00	3.31				31.2	0.62	0.00	1.25
Nematodes	74.0	72.9	71.1	56.3				37.5	84.4	33.3	75.8
Nemerteans	1.00	0.00	0.00	0.66				0.00	0.00	0.00	0.30
Ostracods	0.00	0.00	0.00	0.00				0.00	0.62	0.00	0.25
Polychaetes	1.00	7.91	0.00	0.00				0.00	1.24	0.00	2.60
Pycnogonids	0.00	0.00	0.00	0.00				0.00	0.00	4.76	0.05
Rotifers	0.00	1.07	0.00	0.00				0.00	2.48	0.00	1.25

Table 4.13.22: Percentage composition of meiofauna off Kundalika during April 2016

Groups	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	Average
Amphipods	0.75	0.00	0.00	0.00	No collection	No collection	No collection	0.00	0.00	0.00	0.24
Bivalves	0.00	0.00	0.00	0.00				0.00	0.17	0.00	0.05
Ciliophores	0.00	1.98	0.00	0.00				0.00	0.00	0.00	0.24
Cnidarians	71.3	6.32	3.70	17.6				6.17	0.00	20.0	26.7
Copepods	7.51	0.40	3.70	2.94				16.0	14.8	10.0	8.91
Foraminiferans	0.00	2.37	7.41	5.88				18.52	3.30	0.00	3.72
Halacaroids	0.00	0.00	0.00	0.00				0.00	0.00	10.0	0.24
Insects	0.00	0.00	0.00	0.00				0.00	0.00	10.	0.24
Kinorhynchs	0.00	0.00	0.00	0.59				0.00	0.00	0.00	0.05
Nauplius	2.40	0.00	0.00	0.00				18.5	7.43	0.00	4.46
Nematodes	14.2	86.2	85.2	65.8				31.4	18.1	30.0	35.0
Nemerteans	0.00	0.00	0.00	2.94				0.00	0.00	0.00	0.24
Oligochaetes	0.00	0.00	0.00	0.00				3.09	15.6	0.00	4.90
Ostracods	0.75	0.40	0.00	0.59				0.00	0.00	0.00	0.34
Polychaetes	3.00	2.37	0.00	3.53				6.17	40.4	10.0	14.3
Pycnogonids	0.00	0.00	0.00	0.00				0.00	0.00	10.0	0.24

Table 4.14.1: Water quality off Murud during December 2015

Parameter	Level	MR1			MR2			MR3			MR4		
		Min	Max	Avg									
Temperature(°C)	S	26.0	28.5	27.3	26.0	28.5	27.3	26.0	29.0	27.5	25.5	28.5	27.3
	B	26.5	28.0	27.3	26.5	28.0	27.3	26.5	28.5	27.5	26.0	28.5	27.5
		(26.0)	(30.0)	(28.0)	(25.5)	(31.0)	(28.3)	(25.0)	(31.0)	(28.0)	(23.0)	(30.0)	(27.0)
SS(mg/l)	S	97	118	108	80	98	89	22	25	23	19	36	27
	B	116	120	118	104	115	109	23	25	24	15	106	61
Turbidity(NTU)	S	10.4	17.3	13.8	14.3	24.4	19.3	15.0	15.5	15.3	1.4	8.1	5.1
	B	13.1	16.7	14.9	16.9	20.3	18.6	17.4	18.2	17.8	2.4	9.4	5.2
pH	S	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	7.9	8.0	8.0
	B	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.9	7.9	7.9	8.0	8.0
Salinity(ppt)	S	34.5	35.6	35.0	35.2	36.6	35.9	34.4	35.4	34.9	34.2	35.7	35.0
	B	34.7	35.7	35.2	35.3	36.8	36.0	34.6	35.5	35.1	34.4	35.8	35.1
DO (mg/l)	S	6.3	7.0	6.7	6.0	6.3	6.2	6.0	6.3	6.2	5.1	6.7	6.0
	B	6.3	7.0	6.7	5.7	6.0	5.9	6.0	6.7	6.3	4.4	7.0	5.9
BOD (mg/l)	S	1.9	2.2	2.1	1.6	2.2	1.9	1.6	1.9	1.7	0.5	4.7	3.6
	B	1.6	2.5	2.1	1.6	1.6	1.6	1.3	1.9	1.6	0.3	4.9	3.6
PO ₄ ³⁻ -P (μmol/l)	S	1.4	1.6	1.5	1.3	1.4	1.3	1.1	1.5	1.3	1.2	2.6	1.6
	B	1.7	1.9	1.8	1.4	1.4	1.4	1.5	1.9	1.7	1.2	3.3	1.7
TP(μmol/l)	S	3.1	3.1	3.1	2.9	2.9	2.9	2.2	2.3	2.3	3.2	3.9	3.6
	B	2.9	2.9	2.9	3.1	3.2	3.2	2.0	2.1	2.1	3.7	3.8	3.8
NO ₃ ⁻ -N (μmol/l)	S	5.1	7.5	6.3	5.3	5.5	5.4	6.0	6.7	6.4	6.3	9.1	7.6
	B	6.1	6.9	6.5	5.7	6.0	5.9	5.8	7.3	6.6	6.2	8.5	7.2
NO ₂ ⁻ -N(μmol/l)	S	0.4	0.5	0.4	0.3	0.4	0.4	0.2	0.4	0.3	0.1	0.9	0.4
	B	0.4	0.4	0.4	0.2	0.3	0.2	0.2	0.3	0.3	0.1	0.8	0.5
NH ₄ ⁺ -N(μmol/l)	S	2.4	2.6	2.5	2.9	3.4	3.2	2.6	2.8	2.7	1.9	6.5	3.2
	B	3.2	3.4	3.3	2.2	3.2	2.7	2.6	2.6	2.6	2.5	6.0	3.6
TN(μmol/l)	S	13.2	13.3	13.2	12.2	12.3	12.2	15.8	15.9	15.8	22.4	25.0	23.7
	B	15.6	15.7	15.6	13.9	14.0	13.9	19.5	19.9	19.7	17.6	24.3	20.9
PHc(μg/l)	1m	5.3	5.8	5.6	0.7	0.8	0.8	0.6	1.2	0.9	2.0	2.1	2.1
Phenol (μg/l)	S	98.2	106.1	102.1	104.2	108.0	106.1	105.1	117.6	111.4	109.9	110.4	110.2

Air temperature given in parenthesis

Table 4.14.1 (Contd 1)

Parameter	Level	MR5			MR6			MR7		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	26.0	27.5	26.8	26.0	28.0	27.0	26.5	27.5	27.0
	B	25.5	28.0	26.8	26.5	27.5	27.0	26.0	26.0	26.0
		(25.0)	(29.0)	(27.0)	(23.0)	(30.0)	(26.5)	(23.0)	(29.0)	(26.0)
SS(mg/l)	S	90	266	178	161	168	165	17	23	20
	B	187	274	231	117	191	154	30	29	30
Turbidity(NTU)	S	10.2	12.4	11.3	10.3	16.3	13.3	10.3	14.3	12.3
	B	11.9	15.2	13.6	11.3	12.0	11.6	12.3	12.3	12.3
pH	S	8.0	8.0	8.0	7.9	7.9	7.9	8.0	8.0	8.0
	B	8.0	8.0	8.0	7.9	7.9	7.9	8.0	8.0	8.0
Salinity(ppt)	S	34.4	35.1	34.8	34.1	34.9	34.5	34.2	35.0	34.6
	B	34.5	35.2	34.9	34.2	35.0	34.6	35.1	35.1	35.1
DO (mg/l)	S	6.0	6.7	6.3	6.0	6.3	6.2	6.3	6.7	6.5
	B	5.7	6.3	6.0	6.3	6.3	6.3	6.3	6.3	6.3
BOD (mg/l)	S	1.9	1.9	1.9	2.2	2.5	2.4	2.5	3.2	2.9
	B	1.6	1.9	1.7	2.2	2.2	2.2	2.2	2.2	2.2
PO ₄ ³⁻ -P (μmol/l)	S	1.1	1.1	1.1	0.6	0.6	0.6	0.6	0.7	0.6
	B	1.2	1.3	1.2	0.8	1.0	0.9	1.0	1.0	1.0
TP(μmol/l)	S	2.4	2.5	2.5	2.2	2.3	2.3	2.7	2.7	2.7
	B	2.1	2.2	2.2	2.6	2.7	2.7	3.1	3.1	3.1
NO ₃ ⁻ -N (μmol/l)	S	5.7	7.8	6.7	4.3	6.8	5.6	4.2	5.0	4.6
	B	4.9	6.8	5.8	4.7	5.5	5.1	4.1	4.1	4.1
NO ₂ ⁻ -N(μmol/l)	S	0.3	0.5	0.4	0.3	0.5	0.4	0.3	0.3	0.3
	B	0.4	0.6	0.5	0.3	0.3	0.3	0.3	0.3	0.3
NH ₄ ⁺ -N(μmol/l)	S	2.7	2.8	2.8	2.5	2.9	2.7	2.3	2.7	2.5
	B	3.3	3.3	3.3	2.2	2.2	2.2	2.7	2.7	2.7
TN(μmol/l)	S	15.8	18.4	17.1	11.3	20.0	15.6	14.1	21.3	17.7
	B	17.8	22.1	20.0	15.4	16.3	15.8	18.7	18.7	18.7
PHc(μg/l)	1m	2.2	2.9	2.6	1.0	2.8	1.9	2.3	2.8	2.6
Phenol (μg/l)	S	100.3	117.6	109.0	109.9	110.9	110.4	114.0	115.4	114.7

Air temperature given in parenthesis

Table 4.14.2: Water quality off Murud during April 2016

Parameter	Level	MR1			MR2			MR3			MR4			MR5		
		Min	Max	Avg												
Temperature(°C)	S	29.5	29.5	29.5	29.0	29.5	29.3	29.0	29.0	29.0	28.0	29.5	28.9	28.5	29.0	28.8
	B	29.0	29.5	29.3	29.0	29.5	29.3	28.5	29.5	29.0	28.0	29.5	28.6	28.0	28.5	28.3
		(28.5)	(30.0)	(29.3)	(28.0)	(30.0)	(29.0)	(28.0)	(29.5)	(28.8)	(26.0)	(34.0)	(30.3)	(26.5)	(33.0)	(29.8)
SS(mg/l)	S	137	165	151	151	165	158	15	18	16	20	25	22	126	190	158
	B	178	185	181	228	251	239	28	32	30	31	33	32	103	120	111
Turbidity(NTU)	S	10.5	12.3	11.4	14.9	15.3	15.1	14.2	27.8	21.0	4.5	9.8	5.9	12.6	16.6	14.6
	B	15.6	19.4	17.5	24.6	25.6	25.1	16.2	29.3	22.8	6.2	8.7	7.5	15.4	18.5	17.0
pH	S	7.9	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.0	8.1	8.1	8.0	8.0	8.0
	B	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.9	7.9	8.0	8.1	8.1	8.0	8.0	8.0
Salinity(ppt)	S	35.9	36.1	36.0	36.2	36.7	36.4	36.3	36.5	36.4	36.4	37.4	36.9	36.5	37.1	36.8
	B	36.0	36.6	36.3	36.3	36.8	36.5	36.3	36.7	36.5	36.4	37.6	36.9	36.7	37.3	37.0
DO (mg/l)	S	6.0	6.0	6.0	6.0	6.0	6.0	5.7	6.0	5.9	5.4	6.3	6.0	5.4	5.7	5.5
	B	6.0	6.3	6.2	6.3	6.3	6.3	5.7	6.0	5.9	5.7	6.7	6.1	4.8	5.7	5.2
BOD (mg/l)	S	3.2	3.2	3.2	3.2	3.2	3.2	2.5	3.2	2.9	2.5	3.5	3.0	2.5	3.2	2.9
	B	2.5	3.8	3.2	2.9	3.2	3.0	3.2	3.5	3.3	3.2	3.8	3.5	2.2	2.9	2.5
PO ₄ ³⁻ -P (μmol/l)	S	1.4	1.8	1.6	0.5	1.1	0.8	0.7	1.0	0.8	0.7	1.0	0.9	0.7	0.8	0.7
	B	1.5	2.1	1.8	2.1	3.0	2.5	0.4	2.1	1.3	0.9	1.5	1.2	0.8	1.1	1.0
TP(μmol/l)	S	2.2	2.8	2.5	1.5	2.3	1.9	1.5	1.6	1.6	1.3	1.5	1.4	1.5	2.1	1.8
	B	2.6	3.3	2.9	3.4	3.7	3.6	1.8	1.8	1.8	2.1	2.2	2.2	2.0	2.4	2.2
NO ₃ ⁻ -N (μmol/l)	S	13.3	16.7	15.0	15.2	15.5	15.3	9.7	10.8	10.2	0.4	1.4	0.7	3.5	5.1	4.3
	B	11.8	16.9	14.4	11.9	13.9	12.9	16.0	16.0	16.0	0.3	6.4	1.1	1.7	3.8	2.8
NO ₂ ⁻ -N(μmol/l)	S	1.3	1.6	1.5	1.4	1.5	1.4	0.7	0.9	0.8	0.1	0.8	0.3	0.2	0.4	0.3
	B	1.6	1.6	1.6	1.2	1.5	1.4	0.9	1.2	1.0	0.2	0.5	0.3	0.4	0.6	0.5
NH ₄ ⁺ -N(μmol/l)	S	1.4	1.7	1.6	1.8	1.8	1.8	1.3	2.1	1.7	1.0	1.9	1.5	1.4	1.9	1.6
	B	1.5	1.7	1.6	1.5	2.2	1.9	1.8	2.9	2.3	1.4	2.3	1.7	1.2	2.1	1.6
TN(μmol/l)	S	44.3	46.2	45.2	51.9	55.1	53.5	47.3	59.9	53.6	32.8	38.2	35.5	32.8	38.2	35.5
	B	51.9	53.4	52.6	51.2	73.3	62.3	52.5	72.0	62.3	35.2	37.3	36.2	31.2	32.1	31.7
PHc(μg/l)	1m	4.7	7.0	5.9	2.8	5.3	4.1	2.7	3.6	3.2	3.6	5.6	4.6	3.2	4.1	3.7
Phenol (μg/l)	S	53.3	74.6	64.0	40.1	47.5	43.8	47.3	49.4	48.4	93.4	101.0	97.2	31.2	41.5	36.4

Air temperature given in parenthesis

Table 4.14.2 (Contd 1)

Parameter	Level	MR6			MR7		
		Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	27.5	28.5	28.0	27.5	28.5	28.0
	B	27.5	27.5	27.5	27.5	27.5	27.5
		(29.0)	(32.5)	(30.8)	(30.0)	(33.0)	(31.5)
SS(mg/l)	S	125	134	130	9	19	13
	B	137	137	137	16	16	16
Turbidity(NTU)	S	3.1	6.9	5.0	12.2	12.8	12.5
	B	9.2	9.2	9.2	14.5	14.5	14.5
pH	S	8.0	8.0	8.0	8.1	8.1	8.1
	B	8.0	8.0	8.0	8.2	8.2	8.2
Salinity(ppt)	S	36.0	37.4	36.7	36.9	37.4	37.2
	B	37.5	37.5	37.5	37.7	37.7	37.7
DO (mg/l)	S	5.7	6.0	5.9	5.7	6.0	5.9
	B	5.7	5.7	5.7	5.4	5.4	5.4
BOD (mg/l)	S	3.2	3.2	3.2	3.2	3.5	3.3
	B	3.5	3.5	3.5	3.2	3.2	3.2
PO ₄ ³⁻ -P (μmol/l)	S	0.6	1.3	1.0	0.4	1.5	0.9
	B	1.0	1.0	1.0	1.2	1.2	1.2
TP(μmol/l)	S	1.1	2.0	1.6	0.9	2.1	1.5
	B	2.2	2.2	2.2	1.8	1.8	1.8
NO ₃ ⁻ -N (μmol/l)	S	2.7	2.7	2.7	0.4	0.9	0.7
	B	4.3	4.3	4.3	0.7	0.7	0.7
NO ₂ ⁻ -N(μmol/l)	S	0.4	0.4	0.4	0.4	0.5	0.5
	B	0.6	0.6	0.6	0.1	0.1	0.1
NH ₄ ⁺ -N(μmol/l)	S	0.8	2.0	1.4	1.0	1.8	1.4
	B	1.5	1.5	1.5	1.3	1.3	1.3
TN(μmol/l)	S	24.1	27.3	25.7	17.1	20.0	18.6
	B	43.4	43.4	43.4	18.0	18.0	18.0
PHc(μg/l)	1m	4.1	5.7	4.9	4.8	8.2	6.5
Phenol (μg/l)	S	23.0	44.4	33.7	49.0	49.0	49.0

Air temperature given in parenthesis

Table 4.14.3: Sediment quality off Murud during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
MR1	8.3	78.3	13.4	5.8	113	668	6.0	30	52	71	75	0.23	0.11	10.7	1.8	1221	0.2
MR2	83.5	8.9	7.6	1.4	39	1082	4.8	16	13	17	28	0.25	0.15	5.5	0.2	2268	0.4
MR3	94.2	1.2	4.6	3.5	112	1053	8.1	35	37	57	64	0.21	0.10	9.3	0.3	2212	1.6
MR4	25.6	68.0	6.4	5.4	144	822	8.4	38	51	79	82	0.19	0.16	11.1	1.2	1893	0.2
MR5	34.7	24.6	40.7	5.5	167	670	7.1	37	53	85	82	0.16	0.10	8.8	1.4	1486	0.6
MR6	51.8	20.2	28.0	4.5	144	548	5.6	28	41	62	66	0.20	0.11	7.6	1.4	2769	0.3
MR7	1.9	75.8	20.8	6.4	169	785	8.0	41	61	76	83	0.16	0.14	7.3	1.6	1510	0.5

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.14.4: Sediment quality off Murud during April 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
MR1	0.4	94.4	5.2	7.3	156	738	7.4	50	68	102	76	0.14	0.18	13.9	2.0	1550	0.4
MR2	53.7	13.4	32.9	6.0	168	971	9.1	60	64	108	77	0.17	0.005	10.9	1.4	1928	0.5
MR3	34.0	57.8	8.2	4.7	183	1059	7.8	51	60	87	67	0.14	0.02	7.2	1.1	2108	1.9
MR4	3.2	88.6	8.2	7.2	162	658	7.5	50	69	108	79	0.18	0.08	11.9	2.0	1560	0.2
MR5	2.4	88.4	9.2	8.0	168	672	7.8	51	76	109	76	0.17	0.04	10.6	1.8	1455	0.7
MR6	55.6	37.8	6.6	5.4	148	635	6.0	43	56	85	55	0.14	0.07	7.5	1.4	1207	0.3
MR7	1.9	82.3	15.8	7.4	163	676	7.3	50	71	103	80	0.16	0.15	12.6	2.2	1205	0.4

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.14.5: Microbial counts (CFU/ml) in water off Murud during 2015-16

Type of Bacteria	Population in surface water (CFU/ml)															
	Postmonsoon (December 2015)								Premonsoon (April 2016)							
	MR1		MR2		MR3		MR4		MR1		MR2		MR3		MR4	
	FI	Eb	FI	Eb	FI	Eb	FI	Eb	Eb	FI	Eb	FI	Eb	FI	Eb	FI
TVC	2x10 ³	1x10 ³	3x10 ³	2 x10 ³	4x10 ³	3x10 ³	7x10 ³	10x10 ³	3x10 ³	6x10 ³	4x10 ³	0.9 x10 ³	3x10 ³	16x10 ³	10x10 ³	7x10 ³
TC	20	40	80	100	200	500	90	ND	ND	ND	ND	ND	ND	30	ND	ND
FC	20	20	70	90	130	400	50	ND	ND	ND	ND	ND	ND	30	ND	ND
ECLO	10	20	40	80	120	200	40	ND	ND	ND	ND	ND	ND	10	ND	ND
SHLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	10	20	200	60	800	40	40	ND	ND	ND	ND	ND	ND	50	ND	ND
VLO	ND	ND	150	ND	400	90	70	ND	30	10	70	90	70	240	70	20
VPLO	ND	ND	ND	ND	ND	ND	ND	ND	20	ND	50	50	40	110	60	ND
VCLO	ND	ND	150	ND	400	90	70	ND	10	10	20	40	30	130	10	10
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.14.5 (Contd 1)

Type of Bacteria	Population in surface water (CFU/ml)											
	Postmonsoon (December 2015)						Premonsoon (April 2016)					
	MR5		MR6		MR7		MR5		MR6		MR7	
	FI	Eb	FI	Eb	FI	Eb	EB	FI	Eb	FI	Eb	FI
TVC	20 x10 ³	10 x10 ³	30 x10 ³	15 x10 ³	20 x10 ³	40 x10 ³	15x10 ³	1x10 ³	50x10 ³	2x10 ³	20x10 ³	7x10 ³
TC	10	ND	ND	ND	ND	ND	20	ND	ND	ND	30	ND
FC	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ECLO	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SHLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	50	ND	ND	ND	ND	ND
PKLO	10	ND	ND	ND	ND	ND	50	ND	ND	ND	ND	ND
VLO	40	ND	ND	20	ND	ND	170	ND	70	ND	230	50
VPLO	ND	ND	ND	ND	ND	ND	ND	ND	30	ND	50	50
VCLO	40	ND	ND	20	ND	ND	170	ND	40	ND	180	ND
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.14.6: Microbial counts (CFU/g) in sediment off Murud during 2015-16

Type of Bacteria	Population in sediment (CFU/g)							
	Postmonsoon (December 2015)				Premonsoon (April 2016)			
	MR1	MR2	MR3	MR4	MR1	MR2	MR3	MR4
TVC	200 x10 ³	500 x10 ³	80 x10 ³	100 x10 ³	300 x10 ³	400 x10 ³	500 x10 ³	1200 x10 ³
TC	1000	800	500	200	ND	ND	ND	ND
FC	1000	800	400	200	ND	ND	ND	ND
ECLO	800	600	100	100	ND	ND	ND	ND
SHLO	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	200	ND	ND	200	ND	ND	ND	ND
VLO	400	800	2000	400	10	ND	ND	80
VPLO	ND	ND	ND	ND	470	40	140	140
VCLO	400	800	2000	400	310	30	100	40
PALO	ND	ND	ND	ND	160	10	40	100
SFLO	ND	ND	100	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.14.6 (Contd 1)

Type of Bacteria	Population in sediment (CFU/g)							
	Postmonsoon (December 2015)			Premonsoon (April 2016)				
	MR5	MR6	MR7	MR5	MR6	MR7		
TVC	200 x10 ³	200 x10 ³	100 x10 ³	300 x10 ³	300 x10 ³	100 x10 ³		
TC	ND	ND	ND	ND	ND	ND	ND	
FC	ND	ND	ND	ND	ND	ND	ND	
ECLO	ND	ND	ND	ND	ND	ND	ND	
SHLO	ND	ND	ND	90	80	10		
SLO	ND	ND	ND	ND	ND	ND	ND	
PKLO	ND	ND	ND	10	180	ND		
VLO	ND	400	ND	300	260	20		
VPLO	ND	ND	ND	130	20	ND		
VCLO	ND	400	ND	170	240	20		
PALO	ND	ND	ND	ND	ND	ND		
SFLO	ND	ND	ND	ND	ND	ND		

ND – Below Detectable Level

Table 4.14.7: Range and average of phytopigments at different stations off Murud during December 2015

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
MR1	19/12/2015	1.5	2.4	1.5	1.6	0.4	0.9	1.1	1.7	1.7	5.9	0.9	1.3
		1.9		1.5		0.7		1.4		3.8		1.1	
MR2	19/12/2015	1.3	2.5	1.5	1.5	0.3	1.4	0.4	2.3	0.9	8.2	0.6	3.6
		1.9		1.5		0.9		1.4		4.5		2.1	
MR3	19/12/2015	1.4	3.7	1.8	3.6	0.5	1.2	2.4	2.8	1.1	8.1	0.6	1.5
		2.6		2.7		0.9		2.6		4.6		1.1	
MR4	20/12/2015	2.4	11.1	2.5	13.0	0.5	2.7	0.5	2.9	2.5	15.0	2.3	28.2
		6.4		7.2		1.1		1.3		7.0		9.0	
MR5	20/12/2015	6.9	8.6	6.5	10.8	0.8	1.3	1.0	1.1	5.3	11.2	6.9	9.9
		7.7		8.7		1.0		1.0		8.2		8.4	
MR6	21/12/2015	6.9	8.2	6.8	7.1	1.1	1.5	1.0	1.6	5.5	6.2	4.6	7.1
		7.6		7.0		1.3		1.3		5.9		5.8	
MR7	21/12/2015	7.4	9.9	8.2	8.2	1.5	1.6	1.2	1.2	5.1	6.2	7.1	7.1
		8.6		8.2		1.5		1.2		5.6		7.1	

Table 4.14.8: Range and average of phytopigments at different stations off Murud during April 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
MR1	04/04/2016	2.5	3.6	1.0	1.2	0.7	0.7	0.6	0.8	3.7	4.8	1.3	2.0
		3.1		1.1		0.7		0.7		4.3		1.6	
MR2	04/04/2016	2.8	10.3	2.1	8.9	0.7	1.5	1.5	3.2	4.1	7.1	1.4	2.8
		6.6		5.5		1.1		2.4		5.6		2.1	
MR3	04/04/2016	10.5	12.6	8.4	11.3	1.4	2.4	1.7	4.0	5.3	7.6	2.1	6.5
		11.5		9.8		1.9		2.9		6.4		4.3	
MR4	03/04/2016	12.7	18.8	13.9	17.7	0.1	2.9	1.1	2.8	4.4	216.8	5.8	15.8
		15.4		15.8		1.5		1.7		29.4		9.9	
MR5	03/04/2016	17.0	17.1	11.6	16.1	1.1	1.5	1.2	1.5	11.7	15.2	9.4	10.5
		17.1		13.9		1.3		1.4		13.4		10.0	
MR6	03/04/2016	10.5	13.2	17.0	17.0	0.7	1.4	2.1	2.1	7.8	18.3	8.2	8.2
		11.8		17.0		1.0		2.1		13.0		8.2	
MR7	03/04/2016	12.5	14.6	12.8	12.8	0.9	2.0	1.3	1.3	6.2	16.2	9.5	9.5
		13.6		12.8		1.5		1.3		11.2		9.5	

Table 4.14.9: Range and average of phytoplankton at different stations off Murud during December 2015

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera					
		S		B		S		B							
		Min	Max	Min	Max	Min	Max	Min	Max	S	B				
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg						
MR1	19/12/2015	31	37	47	17	15	15	9	16	<i>Procentrum</i>	<i>Thalassiosira</i>				
		34		32		15		13		<i>Protoperidinium</i>	<i>Thalassionema</i>				
		35		37	54	14	20	16	18	<i>Thalassiosira</i>	<i>Pseudo-nitzschia</i>				
		60		46		17		17		<i>Cyclotella</i>	<i>Cyclotella</i>				
MR2	19/12/2015	54	128	54	186	19	22	16	18	<i>Thalassiosira</i>	<i>Coscinodiscus</i>				
		91		120		21		17		<i>Chaetoceros</i>	<i>Cylindrotheca</i>				
		78		74	506	20	22	19	27	<i>Mallomonas</i>	<i>Navicula</i>				
		229		290		21		23		<i>Cylindrotheca</i>	<i>Ditylum</i>				
MR3	19/12/2015	309	564	607	714	22	33	27	27	<i>Thalassiosira</i>	<i>Thalassiosira</i>				
		437		660		28		27		<i>Triceratium</i>	<i>Thalassionema</i>				
		443		425	621	24	27	29	29	<i>Skeletonema</i>	<i>Nitzschia</i>				
		506		523		26		29		<i>Thalassionema</i>	<i>Skeletonema</i>				
MR6	21/12/2015	488	495	486	486	24	24	29	29	<i>Thalassiosira</i>	<i>Thalassiosira</i>				
		492				24				<i>Nitzschia</i>	<i>Triceratium</i>				
		488				24				<i>Triceratium</i>	<i>Navicula</i>				
		492				24				<i>Navicula</i>	<i>Odontella</i>				
MR7	21/12/2015	488				24				<i>Thalassiosira</i>					
		492				24				<i>Nitzschia</i>					

Table 4.14.10: Range and average of phytoplankton at different stations off Murud during April 2016

Station	Date	Cell count (no x 10 ³ Cells/l)				Total genera (nos.)				Major genera			
		S		B		S		B					
		Min	Max	Min	Max	Min	Max	Min	Max				
		Avg		Avg		Avg		Avg					
MR1	04/04/2016	67	131	44	47	14	16	10	14	S	B		
		99		45		15		12					
MR2	04/04/2016	93	1360	49	762	15	22	14	27	S	B		
		727		406		19		21					
MR3	04/04/2016	1014	1199	910	2082	24	27	21	26	S	B		
		1107		1496		26		24					
MR4	03/04/2016	1371	1645	835	2382	21	27	22	28	S	B		
		1508		1609		24		25					
MR5	03/04/2016	1061	1797	1556	1725	22	30	22	26	S	B		
		1429		1641		26		24					
MR6	03/04/2016	638	667	870	21	25	22	22	22	S	B		
		652											
MR7	03/04/2016	612	787	510	24	24	18	18	18	S	B		
		700											

Table 4.14.11: Percentage composition of phytoplankton population at different station off Murud during December 2015

Table 4.14.12: Percentage composition of phytoplankton population at different station off Murud during April 2016

Table 4.14.13: Range and average (parenthesis) of zooplankton at different stations off Murud during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
MR1 (19/12/2015)	0.4-0.7 (0.5)	1.5-13.0 (7.2)	10-13 (12)	Copepods (88.1), decapod larvae (4.4), <i>Lucifer</i> sp. (4.1), chaetognaths (2.0), fish eggs (0.6), foraminiferans (0.3), lamellibranchs (0.1), gastropods (0.1), stomatopods (0.1) others (0.1).
MR2 (19/12/2015)	0.9-1.0 (1.0)	2.4-6.0 (4.2)	11-13 (12)	Copepods (88.0), decapod larvae (5.1), <i>Lucifer</i> sp. (3.6), chaetognaths (2.4), fish eggs (0.2), fish larvae(0.2), lamellibranchs (0.1), stomatopods (0.1), medusae (0.1), foraminiferans (0.1), others (0.1).
MR3 (19/12/2015)	0.6-1.1 (0.9)	3.0-4.6 (3.8)	10-11 (11)	Copepods (89.7), decapod larvae (4.5), chaetognaths (3.8), <i>Lucifer</i> sp. (1.5), fish larvae (0.1), lamellibranchs (0.1), medusae (0.1), ctenophores (0.1), others (0.1).
MR5 (20/12/2015)	1.5-24.2 (13.0)	3.1-19.2 (12)	14-15 (15)	Copepods (70.5), decapod larvae (11.0), gastropods (6.4), <i>Lucifer</i> sp. (5.8), medusae (2.2), lamellibranchs (1.5), chaetognaths (1.3), ctenophores (0.9), polychaetes (0.1), fish eggs (0.1), foraminiferans (0.1), others (0.1).
MR6 (21/12/2015)	7.2-13.9 (11)	7.0-8.9 (8.0)	10-12 (11)	Copepods (72.6), <i>Lucifer</i> sp. (14.2), decapod larvae (10.4), chaetognaths (1.1), ctenophores (0.6), medusae (0.3), lamellibranchs (0.2), gastropods (0.2), fish eggs (0.1), polychaetes (0.1), foraminifera (0.1), others (0.1).
MR7 (21/12/2015)	9.0-9.0 (9.0)	12.2-12.2 (12.2)	13-13 (13)	Copepods (68.5), <i>Lucifer</i> sp. (19.8), decapod larvae (8.3),

				medusae (2.8), ctenophores (0.3), lamellibranchs (0.1), chaetognaths (0.1), others (0.1).
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Table 4.14.14: Range and average (parenthesis) of zooplankton at different stations off Murud during April 2016

Station (Date)	Biomass (ml/100m ³)	Population (no x 10 ³ /100m ³)	Total Groups (no)	Major group (%)
MR1 (04/04/2016)	0.2-0.6 (0.4)	1.4-2.8 (2.1)	9-10 (10)	Copepods (84.3), decapod larvae (9.2), lamellibranchs (4.1), gastropods (0.9), foraminiferans (0.7), fish eggs (0.2), fish larvae (0.2), <i>Lucifer</i> sp. (0.1), polychaetes (0.1), others (0.1).
MR2 (04/04/2016)	0.4-1.2 (0.9)	3.8-7.3 (5.6)	9-10 (10)	Copepods (80.2), foraminiferans (11.6), decapod larvae (3.4), lamellibranchs (2.6), gastropods (1.1), fish eggs (0.6), fish larvae (0.3), <i>Lucifer</i> sp. (0.2), polychaetes (0.1), others (0.1).
MR3 (04/04/2016)	0.6-2.1 (1.4)	4.4-25.3 (14.8)	9-11 (10)	Copepods (88.1), lamellibranchs (5.2), decapod larvae (2.0), <i>Lucifer</i> sp. (1.8), gastropods (1.6), fish eggs (0.9), fish larvae (0.1), ctenophores (0.1), polychaetes (0.1), others (0.1).
MR4 (03/04/2016)	1.0-7.4 (3.6)	16.9-79.3 (35.8)	9-12 (11)	Copepods (91.3), lamellibranchs (4.6), decapod larvae (1.8), gastropods (1.2), <i>Lucifer</i> sp. (0.7), polychaetes (0.3), fish eggs (0.1), others (0.1).
MR5 (03/04/2016)	1.2-5.6 (3.4)	18.6-83.0 (50.8)	11-14 (13)	Copepods (93.8), lamellibranchs (2.5), gastropods (1.2), <i>Lucifer</i> sp. (1.2), decapod larvae (1.0), fish eggs (0.1), others (0.1).
MR6 (03/04/2016)	1.4	12.0	10	Copepods (78.4), <i>Lucifer</i> sp. (8.7), lamellibranchs (5.4), gastropods (4.0), decapod larvae (2.7),

				fish eggs (0.4), chaetognaths (0.1), polychaetes (0.1), appendicularians (0.1), others (0.1).
MR7 (03/04/2016)	3.9	19.4	10	Copepods (88.9), lamellibranchs (6.0), decapod larvae (3.9), <i>Lucifer sp.</i> (0.7), medusae (0.1), polychaetes (0.1), gastropods (0.1), appendicularians (0.1), fish eggs (0.1), fish larvae (0.1), others (0.1).

Table 4.14.15: Abundance of zooplanktons off Murud during December 2015

Faunal groups	MR1	MR2	MR3	MR4	MR5	MR6	MR7
Foraminiferans	+	+	-	+	+	+	+
Medusae	+	+	+	+	+	+	+
Ctenophores	-	+	+	+	+	+	+
Chaetognaths	+	+	+	+	+	+	+
Polychaetes	-	+	+	+	+	+	+
Ostracods	-	-	-	+	-	-	-
Copepods	+	+	+	+	+	+	+
Cumaceans	-	-	-	+	-	-	-
Amphipods	+	-	+	+	+	-	+
Mysids	-	-	-	+	-	-	-
Lucifer sp.	+	+	+	+	+	+	+
Decapod larvae	+	+	+	+	+	+	+
Stomatopods	+	+	+	+	+	-	-
Cephalopods	+	+	+	+	-	-	-
Gastropods	+	-	-	+	+	+	+
Lamellibranchs	+	+	+	+	+	+	+
Fish Eggs	+	+	+	+	+	+	+
Fish Larvae	+	+	+	+	+	+	+
Acetes sp.	-	+	-	-	-	-	-
Pycnogonids	-	-	-	+	-	-	-
Others	-	-	-	-	+	-	-

Table 4.14.16: Abundance of zooplankton off Murud during April 2016

Faunal groups	MR1	MR2	MR3	MR4	MR5	MR6	MR7
Foraminiferans	+	+	-	+	+	-	-
Siphonophores	+	-	-	+	+	-	-
Medusae	-	-	+	+	+	+	+
Ctenophores	+	+	+	+	+	-	-
Chaetognaths	+	+	-	+	+	+	-
Polychaetes	+	+	+	+	+	+	+
Copepods	+	+	+	+	+	+	+
<i>Lucifer</i> sp.	+	+	+	+	+	+	+
Decapod larvae	+	+	+	+	+	+	+
Stomatopods	-	-	-	+	+	-	-
Gastropods	+	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+	+
Appendicularians	-	-	+	+	+	+	+
Fish Eggs	+	+	+	+	+	+	+
Fish Larvae	+	+	+	+	+	-	+
Isopods	-	+	-	-	-	-	-

Table 4.14.17: Range and average of macrofauna off Murud during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
MR1	0.61	25.56	8.14	825	1900	1156	2	4	3
MR2	0.02	0.31	0.15	50	325	219	2	5	4
MR3	0.13	64.00	16.22	100	375	269	1	4	3
MR4	3.08	279.60	74.42	1075	3075	2106	5	12	9
MR5	3.57	6.27	5.13	1950	3125	2388	8	12	10
MR6	0.20	2.85	1.32	375	1325	975	4	9	7
MR7	1.71	17.18	6.05	775	3925	1994	8	13	10
Overall	0.02	279.60	15.92	50	3925	1301	1	13	6
Premonsoon April 2016									
MR1	36.33	133.05	80.24	425	1750	1113	3	6	5
MR2	17.44	68.77	48.61	650	1375	963	4	6	5
MR3	0.52	26.33	13.58	400	1600	981	3	11	7
MR4	10.17	26.04	15.27	850	3075	1763	9	14	12
MR5	7.06	23.30	15.10	875	1700	1275	6	11	9
MR6	8.53	138.24	47.23	2225	4700	3663	10	15	12
MR7	0.00	17.95	8.05	0	1575	725	0	8	5
Overall	0.00	138.24	32.58	0	4700	1497	0	15	8

Table 4.14.18: Percentage composition of macrofauna off Murud during December 2015

Phylum	Groups	Stations							Average
		MR1	MR2	MR3	MR4	MR5	MR6	MR7	
Annelida	Polychaeta	92.43	42.86	67.44	65.37	53.07	53.21	61.29	62.96
Arthropoda	Amphipoda	1.08	14.29	11.63	11.64	13.87	25.00	17.74	13.69
Arthropoda	Cumacea		8.57		0.60	9.07	1.28	2.90	3.47
Arthropoda	Tanaidacea				2.69	4.00	5.77	3.23	2.99
Arthropoda	Isopoda				3.28	0.53		3.87	1.74
Arthropoda	Copepoda				0.90		0.64	0.97	0.49
Arthropoda	Anomura					0.80	1.28		0.35
Arthropoda	Brachyura				0.90			0.65	0.35
Arthropoda	Luciferidae	1.08	8.57						0.35
Arthropoda	Decapoda Larvae		11.43						0.28
Arthropoda	Mysida				0.60		0.64		0.21
Cnidaria	Hydrozoa colony				0.30	0.27		0.97	0.35
Cnidaria	Anthozoa					0.27		0.32	0.14
Echinodermata	Ophiuroidea				1.49	4.00	0.64		1.46
Mollusca	Pelecypoda	1.08		2.33	2.69	1.87	1.28	2.58	2.02
Mollusca	Gastropoda				0.30	1.07	0.64	0.65	0.56
Nemertea	Nemertea	4.32	14.29	18.60	2.39	3.73	4.49	3.87	4.31
Phoronida	Phoronida				6.87	7.47			3.54
Platyhelminthes	Turbellaria						5.13	0.97	0.76

Table 4.14.19: Percentage composition of macrofauna off Murud during April 2016

Phylum	Groups	Stations							Average
		MR1	MR2	MR3	MR4	MR5	MR6	MR7	
Annelida	Polychaeta	52.81	75.97	45.22	47.87	73.53	63.48	73.04	61.04
Annelida	Oligochaeta						0.17		0.06
Arthropoda	Amphipoda	3.37	4.55	28.66	13.12	2.45	5.63	3.48	8.17
Arthropoda	Cumacea	1.12	0.65	2.55	3.19	0.98	3.07		2.15
Arthropoda	Tanaidacea		1.30	2.55	5.32	2.45	0.51	1.74	1.85
Arthropoda	Isopoda			2.55	4.26	2.45	1.54		1.79
Arthropoda	Copepoda			1.27	4.26	0.49			0.89
Arthropoda	Brachyura			0.64	1.77	1.47	0.17	0.87	0.66
Arthropoda	Caridean shrimp				1.06	0.98	0.68	0.87	0.60
Arthropoda	Decapoda Larvae					0.49	0.17	1.74	0.24
Arthropoda	Mysida						0.34		0.12
Arthropoda	Anomura			0.64					0.06
Arthropoda	Cladocera				0.35				0.06
Arthropoda	Ostracoda						0.17		0.06
Arthropoda	Pychnogonida						0.17		0.06
Cnidaria	Anthozoa	0.56			0.35	0.49	0.68		0.42
Cnidaria	Coral						0.85		0.30
Cnidaria	Hydrozoa colony					0.98			0.12
Echinodermata	Ophiuroidea			1.27	8.16	2.94	16.21	3.48	7.76
Echinodermata	Holothuroidea				0.35				0.06
Echiura	Echiura	33.71	9.09	0.64	0.35				4.53

Mollusca	Pelecypoda	6.18	1.30	10.83	5.67	4.41	1.02	5.22	4.00
Mollusca	Gastropoda					1.47	1.19	0.87	0.66
Nematomorpha	Nematomorpha					0.49			0.06
Nemertea	Nemertea	2.25	7.14	3.18	1.77	3.92	3.41	8.70	3.76
Phoronida	Phoronida				2.13		0.51		0.54

Table 4.14.20: Station-wise distribution of meiofauna parameters in Murud

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
MR1	59.32	63.38	61.35	299	330	314	4	6	5
MR2	64.25	129.13	96.69	61	188	125	4	7	6
MR3	201.3	341.36	271.33	173	255	214	7	9	8
MR4	298.62	437.52	368.07	164	178	171	6	8	7
MR5	141.28	150.16	145.72	120	195	158	6	7	7
MR6	485.1	1627.3	1056.2	266	1019	643	6	12	9
MR7	113.06	200.64	156.85	485	886	686	6	7	7
Premonsoon April 2016									
MR1	126.47	147.43	136.95	178	205	192	4	5	5
MR2	25.89	34.35	30.12	64	120	92	4	7	6
MR3	78.32	91.86	85.09	61	129	95	5	6	6
MR4	604.32	805.66	704.99	55	81	68	5	9	7
MR5	187.4	330.62	259.01	92	386	239	8	9	9
MR6	1009.68	1390.46	1200.7	713	791	752	7	13	10
MR7	126.59	629.07	377.83	44	136	90	4	9	7

Table 4.14.21 Percentage composition meiofauna off Murud during December 2015

Groups	MR1	MR2	MR3	MR4	MR5	MR6	MR7	Average
Bivalves	0.00	0.57	0.33	1.65	0.00	2.22	0.10	0.83
Brachiopods	0.00	0.00	0.00	0.00	4.07	0.00	0.00	0.28
Cladocerans	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.09
Foraminiferans	55.41	23.86	23.18	8.26	21.27	22.28	67.46	39.27
Gastropods	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.06
Gastrotrichs	0.00	1.70	2.32	0.00	0.00	0.00	0.00	0.31
Halacaroids	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.06
Harpacticoids	0.00	23.86	8.28	5.79	4.07	5.88	0.21	4.46
Hydrozoans	5.41	0.00	0.33	5.37	4.07	0.00	0.00	1.45
Nauplius	0.00	7.39	1.66	0.83	1.36	0.55	0.21	0.92
Nematodes	37.84	42.05	61.92	76.86	64.71	63.30	31.50	50.22
Nemerteans	0.45	0.00	0.00	0.00	0.00	0.33	0.00	0.15
Oligochaetes	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.03
Ophiuroids	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.03
Ostracods	0.00	0.00	0.33	0.00	0.45	2.00	0.00	0.62
Polychaetes	0.00	0.00	1.32	0.83	0.00	2.33	0.21	0.89
Rotifers	0.45	0.00	0.33	0.00	0.00	0.33	0.10	0.22
Turbellarians	0.45	0.57	0.00	0.00	0.00	0.11	0.00	0.12

Table 4.14.22: Percentage composition meiofauna off Murud during April 2016

Groups	MR1	MR2	MR3	MR4	MR5	MR6	MR7	Average
Amphipods	0.00	0.00	1.57	0.00	0.61	0.10	0.00	0.24
Bivalves	0.00	0.79	0.00	1.10	0.00	0.40	0.00	0.29
Echiurans	0.00	0.00	0.00	1.10	0.00	0.99	0.00	0.53
Foraminiferans	15.13	39.68	18.11	53.85	9.09	17.26	17.74	18.73
Gastropods	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.05
Halacaroids	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.05
Harpacticoids	0.37	1.59	0.79	3.30	1.52	3.67	0.00	2.36
Hydrozoans	28.04	5.56	12.60	1.10	0.91	0.40	0.00	5.15
Kinorhynchs	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.05
Nauplius	0.00	0.79	0.00	0.00	0.30	1.39	0.00	0.77
Nematodes	55.72	50.00	62.20	30.77	84.24	69.64	68.55	66.73
Nemerteans	0.00	0.00	0.00	1.10	0.30	0.20	0.00	0.19
Oligochaetes	0.00	0.00	0.00	0.00	0.00	0.20	2.42	0.24
Ostracods	0.37	0.00	0.00	0.00	0.61	0.00	0.81	0.19
Polychaetes	0.00	1.59	4.72	7.69	1.21	3.67	8.06	3.18
Rotifers	0.37	0.00	0.00	0.00	0.00	0.00	0.81	0.10
Sipunculids	0.00	0.00	0.00	0.00	0.91	2.08	0.00	1.16

Table 4.15.1: Water quality off Savitri during December 2015

Parameter	Level	S1	S2	S3	S4			S5			S6		
		Avg*	Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	26.0	26.5	25.5	25.0	26.5	26.0	27.0	27.0	27.0	26.5	27.0	26.8
	B	25.5	26.0	25.0	24.0	26.5	25.5	26.5	26.5	26.5	26	26.5	26.3
		(25.0)	(26.0)	(25.0)	(23.0)	(26.0)	(24.8)	(29.0)	(30.0)	(29.5)	(27.0)	(27.0)	(27.0)
SS(mg/l)	S	16	23	34	123	192	157	96	118	107	68	103	85
	B	21	27	27	134	197	165	124	197	161	96	122	109
Turbidity(NTU)	S	13.7	17.0	16.0	12.0	24.6	17.9	55.7	59.8	57.8	62.0	66.5	64.3
	B	15.2	15.7	15.6	14.7	24.5	19.3	49.7	60.1	54.9	70.3	74.5	72.4
pH	S	7.9	7.9	7.9	7.7	7.9	7.8	7.6	7.6	7.6	7.5	7.6	7.6
	B	7.9	7.9	7.9	7.7	7.9	7.8	7.6	7.6	7.6	7.6	7.6	7.6
Salinity(ppt)	S	35.4	35.1	35.0	29.8	35.0	31.4	25.7	30.6	28.1	21.3	25.6	23.4
	B	35.6	35.2	35.1	30.0	35.1	31.5	26.2	31.9	29.0	21.0	25.7	23.4
DO (mg/l)	S	6.5	6.8	6.1	5.8	6.8	6.4	6.5	6.5	6.5	6.1	6.5	6.3
	B	6.8	6.5	5.8	5.8	6.5	6.2	6.1	6.8	6.5	6.1	6.1	6.1
BOD (mg/l)	S	1.9	1.9	1.6	1.9	1.9	1.9	1.6	1.6	1.6	1.6	1.9	1.8
	B	1.9	1.9	1.0	1.6	1.6	1.6	1.6	1.6	1.6	1.9	2.3	2.1
PO ₄ ³⁻ -P (μmol/l)	S	1.3	1.0	0.7	0.6	1.2	0.8	0.2	0.2	0.2	0.2	0.3	0.2
	B	1.4	1.1	1.0	0.8	1.6	1.0	0.3	0.5	0.4	0.4	0.6	0.5
TP(μmol/l)	S	2.0	2.7	1.6	2.0	2.4	2.2	0.7	0.7	0.7	0.7	0.9	0.8
	B	2.0	2.6	2.2	1.6	2.9	2.3	0.8	1.0	0.9	0.8	1.1	1.0
NO ₃ ⁻ -N (μmol/l)	S	11.3	11.4	12.2	7.5	11.0	10.0	4.8	5.3	5.1	11.2	11.7	11.5
	B	11.5	11.7	13.2	8.4	11.4	10.5	2.9	4.6	3.8	8.5	9.9	9.2
NO ₂ ⁻ -N(μmol/l)	S	0.3	0.6	0.8	0.9	1.3	1.1	2.6	5.0	3.8	2.6	4.9	3.7
	B	0.4	0.5	0.6	0.8	1.2	0.9	1.7	4.5	3.1	1.6	4.5	3.1
NH ₄ ⁺ -N(μmol/l)	S	1.6	1.5	1.2	1.3	2.2	1.8	3.4	4.8	4.1	3.7	4.1	3.9
	B	1.5	2.4	2.1	1.5	2.5	2.0	4.0	4.5	4.2	3.0	4.8	3.9
TN(μmol/l)	S	24.1	20.0	22.1	16.3	21.3	18.8	17.6	20.2	18.9	21.9	24.5	23.2
	B	28.6	21.9	28.4	24.1	29.7	26.9	14.8	17.6	16.2	17.6	22.1	19.9
PHc(μg/l)	1m	4.7	3.3	1.9	3.2	6.0	4.6	4.0	7.9	6.0	2.2	9.2	5.7
Phenol (μg/l)	S	72.0	78.2	80.4	66.7	78.7	72.7	76.1	79.2	77.6	68.9	75.8	72.4

* Average of two readings

Air temperature given in parenthesis

Table 4.15.1 (Contd 1)

Parameter	Level	S7			S8			S9
		Min	Max	Avg	Min	Max	Avg	Avg*
Temperature(°C)	S	24.5	24.5	24.5	25.5	28.5	27.2	27.5
	B	24.0	24.0	24.0	25.5	27.6	26.6	27.0
		(21.5)	(25.0)	(23.3)	(25.0)	(30.0)	(27.9)	(28.0)
SS(mg/l)	S	58	68	63	31	39	35	48
	B	66	66	66	37	42	39	58
pH	S	7.5	7.6	7.6	7.5	7.7	7.6	7.8
	B	7.5	7.5	7.5	7.5	7.7	7.6	7.8
Turbidity(NTU)	S	25.6	29.3	27.5	1.3	2.0	1.6	2.1
	B	27.8	30.4	29.1	1.3	1.8	1.6	2.0
Salinity(ppt)	S	17.1	18.9	18.0	12.2	15.8	13.7	10.0
	B	18.8	18.8	18.8	11.0	15.8	12.5	10.3
DO (mg/l)	S	6.1	6.1	6.1	5.8	7.1	6.4	7.1
	B	5.5	5.5	5.5	5.8	6.8	6.4	6.5
BOD (mg/l)	S	1.9	1.9	1.9	1.3	1.6	1.5	2.3
	B	1.6	1.6	1.6	1.6	1.9	1.8	1.9
PO ₄ ³⁻ (μmol/l)	S	0.2	0.2	0.2	0.3	0.6	0.5	0.4
	B	0.5	0.5	0.5	0.3	0.7	0.5	0.5
TP(μmol/l)	S	0.7	1.0	0.8	1.0	1.2	1.1	0.8
	B	0.9	1.0	0.9	1.0	1.2	1.1	0.9
NO ₃ ⁻ -N (μmol/l)	S	10.4	16.2	13.3	13.3	19.9	17.3	18.8
	B	13.1	13.1	13.1	15.4	20.7	17.7	18.2
NO ₂ ⁻ -N(μmol/l)	S	6.4	7.8	7.1	3.7	9.1	6.7	1.6
	B	7.0	7.0	7.0	3.6	9.2	6.9	1.8
NH ₄ ⁺ -N(μmol/l)	S	2.8	2.8	2.8	2.0	4.6	3.2	2.9
	B	2.8	2.8	2.8	2.1	4.2	3.1	3.5
TN(μmol/l)	S	18.7	32.8	25.7	31.5	32.8	32.1	26.4
	B	21.5	21.5	21.5	28.9	32.1	30.5	30.7
PHc(μg/l)	1m	12.5	14.1	13.3	11.6	19.9	15.8	2.5
Phenol (μg/l)	S	68.9	75.8	72.4	70.3	71.5	70.9	63.4

Air temperature given in parenthesis

Table 4.15.2: Water quality off Savitri during March 2016

Parameter	Level	S1	S2	S3	S4			S5			S6		
		Avg*	Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	26.5	27.5	27.5	25.0	28.0	26.9	30.0	30.5	30.3	30.5	30.5	30.5
	B	26.5	26.0	27.5	26.0	27.5	26.6	29.5	29.5	29.5	29.5	30.0	29.8
		(31.0)	(32.0)	(31.0)	(26.0)	(33.5)	(30.3)	29.0	32.0	30.5	29.0	32.0	30.5
SS(mg/l)	S	43	60	90	147	189	168	141	179	160	82	112	97
	B	54	93	83	153	196	174	220	228	224	121	161	141
Turbidity(NTU)	S	1.0	1.8	2.2	0.5	4.9	2.9	1.5	2.0	1.7	2.1	2.1	2.1
	B	2.8	2.5	3.1	1.3	4.8	3.1	2.0	2.2	2.1	1.7	1.7	1.7
pH	S	8.0	8.0	8.0	7.8	8.0	7.9	7.8	7.9	7.9	7.7	7.8	7.8
	B	8.0	8.0	8.0	7.8	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.9
Salinity(ppt)	S	35.7	36.1	36.1	34.0	36.4	35.3	32.6	33.7	33.1	30.8	32.5	31.6
	B	36.1	36.2	36.2	34.1	36.5	35.4	32.9	34.1	33.5	31.0	32.7	31.8
DO (mg/l)	S	6.2	5.5	5.7	5.7	6.3	6.1	4.8	5.7	5.2	5.4	5.4	5.4
	B	6.2	5.9	6.3	5.7	6.7	6.2	5.1	5.4	5.2	5.1	5.1	5.1
BOD (mg/l)	S	3.2	2.9	3.2	3.2	3.8	3.5	2.2	3.2	2.7	2.2	2.5	2.4
	B	3.2	3.5	3.9	3.5	4.1	3.8	2.9	3.0	3.0	2.2	2.5	2.4
PO ₄ ³⁻ (μmol/l)	S	0.7	0.7	0.6	0.5	1.1	0.8	0.3	1.2	0.8	0.5	1.0	0.7
	B	0.9	1.0	0.8	0.6	1.6	1.0	0.5	1.1	0.8	0.2	0.4	0.3
TP(μmol/l)	S	1.6	1.2	1.5	1.2	2.6	1.9	0.6	0.8	0.7	0.8	1.0	0.9
	B	1.7	1.9	3.1	2.5	6.1	4.0	0.8	1.2	1.0	1.1	1.2	1.1
NO ₃ ⁻ -N (μmol/l)	S	2.9	2.1	3.1	2.5	6.1	4.0	3.1	3.8	3.4	3.3	10.6	7.0
	B	3.6	3.8	4.5	1.7	5.4	3.9	1.9	4.7	3.3	4.4	10.8	7.6
NO ₂ ⁻ -N(μmol/l)	S	0.7	0.7	0.7	0.7	2.0	1.3	0.7	1.8	1.2	0.4	1.4	0.9
	B	0.8	0.9	1.0	0.7	1.6	1.2	0.4	1.1	0.8	0.3	1.0	0.6
NH ₄ ⁺ -N(μmol/l)	S	0.7	0.8	0.8	0.6	1.8	1.0	0.8	1.9	1.3	0.8	0.9	0.9
	B	0.5	0.6	0.6	0.7	1.6	1.0	1.4	1.6	1.5	0.5	0.6	0.6
TN(μmol/l)	S	11.2	10.6	13.5	12.6	15.4	14.0	17.3	30.2	23.7	29.8	33.6	31.7
	B	13.9	15.7	11.6	9.7	15.9	12.8	21.2	29.6	25.4	24.2	29.1	26.6
PHc(μg/l)	1m	3.6	3.0	2.1	3.2	6.0	4.6	4.0	7.9	6.0	2.2	9.2	5.7
Phenol (μg/l)	S	59.8	64.3	69.6	74.4	86.6	86.5	77.8	99.1	88.4	81.6	104.4	93.0

*Average of two readings

Air temperature given in parenthesis

Table 4.15.2 (Contd 1)

Parameter	Level	S7			S8			S9		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	29.5	30.0	29.8	28.0	31.5	29.6	30.0	31.5	30.8
	B	29.5	29.5	29.5	28.0	30.5	29.4	29.0	29.0	29.0
		(28.0)	(31.0)	(29.5)	(25.0)	(30.0)	(27.9)	(32.0)	(33.0)	(32.5)
SS(mg/l)	S	82	92	87	34	59	46	17	24	20
	B	93	95	94	38	61	49	26	26	26
Turbidity(NTU)	S	1.5	1.6	1.5	3.0	3.4	3.2	3.1	3.5	3.3
	B	2.0	2.0	2.0	3.1	3.2	3.2	3.7	3.7	3.7
pH	S	7.7	7.8	7.8	7.5	7.7	7.6	7.5	7.6	7.6
	B	7.8	7.9	7.9	7.5	7.7	7.6	7.6	7.6	7.6
Salinity(ppt)	S	21.0	23.7	22.4	16.5	20.0	18.1	10.0	10.0	10.0
	B	21.7	24.5	23.1	17.1	20.8	18.8	10.3	10.3	10.3
DO (mg/l)	S	3.8	5.1	4.4	4.5	6.1	5.7	4.2	4.8	4.5
	B	4.4	5.7	5.1	4.2	5.8	5.3	5.2	5.2	5.2
BOD (mg/l)	S	2.5	3.5	3.0	2.3	2.9	2.6	1.9	2.3	2.1
	B	2.2	3.5	2.9	2.9	2.9	2.9	2.6	2.6	2.6
PO ₄ ³⁻ (μmol/l)	S	1.0	1.0	1.0	0.3	0.8	0.5	0.7	0.8	0.8
	B	1.1	1.1	1.1	0.3	0.8	0.5	0.9	0.9	0.9
TP(μmol/l)	S	1.7	2.0	1.8	0.8	1.3	1.0	1.5	1.7	1.6
	B	6.6	9.1	7.9	0.3	0.9	0.6	1.6	1.9	1.7
NO ₃ ⁻ -N (μmol/l)	S	11.6	13.6	12.6	17.1	21.6	18.7	19.2	20.2	19.7
	B	13.8	16.7	15.3	17.1	20.9	19.1	20.5	20.5	20.5
NO ₂ ⁻ -N(μmol/l)	S	2.0	2.3	2.1	7.9	10.1	9.1	4.4	8.4	6.4
	B	1.6	2.1	1.8	8.4	10.8	9.3	9.2	9.2	9.2
NH ₄ ⁺ -N(μmol/l)	S	0.7	1.5	1.1	1.3	4.0	2.2	2.4	3.2	2.8
	B	0.8	1.6	1.2	1.0	3.8	2.2	3.3	3.3	3.3
TN(μmol/l)	S	18.9	29.3	24.1	40.6	59.5	50.0	22.3	28.9	25.6
	B	16.5	33.4	24.9	38.2	63.0	50.6	27.3	31.2	29.2
PHc(μg/l)	1m	10.2	14.2	12.2	0.8	0.9	0.9	3.0	3.0	3.0
Phenol (μg/l)	S	83.8	98.4	91.1	12.6	19.0	15.8	95.0	95.5	95.3

Air temperature given in parenthesis

Table 4.15.3: Sediment quality off Savitri during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
S1	10.0	83.6	6.4	6.3	144	812	7.6	40	56	92	86	0.11	0.14	11.1	2.4	1542	0.5
S2	2.0	84.9	13.1	6.0	183	2312	9.0	50	52	61	82	0.16	0.14	13.7	2.3	1344	0.8
S3	96.4	2.6	1.0	6.5	145	706	6.7	33	58	70	80	0.15	0.04	6.6	0.4	1578	0.5
S4	17.9	74.5	7.6	6.5	365	2172	15.2	95	105	205	199	0.13	0.05	10.0	0.6	1373	1.1
S5	96.4	3.0	0.6	8.0	240	1791	11.6	66	80	116	117	0.16	0.04	6.2	0.41	686	2.1
S6	93	2.0	5.0	7.0	318	1620	13.5	88	91	175	164	0.17	0.11	3.7	1.4	998	0.3
S7	74.8	19	6.2	6.8	243	1466	10.9	67	78	114	126	0.24	0.26	6.8	1.8	859	1.0
S8	18.7	70.1	11.2	8.6	236	1348	11.6	73	93	273	139	0.19	0.23	11.9	2.6	1238	3.9
S9	48.4	42.2	9.4	9.2	232	2663	11.6	76	96	195	168	0.18	0.17	11.3	3.8	1312	1.0

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.15.4: Sediment quality off Savitri during March 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
S1	0.4	91.8	7.8	7.2	153	631	7.3	48	69	103	81	0.18	0.18	9.9	2.4	1525	0.2
S2	2.1	89.2	8.7	7.1	153	656	7.3	49	69	105	73	0.20	0.13	9.7	2.3	1498	0.2
S3	15.7	67.3	17.0	5.6	208	1329	12.8	99	75	236	135	0.22	0.10	13.1	1.1	918	0.2
S4	92.4	4.6	3.0	7.2	291	1639	13.4	97	92	169	134	0.25	ND	4.4	3.1	1274	0.6
S5	97.4	1.0	1.6	7.6	228	1702	11.0	86	87	156	115	0.17	ND	7.0	0.2	2143	0.9
S6	97.2	1.8	1.0	7.6	271	1749	12.3	89	89	222	136	0.16	0.13	2.7	0.2	1683	0.9
S7	95.2	2.4	2.4	8.1	204	1599	9.9	75	90	191	102	0.19	0.12	8.4	3.8	1001	2.6
S8	14.4	70.4	15.2	8.2	214	1146	10.2	75	90	195	111	0.16	0.12	11.1	3.1	1823	3.7
S9	34.4	52.8	12.8	8.9	263	1384	12.2	89	100	216	132	0.18	0.10	16.3	2.2	1666	2.0

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.15.5: Microbial counts (CFU/ml) in water off Savitri during 2015-2016

Type of Bacteria	Population in surface water (CFU/ml)					
	Postmonsoon (December 2015)			Premonsoon (March 2016)		
	S1	S2	S3	S1	S2	S3
TVC	4.5 x10 ³	4 x10 ³	3 x10 ³	2.9X10 ³	4.2X10 ³	4.9X10 ³
TC	10	ND	20	ND	50	130
FC	10	ND	10	ND	10	80
ECLO	10	ND	10	ND	10	30
SHLO	ND	ND	ND	ND	ND	10
SLO	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	10	ND	ND
VLO	40	ND	50	70	90	150
VPLO	ND	ND	10	30	110	100
VCLO	40	ND	40	70	90	150
PALO	ND	ND	10	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.15.5 (Contd 1)

Type of Bacteria	Population in water (CFU/ml)											
	Postmonsoon (December 2015)						Premonsoon (March 2016)					
	S4		S5		S6		S4		S5		S6	
FI	Eb	Fld	Ebb	Fld	Ebb	Eb	FI	Eb	FI	Eb	FI	Eb
TVC	6 x10 ³	2 x10 ³	4 x10 ³	2 x10 ³	2 x10 ³	1.9 x10 ³	6.1x10 ³	5.1x10 ³	2.5x10 ³	1.9x10 ³	2.9x10 ³	3.5x10 ³
TC	10	20	ND	ND	ND	ND	140	90	30	50	50	70
FC	10	10	ND	ND	ND	ND	70	80	10	30	30	50
ECLO	10	10	ND	ND	ND	ND	60	50	10	30	10	40
SHLO	ND	ND	ND	ND	ND	ND	80	30	ND	ND	20	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	ND	ND
PKLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VLO	90	100	ND	ND	ND	ND	180	230	ND	30	60	50
VPLO	ND	100	ND	ND	ND	ND	70	110	ND	ND	40	20
VCLO	90	ND	ND	ND	ND	ND	110	120	ND	30	20	30
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND- Below Detectable Level

Table 4.15.5 (Contd 2)

Type of Bacteria	Population in water (CFU/ml)											
	Postmonsoon (December 2015)						Premonsoon (March 2016)					
	S7		S8		S9	S7		S8		S9		
	Fl	Eb	Fl	Eb		Eb	Fl	Eb	Fl	Eb	Fl	
TVC	4 x10 ³	3 x10 ³	1.5 x10 ³	4 x10 ³	2 x10 ³	2.5x10 ³	1.7x10 ³	5.2x10 ³	4.7x10 ³	3.2x10 ³	2.9x10 ³	
TC	60	40	200	200	180	ND	ND	170	130	30	ND	
FC	50	40	100	200	160	ND	ND	130	80	10	ND	
ECLO	10	30	100	200	100	ND	ND	100	60	10	ND	
SHLO	ND	ND	ND	ND	ND	ND	ND	70	30	ND	ND	
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PKLO	ND	400	ND	ND	ND	ND	10	ND	ND	ND	ND	
VLO	110	110	100	200	200	200	50	200	150	110	80	
VPLO	90	70	ND	ND	ND	80	20	80	110	40	20	
VCLO	20	40	100	200	200	120	30	120	40	70	60	
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
SFLO	ND	ND	ND	ND	ND	ND	ND	30	70	ND	ND	

ND- Below Detectable Level

Table 4.15.6: Microbial counts (CFU/g) in sediments off Savitri during 2015-2016

Type of Bacteria	Population in sediment (CFU/g)							
	Postmonsoon (December 2015)				Premonsoon (March 2016)			
	S1	S2	S3	S4	S1	S2	S3	S4
TVC	100 x10 ³	900 x10 ³	400 x10 ³	500 x10 ³	310x10 ³	350x10 ³	380x10 ³	390x10 ³
TC	ND	ND	ND	ND	ND	ND	50	70
FC	ND	ND	ND	ND	ND	ND	30	30
ECLO	ND	ND	ND	ND	ND	ND	10	10
SHLO	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	ND	ND	ND	ND	ND
VLO	ND	ND	ND	ND	40	30	100	40
VPLO	ND	ND	ND	ND	10	ND	70	10
VCLO	ND	ND	ND	ND	30	30	30	30
PALO	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND

ND-Below Detected Level

Table: 4.15.6 (Contd 1)

Type of Bacteria	Population in sediment (CFU/g)									
	Postmonsoon (December 2015)					Premonsoon (March 2016)				
	S5	S6	S7	S8	S9	S5	S6	S7	S8	S9
TVC	100 x10 ³	1800 x10 ³	800 x10 ³	80 x10 ³	400 x10 ³	420x10 ³	310x10 ³	260x10 ³	430x10 ³	210x10 ³
TC	ND	200	900	ND	1100	30	ND	ND	60	ND
FC	ND	100	900	ND	800	10	ND	ND	30	ND
ECLO	ND	ND	800	ND	400	20	ND	ND	20	ND
SHLO	ND	ND	ND	ND	ND	ND	ND	10	50	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	100	ND	400	ND	ND	ND	ND	ND	ND	ND
VLO	400	800	1500	ND	ND	30	ND	30	210	80
VPLO	100	ND	300	ND	ND	20	ND	ND	120	20
VCLO	300	800	1200	ND	ND	10	ND	30	90	60
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND-Below Detectable Level

Table 4.15.7: Range and average of phytopigments at different stations off Savitri during December 2015

Station	Date	CHLOROPHYLL				PHAEOPHYTIN				RATIO			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
S1	23-12-2015	2.1	2.1	1.2	1.3	0.7	0.8	1.6	1.7	2.5	3.1	0.7	0.8
		2.1		1.3		0.8		1.7		2.8		0.8	
S2	23-12-2015	1.7	2.1	1.3	1.6	0.3	0.7	3.3	3.4	2.5	6.5	0.4	0.5
		1.9		1.5		0.5		3.3		4.5		0.4	
S3	23-12-2015	1.6	1.7	1.5	1.6	1.4	1.5	2.7	3.2	1.1	1.2	0.5	0.6
		1.7		1.6		1.4		2.9		1.2		0.5	
S4	23-12-2015	1.8	5.2	1.3	4.3	0.7	6.3	1.2	2.4	0.8	2.9	0.8	2.9
		1.7											
S5	24-12-2015	1.9	2.4	2.0	2.4	0.9	1.4	0.9	1.3	1.4	2.7	1.8	2.1
		2.1		2.2		1.1		1.1		2.1		2.0	
S6	25-12-2015	2.4	6.1	2.1	6.7	1.0	1.9	1.1	6.9	1.5	4.5	0.4	4.6
		4.0		3.6		1.4		2.1		2.9		2.1	
S7	25-12-2015	7.8	7.8	7.8	9.5	2.4	3.1	2.3	2.8	2.5	3.3	2.8	4.1
		7.8		8.7		2.7		2.6		2.9		3.5	

Table 4.15.8: Range and average of phytopigments at different stations off Savitri during March 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
S1	29-03-2016	2.5	2.6	1.2	1.3	0.5	0.5	0.6	0.7	4.9	5.5	1.7	2.1
		2.6		1.3		0.5		0.7		5.2		1.9	
S2	29-03-2016	3.8	4.3	1.1	1.3	0.7	0.8	1.8	1.8	4.8	6.3	0.6	0.7
		4.1		1.2		0.7		1.8		5.6		0.7	
S3	29-03-2016	3.6	3.9	2.0	2.2	0.8	0.9	1.1	1.3	4.4	4.7	1.6	1.9
		3.7		2.1		0.8		1.2		4.6		1.8	
S4	29-03-2016	2.9	6.1	2.9	5.9	0.3	1.4	0.1	1.7	2.2	17.5	2.0	39.4
		4.3		4.2		0.8		0.9		6.6		8.3	
S5	30-03-2016	4.7	5.1	5.1	5.4	0.2	0.3	0.5	0.9	16.9	29.4	6.1	10.9
		4.9		5.3		0.2		0.7		23.2		8.5	
S6	30-03-2016	2.6	3.2	2.5	2.8	0.4	0.5	0.6	0.8	6.1	7.2	3.5	4.3
		2.9		2.6		0.4		0.7		6.6		3.9	
S7	30-03-2016	2.2	3.3	1.8	2.4	0.5	0.6	0.5	0.6	4.5	5.4	3.7	3.9
		2.8		2.1		0.6		0.6		5.0		3.8	
S8	31-03-2016	1.6	4.4	0.9	2.5	0.3	1.6	0.8	1.2	1.4	17.0	1.1	2.2
		3.0		1.8		1.1		1.0		3.8		1.8	
S9	31-03-2016	2.2	4.0	3.6	3.6	0.7	1.0	0.9	0.9	3.3	4.1	3.8	3.8
		3.1		3.6		0.8		0.9		3.7		3.8	

Table 4.15.9: Range and average of phytoplankton at different stations off Savitri during December 2015

Station	Date	Cell count				Total genera				Major genera	
		(no x 10 ³ Cells/ l)				(nos.)					
		S		B		S		B		S	B
		Min	Max	Mi n	Max	Mi n	Max	Mi n	Max		
		Avg		Avg		Avg		Avg			
S1	23-12-2015	29.2		11.4		13.0		12.0		<i>Chaetoceros</i>	<i>Nitzschia</i>
										<i>Nitzschia</i>	<i>Navicula</i>
										<i>Aulacoseira</i>	<i>Guinardia</i>
										<i>Coccconeis</i>	<i>Aulacoseira</i>
S2	23-12-2015	106.6		19.0		26.0		12.0		<i>Nitzschia</i>	<i>Nitzschia</i>
										<i>Rhodomonas</i>	<i>Gymnodinium</i>
										<i>Gymnodinium</i>	<i>Coccconeis</i>
										<i>Navicula</i>	<i>Amphora</i>
S3	23-12-2015	26.4		16.8		12.0		10.0		<i>Nitzschia</i>	<i>Coscinodiscus</i>
										<i>Coccconeis</i>	<i>Nitzschia</i>
										<i>Thalassiosira</i>	<i>Thalassiosira</i>
										<i>Gymnodinium</i>	<i>Navicula</i>
S4	23-12-2015	14.4	58 .8	21.0	59. 2	9.0	18. 0	9. 0	14.0	<i>Lithodesmium</i>	<i>Amphora</i>
										<i>Thalassiosira</i>	<i>Coscinodiscus</i>
		36.6		40.1		13.5		11.5		<i>Amphora</i>	<i>Odontella</i>
										<i>Coscinodiscus</i>	<i>Nitzschia</i>
S7	24-12-2015	10.2	26 .8	69.4		6.0	11. 0	13.0		<i>Skeletonema</i>	<i>Thalassionema</i>
		18.5				8.5				<i>Coscinodiscus</i>	<i>Guinardia</i>
S8	25-12-2015	19.8	87 7. 0	39.6	16 14. 4	13.0	14. 0	12. 0	15.0	<i>Pleurosigma</i>	<i>Nitzschia</i>
										<i>Guinardia</i>	<i>Thalassiosira</i>
		448.4		827.0		13.5		13.5		<i>Thalassiosira</i>	<i>Thalassiosira</i>
										<i>Rhodomonas</i>	<i>Rhodomonas</i>
										<i>Teleaulax</i>	<i>Skeletonema</i>
										<i>Skeletonema</i>	<i>Amphora</i>
S9	25-12-2015	608.2		506.0		21.0		21.0		<i>Thalassiosira</i>	<i>Thalassiosira</i>
										<i>Skeletonema</i>	<i>Skeletonema</i>
										<i>Cyclotella</i>	<i>Cyclotella</i>
										<i>Rhodomonas</i>	<i>Amphora</i>

Table 4.15.10: Range and average of phytoplankton at different stations off Savitri during March 2016

Station	Date	Cell count				Total genera				Major genera	
		(no x 10 ³ Cells/ l)				(nos.)					
		S		B		S		B		S	B
		Min	Max	Min	Max	Min	Max	Min	Max		
Avg		Avg		Avg		Avg		Avg			
S1	29-3-2016	89.2		35.2		13.0		8.0		<i>Trichodesmus</i>	<i>Cylindrotheca</i>
										<i>Cylindrotheca</i>	<i>Skeletonema</i>
										<i>Gymnodinium</i>	<i>Nitzschia</i>
										<i>Prorocentrum</i>	<i>Navicula</i>
S2	29-3-2016	75.0		27.0		13.0		11.0		<i>Prorocentrum</i>	<i>Cylindrotheca</i>
										<i>Pseudo-nitzschia</i>	
										<i>Trichodesmus</i>	<i>Trichodesmus</i>
										<i>Gymnodinium</i>	<i>Ditylum</i>
S3	29-3-2016	106.0		61.8		17.0		23.0		<i>Prorocentrum</i>	<i>Cylindrotheca</i>
										<i>Thalassiosira</i>	<i>Guinardia</i>
										<i>Trichodesmus</i>	<i>Thalassiosira</i>
										<i>Cylindrotheca</i>	<i>Coscinodiscus</i>
S4	29-3-2016	93. 4	149. 4	92. 6	99.2	21.0	21.0	17. 0	18.0	<i>Thalassiosira</i>	<i>Skeletonema</i>
										<i>Cylindrotheca</i>	<i>Cylindrotheca</i>
										<i>Navicula</i>	<i>Odontella</i>
										<i>Cyclotella</i>	<i>Cyclotella</i>
S7	30-3-2016	49. 2	60.4	47. 2	70.8	16.0	16.0	15. 0	15.0	<i>Coscinodiscus</i>	<i>Coscinodiscus</i>
										<i>Thalassiosira</i>	<i>Cyclotella</i>
										<i>Cyclotella</i>	<i>Thalassionema</i>
										<i>Skeletonema</i>	<i>Thalassiosira</i>
S8	31-3-2016	26. 6	59.0	31. 8	45.2	11.0	14.0	13. 0	15.0	<i>Cylindrotheca</i>	<i>Coscinodiscus</i>
										<i>Navicula</i>	<i>Cylindrotheca</i>
										<i>Thalassiosira</i>	<i>Cyclotella</i>
										<i>Coscinodiscus</i>	<i>Thalassiosira</i>
S9	31-3-2016	47. 8	145. 6	129.2		13.0	18.0	19.0		<i>Cylindrotheca</i>	<i>Skeletonema</i>
										<i>Skeletonema</i>	<i>Cylindrotheca</i>
										<i>Melosira</i>	<i>Dactyliosolen</i>
										<i>Coscinodiscus</i>	<i>Melosira</i>

Table 4.15.11: Percentage composition of phytoplankton population at different station off Savitri during December 2015

Name of the genera	S1	S2	S3	S4	S5	S6	S7	S8	S9	Total Avg.
<i>Achnanthes</i>	-	-	-	-			-	-	0.2	<0.1
<i>Amphidinium</i>	-	-	-	-			-	<0.1	-	<0.1
<i>Amphiprora</i>		1.6		0.1			0.2	0.2	3.6	0.8
<i>Amphora</i>	0.5	4.8	0.5	19.6			0.9	0.8	7.4	4.9
<i>Aulacoseira</i>	6.4	-	-	-			-	-	-	0.9
<i>Campylodiscus</i>	-	-	-	-			-	0.5	4.3	0.7
<i>Carteria</i>	-	1.6	-	-			-	-	-	0.2
<i>Cerataulina</i>	-	-	-	-			0.2	-	-	<0.1
<i>Chaetoceros</i>	35	3.2	-	-			-	-	-	5.4
<i>Chlorogonium</i>	-	-	-	-			-	-	0.5	<0.1
<i>Cocconeis</i>	5.4	6.4	9.3	1.4			-	<0.1	3.2	3.7
<i>Coscinodiscus</i>	2.0	1.6	18.5	13.2			5.1	0.3	0.7	5.9
<i>Cyclotella</i>	0.5	1.9	-	1.3			2.2	<0.1	7.9	2.0
<i>Dactyliosolen</i>	-	-	4.6	-			-	-	-	0.7
<i>Ditylum</i>	-	0.2	-	-			-	-	-	<0.1
<i>Dityocha</i>	0.5	0.3	0.5	1.6			-	-	-	0.4
<i>Euglina</i>	-	3.2	-	-			-	-	0.2	0.5
<i>Fragillaria</i>	-	-	-	-			-	-	0.5	<0.1
<i>Gomphonema</i>	-	-	-	-			-	-	1.3	0.2
<i>Gramatophora</i>	-	-	-	1.3			-	-	-	0.2
<i>Guinardia</i>	3.4	1.6	4.6	6.5			12.7	0.2	0.9	4.3
<i>Gymnodinium</i>	-	11.1	4.6	2.6			2.0	<0.1	0.4	3.0
<i>Gyrodinium</i>	-	0.2		1.4			-	0.2	-	0.3
<i>Gyrosigma</i>	-	0.2	0.5				-	<0.1	-	0.1
<i>Karenia</i>	-	-	-	-			-	-	0.2	<0.1
<i>Kathodinium</i>	0.5	-	-	-			-	-	-	<0.1
<i>Lithodesmium</i>	-	-	-	9.1			-	-	-	1.3
<i>Lyngbya</i>	0.5	-	-	-			-	-	-	<0.1
<i>Melosira</i>	-	-	-	1.3			-	<0.1	2.2	0.5
<i>Navicula</i>	5.4	8.0	9.3	2.6			8.0	<0.1	2.9	5.2
<i>Nematodium</i>	1.5	-	-	-			-	-	-	0.2
<i>Nitzschia</i>	34.5	25.5	13.9	6.5			12.0	0.3	3.9	13.8
<i>Odontella</i>	0.5	-	4.6	5.6			-	-	-	1.5
<i>Peridiniella</i>		1.6					<0.1			0.2
<i>Peridinium</i>	0.5	-	-	-			-	-	-	<0.1
<i>Phacus</i>	0.5	-	-	-			-	-	-	<0.1
<i>Pinnularia</i>	-	-	-	-			-	-	<0.1	<0.1
<i>Plagioselmis</i>	-	3.2	-	-			-	-	-	0.5
<i>Pleurosigma</i>	0.5		-	2.2			6.6	<0.1	1.1	1.5
<i>Preperidinium</i>	-	-	-	-			0.2	-	-	<0.1
<i>Prorocentrum</i>	2.0	0.2	-	-			<0.1	-	-	0.3
<i>Rhizosolenia</i>	-	0.2	5.1	1.7			-	-	-	1.0
<i>Rhodomonas</i>	-	13	-	-			6.7	18.9	3.2	5.9
<i>Scrippseihella</i>	-	0.2	-	-			-	-	-	<0.1
<i>Skeletonema</i>	-	0.8	-	-			8.0	4.2	14.5	3.9
<i>Surirella</i>	-	0.2	0.5	0.3			-	0.8	3.2	0.7
<i>Synedra</i>	-	3.2	5.1	1.4			2.0	-	-	1.7
<i>Teleaulax</i>	-	3.2	4.6	-			8.0	4.2	-	2.9
<i>Tetraselmis</i>	-	-	-	-			-	0.2	-	<0.1

<i>Thalassionema</i>	-	-	-	3.9			16.1	<0.1	-	2.9
<i>Thalassiosira</i>		1.6	13.9	7.8			8.7	68.8	37.3	19.7
<i>Thalassiothrix</i>	-	-	-	4.2			-	-	-	0.6
<i>Torodinium</i>	0.5	1.6	-	-			-	-	-	0.3
<i>Trachynius</i>	-	0.2	-	0.3			-	-	-	<0.1
<i>Triceratium</i>	-	-	-	1.4			0.2			0.2
<i>Unknown Diatom</i>		0.2		1.3					0.4	0.3
<i>Warnowia</i>	-	-	-	1.3			-	-	-	0.2
Total	100	100	100	100			100	100	100	100

Table 4.15.12: Percentage composition of phytoplankton population at different stations off Savitri during March 2016

Genera name	S1	S2	S3	S4	S5	S6	S7	S8	S9	Total%
<i>Alexandrium</i>	0.32			<0.1			-	-	-	<0.1
<i>Amphiprora</i>	-	-	-	1.89			-	-	-	0.27
<i>Amphora</i>		1.96	0.12	<0.1			-	1.23	-	0.48
<i>Ankistrodesmus</i>	-	-	-	-			2.29	-	-	0.33
<i>Cerataulina</i>		-	-	-				1.23		0.18
<i>Ceratium</i>	0.16	-	-	-			-	0.12	1.24	0.22
<i>Chaetoceros</i>	-	-	-	-			0.72	3.69	-	0.63
<i>Coccconeis</i>	-	-	-	-			1.20	0.12	-	0.19
<i>Corethron</i>	-	-	1.19	0.97			0.26	0.12	-	0.36
<i>Coscinodiscus</i>	0.32	0.39	5.96	3.68			14.33	17.22	4.96	6.69
<i>Cosmarium</i>	-	-	-	-					0.12	<0.1
<i>Cyclotella</i>	-	2.16	3.81	7.36			12.8	11.0	3.72	5.86
<i>Cylindrotheca</i>	27.3	21.5	11.9	12.8			6.59	18.4	20.4	17.03
<i>Dactyliosolen</i>	1.61	-	2.38	<0.1			2.98	0.12	6.82	1.99
<i>Diploneis</i>	-	-	-	-			0.11	0.12	-	<0.1
<i>Ditylum</i>	-	3.92	2.50	1.98			2.41	-	-	1.54
<i>Dityocha</i>	-	-	-	-			<0.1	-	-	
<i>Gonyaulax</i>	-	-	-	<0.1			-	-	-	<0.1
<i>Guinardia</i>	4.82	-	4.77	0.97			3.47	-	0.68	2.10
<i>Gymnodinium</i>	9.65	5.88	2.38	<0.1			-	-	<0.1	2.58
<i>Gyrodinium</i>	0.16	-	0.24	<0.1			2.29	2.46	0.19	0.77
<i>Gyrosigma</i>	-	-	0.12	2.35			-	-	<0.1	0.36
<i>Lauderia</i>	-	-	-	-			-	1.23	-	0.18
<i>Leptocylindrus</i>	-	-	0.12	-			-	-	-	<0.1
<i>Licmophora</i>	-	-	-	1.84			-	-	-	0.26
<i>Lithodesmium</i>	-	-	1.19	-			--	1.23	-	0.35
<i>Mallomonas</i>	-	-	1.19	-			3.55	1.48	<0.1	0.90
<i>Melosira</i>	-	-	2.38	-				2.46	12.15	2.43
<i>Navicula</i>	3.38	0.20	1.31	9.66			6.30	7.50	4.34	4.67
<i>Nitzschia</i>	3.70	2.16		4.14			1.66	0.49	8.06	2.89
<i>Noctiluca</i>	-	-	0.12	-			-	0.12	-	<0.1
<i>Odontella</i>	-	-		5.52			-	-	-	0.79

<i>Peridinium</i>	1.61	2.16	0.12	2.30			-	1.23	0.19	1.09
<i>Plagioselmis</i>	-	-	-	0.92			-	1.23	0.62	0.40
<i>Pleurosigma</i>	1.61	1.96	4.77	2.02			0.40	2.83	0.68	2.04
<i>Prorocentrum</i>	6.43	33.33	19.1 9	5.06			0.11	1.23	4.40	9.97
<i>Protoperidinium</i>	-	0.20	-	-			-	0.25	-	<0.1
<i>Pseudo-nitzschia</i>	0.16	5.88	0.12	5.52			-	2.58	4.34	2.66
<i>Pyramimonas</i>	-	3.92	0.24	0.46			-	-	-	0.66
<i>Rhizosolenia</i>	-	-	1.19	2.76			2.29	-	0.62	0.98
<i>Skeletonema</i>	9.65	-	4.77	6.53			11.0	-	18.54	7.28
<i>Surirella</i>	-	-	2.50	<0.1			2.41	0.25	-	0.75
<i>Thalassionema</i>	1.61	2.16	2.62	2.39			10.32	8.61	2.67	4.34
<i>Thalassiosira</i>	-	-	14.3 0	14.5 9			7.51	9.84	3.10	7.05
<i>Thalassiothrix</i>	-	0.39	-	0.97			-	-	-	0.19
<i>Triceratium</i>			0.12	-			3.55	-	1.30	0.71
<i>Trichodesmium</i>	27	12	8.34	2.76			-	0.25	0.62	7.32
<i>Tropidoneis</i>	-	-	-				0.86	1.23	-	0.30
Total	100	100	100	100			100	100	100	100

Table 4.15.13: Range and average (parenthesis) of zooplankton at different stations off Savitri during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
S1 (23/12/2016)	0.1-0.9 (0.5)	0.04-9.5 (4.8)	3-7 (5)	Copepods (94.0), <i>Lucifer</i> sp. (2.6), chaetognaths (1.3), lamellibranchs (1.0), fish larvae(0.6), foraminiferans (0.3), gastropods (0.1), others (0.1).
S2 (23/12/2016)	0.7-0.9 (0.8)	3.7-7.3 (5.4)	9-9 (9)	Copepods (91.3), appendicularians (2.3), lamellibranchs (2.2), <i>Lucifer</i> sp. (1.7), chaetognaths (1.1), decapod larvae (0.8), polychaetes (0.2), fish larvae(0.2), medusae (0.1), others (0.1).
S3 (23/12/2016)	0.5-0.7 (0.6)	8.5-8.7 (8.6)	12-13 (13)	Copepods (76.9), decapod larvae (7.4), <i>Lucifer</i> sp. (6.1), chaetognaths (3.6), foraminiferans (3.0), lamellibranchs (1.8), gastropods (0.7), medusae (0.1), polychaetes (0.1),

				fish eggs (0.1), fish larvae(0.1), others (0.1).
S4 (23/12/2016)	0.6-2.5 (1.2)	2.5-8.9 (4.9)	8-14 (10)	copepods (93.1), decapod larvae (4.4), <i>Lucifer</i> sp. (1.2), chaetognaths (0.3), polychaetes (0.3), appendicularians (0.2), medusae (0.1), gastropods (0.1), fish eggs (0.1), fish larvae(0.1), others (0.1).
S5 (24/12/2016)	0.2-0.6 (0.4)	1.7-4.0 (2.9)	7-10 (9)	Copepods (87.2), decapod larvae (10.6), chaetognaths (0.7), polychaetes (0.6), <i>Lucifer</i> sp. (0.4), gastropods (0.1), appendicularians (0.1), fish larvae(0.1), others (0.2).
S6 (24/12/2016)	0.2-0.8 (0.5)	1.3-4.0 (2.6)	6-11 (9)	Copepods (96.0), decapod larvae (2.6), chaetognaths (0.4), gastropods (0.3), <i>Lucifer</i> sp. (0.2), fish larvae(0.2), lamellibranchs (0.1), others (0.2).
S7 (24/12/2016)	0.3	4.2	7	Copepods (95.3), decapod larvae (2.5), <i>Lucifer</i> sp. (1.0), chaetognaths (0.9), fish larvae(0.2), others (0.1).
S8 (25/12/2016)	0.3-2.7 (1.2)	4.2-31.7 (13.3)	4-9 (7)	Copepods (96.1), decapod larvae (3.2), gastropods (0.3), lamellibranchs (0.2), chaetognaths (0.1), others (0.1).
S9 (25/12/2016)	0.3-0.9 (0.6)	0.6-0.8 (0.7)	5-5 (5)	Copepods (92.9), gastropods (4.5), decapod larvae (1.9), lamellibranchs (0.4), <i>Lucifer</i> sp. (0.2), others (0.1).

Table 4.15.14: Range and average (parenthesis) of zooplankton at different stations off Savitri during March 2016

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
S1 (29/03/2016)	1.9-3.2 (2.6)	14.5-21.7 (18.1)	(11)	Copepods (94.2), cladocerans (3.2), <i>Lucifer</i> sp. (1.1), decapod larvae (0.7), lamellibranchs (0.6), appendicularians (0.1), fish eggs (0.1), others (0.1).
S2 (29/03/2016)	7.6-50.0 (28.8)	31.6-137.6 (84.6)	10-11 (11)	Copepods (77.9), lamellibranchs (13.8), <i>Lucifer</i> sp. (4.6), decapod larvae (2.3), cladocerans (1.3), gastropods (0.1), fish larvae(0.1), others (0.1).
S3 (29/03/2016)	1.9-2.6 (2.3)	7.2-9.9 (8.5)	8-11 (10)	Copepods (92.6), decapod larvae (4.5), fish eggs (1.4), <i>Lucifer</i> sp. (0.9), ctenophores (0.3), chaetognaths (0.1), cladocerans (0.1), lamellibranchs (0.1), fish larvae(0.1), others (0.1).
S4 (29/03/2016)	2.4-16.8 (8.5)	11.0-36.3 (22.0)	8-11 (10)	Copepods (76.4), <i>Lucifer</i> sp. (16.1), lamellibranchs (4.2), decapod larvae (2.0), gastropods (0.7), chaetognaths (0.3), ctenophores (0.2), fish eggs (0.1), others (0.1).
S5 (30/03/2016)	0.6-8.2 (4.4)	8.3-21.6 (14.9)	8-11 (10)	Copepods (95.7), decapod larvae (3.5), chaetognaths (0.3), medusae (0.2), ctenophores (0.1), <i>Lucifer</i> sp. (0.1), lamellibranchs (0.1), fish eggs (0.1), others (0.1).
S6 (30/03/2016)	3.5-6.3 (4.9)	5.9-18.5 (12.2)	6-10 (8)	Copepods (92.3), chaetognaths (3.5), ctenophores (2.8), decapod larvae (1.1), <i>Lucifer</i> sp. (0.1), gastropods (0.1), fish eggs (0.1), others (0.1).
S7 (30/03/2016)	0.3-3.8 (2.1)	1.7-20.2 (10.9)	8-9 (9)	Copepods (97.1), chaetognaths (2.4), decapod larvae (0.3), others (0.1).
S8 (31/03/2016)	0.4-5.7 (3.4)	11.4-22.0 (18.5)	4-8 (6)	Copepods (90.3), decapod larvae (5.1),

				gastropods (4.1), chaetognaths (0.5), <i>Lucifer</i> sp. (0.1), others (0.1).
S9 (31/03/2016)	(2.7)	(24.2)	(7)	Copepods (89.8), gastropods (6.7), decapod larvae (3.4), chaetognaths (0.1), others (0.1).

Table 4.15.15: Abundance of zooplanktons off Savitri during December 2015

Faunal groups	S1	S2	S3	S4	S5	S6	S7	S8	S9
Foraminiferans	+	-	+	-	-	-	-	+	-
Siphonophores	-	-	+	+	-	-	-	-	-
Medusae	+	+	+	+	+	+	+	+	-
Ctenophores	-	-	-	+	-	+	-	+	-
Chaetognaths	+	+	+	+	+	+	+	+	-
Polychaetes	-	+	+	+	+	+	+	+	-
Copepods	+	+	+	+	+	+	+	+	+
Cumaceans	-	-	-	+	-	-	-	-	-
Amphipods	-	-	-	+	+	+	-	+	-
<i>Lucifer</i> sp.	+	+	+	+	+	+	+	+	+
Decapod larvae	-	+	+	+	+	+	+	+	+
Stomatopods	-	-	-	+	-	-	-	-	-
Gastropods	+	-	+	+	+	+	-	+	+
Lamellibranchs	+	+	+	+	-	+	-	+	+
Appendicularians	+	+	+	+	+	+	-	-	-
Fish Eggs	-	+	+	+	-	-	-	-	-
Fish Larvae	+	+	+	+	+	+	+	+	-
Isopods	-	-	-	-	+	-	-	+	-
<i>Acetes</i> sp.	-	-	-	+	-	-	-	-	-
Pycnogonids	-	-	+	-	-	-	-	-	-

Table 4.15.16: Abundance of zooplanktons off Savitri during March 2016

Faunal groups	S1	S2	S3	S4	S5	S6	S7	S8	S9
Foraminiferans	-	-	-	+	-	-	-	-	-
Siphonophores	-	+	-	+	-	-	-	-	-
Medusae	+	-	-	+	+	-	+	-	-
Ctenophores	-	+	+	+	+	+	-	-	-
Chaetognaths	+	+	+	+	+	+	+	+	+
Polychaetes	+	+	+	+	+	-	-	-	-
Cladocerans	+	+	+	-	-	-	-	-	-
Copepods	+	+	+	+	+	+	+	+	+
Amphipods	-	-	-	+	-	-	-	-	-
<i>Lucifer</i> sp.	+	+	+	+	+	+	-	+	-
Decapod larvae	+	+	+	+	+	+	+	+	+
Stomatopods	-	-	-	+	+	+	-	-	-
Gastropods	+	+	+	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+	+	+	-
Appendicularians	+	+	-	-	-	-	-	-	-
Fish Eggs	+	+	+	+	+	+	+	+	+
Fish Larvae	-	+	+	+	+	+	+	+	-
Pycnogonids	-	-	+	-	-	-	-	-	-

Table 4.15.17: Range and average of macrofauna off Savitri during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
S1	3.00	4.50	3.30	550	5125	2587	1	4	2
S2	1.40	2.70	2.00	400	850	656	1	4	3
S3	0.02	1.70	1.00	50	175	100	1	3	2
S4	0.02	1.10	0.30	25	75	56	1	2	1
S5	0.02	0.05	0.04	25	75	50	1	1	1
S6	0.01	0.20	0.10	25	50	31	1	1	1
S7	1.30	6.30	3.00	700	1050	863	2	4	3
S8	3.90	11.10	7.00	775	5250	2269	2	5	4
S9	6.80	19.90	14.00	3700	9700	6956	4	5	5
Overall	0.01	19.90	3.42	25	9700	1508	1	5	2
Premonsoon March 2016									
S1	1.10	43.30	27.90	400	800	594	1	3	2
S2	0.10	0.10	0.10	75	175	119	1	1	1
S3	1.00	9.00	3.50	525	1675	975	2	2	2
S4	0.10	1.30	0.60	25	225	106	1	4	2
S5	1.50	8.40	5.30	1050	1825	1487	3	6	4
S6	0.30	3.80	2.10	75	150	106	2	4	3
S7	0.00	7.00	2.40	0	675	269	0	2	1
S8	0.00	0.03	0.01	0	50	13	0	1	1
S9	0.50	5.10	1.80	25	200	81	1	2	1
Overall	0.00	43.30	4.86	0	1825	417	0	6	2

Table 4.15.18: Percentage composition of macrofauna off Savitri during December 2015

Phylum	Groups	Stations									Average
		S1	S2	S3	S4	S5	S6	S7	S8	S9	
Annelida	Polychaeta	99.07	93.30	88.00	22.81	100.00	100.00	32.60	77.96	35.94	58.28
Arthropoda	Tanaidacea	0.00	0.00	0.00	0.00	0.00	0.00	3.60	16.26	52.82	30.03
Arthropoda	Amphipoda	0.23	2.89	6.00	66.67	0.00	0.00	57.31	1.67	8.81	8.95
Arthropoda	Isopoda	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.07	1.15
Arthropoda	Brachyura	0.00	0.00	0.00	0.00	0.00	0.00	6.50	1.37	0.00	0.64
Arthropoda	Cumacea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94	0.00	0.32
Arthropoda	Insect larvae	0.23	2.89	0.00	10.53	0.00	0.00	0.00	0.00	0.00	0.23
Arthropoda	Caridean shrimp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.18
Arthropoda	Decapoda larvae	0.23	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
Chordata	Fish larvae	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
Mollusca	Pelecypoda	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
Sipuncula	Sipuncula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.04

Table 4.15.19: Percentage composition of macrofauna off Savitri during March 2016

Phylum	Groups	Stations									Avg
		S1	S2	S3	S4	S5	S6	S7	S8	S9	
Annelida	Polychaeta	90.57	100.00	92.92	41.51	58.92	32.63	92.94	100.00	92.59	75.01
Arthropoda	Amphipoda	1.01	0.00	1.33	35.85	16.50	20.00	2.23	0.00	7.41	9.47
Arthropoda	Tanaidacea	0.00	0.00	0.00	0.00	9.82	20.00	0.00	0.00	0.00	4.81
Arthropoda	Mysida	0.00	0.00	0.00	11.32	2.13	13.68	4.83	0.00	0.00	1.88
Echiura	Echiura	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
Mollusca	Gastropoda	0.00	0.00	0.00	0.00	8.42	0.00	0.00	0.00	0.00	3.72
Mollusca	Pelecypoda	1.01	0.00	1.33	11.32	1.40	13.68	0.00	0.00	0.00	1.71
Platyhelminthes	Turbellaria	0.00	0.00	0.00	0.00	2.81	0.00	0.00	0.00	0.00	1.24
Sipuncula	Sipuncula	0.00	0.00	4.41	0.00	0.00	0.00	0.00	0.00	0.00	1.07

Table 4.15.20: Station-wise distribution of meiofauna parameters in Savitri

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon December 2015									
S1	257.43	482.77	370.1	368	837	602	3	4	4
S2	487.22	563.9	525.56	318	463	391	5	6	6
S3	216.38	329.44	272.91	357	398	377	2	5	4
S4	114.56	182.24	148.4	269	501	385	4	7	6
S5	No collection								
S6	No collection								
S7	31.65	42.65	37.15	48	52	50	1	3	2
S8	0	70.12	35.06	0	201	100	0	7	4
S9	55.14	130.98	93.06	47	313	180	3	5	4
Premonsoon March 2016									
S1	74.8	157.42	116.11	35	255	145	2	3	3
S2	105.46	225.96	165.71	99	140	120	2	5	4
S3	68.74	100.8	84.77	71	139	105	2	5	4
S4	222.33	280.47	251.4	395	515	455	7	7	7
S5	No collection								
S6	No collection								
S7	22.16	45.68	33.92	28	45	37	2	3	3
S8	4.26	7.82	6.04	21	105	63	2	3	3
S9	9.12	246.84	127.98	7	134	71	1	4	3

Table 4.15.21: Percentage composition of meiofauna off Savitri during December 2015

Groups	S1	S2	S3	S4	S5	S6	S7	S8	S9	Average
Bivalves	0.00	0.00	0.00	0.19	No collection	No collection	0.00	0.00	0.00	0.04
Cnidarians	0.00	6.99	0.00	0.00			0.00	0.00	0.00	1.26
Copepods	0.12	1.94	5.85	12.69			17.86	14.79	22.83	6.90
Foraminiferans	26.60	37.86	14.81	5.87			0.00	11.27	0.00	19.03
Gastropelichs	0.00	0.00	0.00	3.98			0.00	0.00	0.00	0.74
Insects	0.00	0.00	0.19	0.00			0.00	0.00	4.33	0.42
Kinorhynchs	0.00	0.00	0.00	0.00			0.00	7.75	1.97	0.56
Nauplius	0.00	0.00	0.00	0.00			0.00	18.31	1.97	1.09
Nematodes	72.70	49.13	79.14	74.24			82.14	29.58	53.94	66.26
Nemerteans	0.00	0.97	0.00	0.00			0.00	0.00	0.00	0.18
Oligochaetes	0.00	0.00	0.00	0.00			0.00	3.52	0.00	0.18
Polychaetes	0.59	3.11	0.00	3.03			0.00	14.79	14.96	3.36

Table 4.15.22: Percentage composition of meiofauna off Savitri during March 2016

Groups	S1	S2	S3	S4	S5	S6	S7	S8	S9	Average
Bivalves	2.44	0.00	0.00	0.78	No collection	No collection	0.00	0.00	0.00	0.73
Foraminiferans	19.51	15.43	30.41	8.26			0.00	61.76	5.00	15.25
Harpacticoids	0.00	0.62	0.68	9.81			0.00	0.00	0.00	4.72
Insects	0.00	0.00	0.00	0.00			59.62	14.71	1.00	3.05
Nauplius	0.00	0.00	0.00	19.63			0.00	0.00	0.00	9.15
Nematodes	75.61	83.33	67.57	43.46			30.77	23.53	84.00	57.01
Ostracods	0.00	0.00	0.00	6.54			0.00	0.00	10.00	3.78
Phoronids	0.00	0.00	0.00	0.00			9.62	0.00	0.00	0.36
Polychaetes	2.44	0.62	0.68	11.53			0.00	0.00	0.00	5.88
Turbellarians	0.00	0.00	0.68	0.00			0.00	0.00	0.00	0.07

Table 4.16.1: Water quality off Vashishti estuary during December 2015

Parameter	Level	VS1	VS2	VS3	VS4			VS5			VS6		
		Avg*	Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	25.0	24.0	25.5	24.5	27.5	25.7	26.5	28.0	27.3	25.0	28.0	26.5
	B	25.5	23.5	25.0	24.0	26.5	25.5	27.0	27.5	27.3	25.5	27.5	26.5
		(26.0)	(25.0)	(23.0)	(16.0)	(30.0)	(23.7)	(27.5)	(29.0)	(28.3)	(27.0)	(28.5)	(27.8)
SS(mg/l)	S	116	44	116	21	24	23	26	28	27	13	17	15
	B	143	44	75	22	26	24	26	29	28	18	22	20
Turbidity(NTU)	S	2.2	11.0	11.0	8.4	18.5	15.3	21.4	25.7	23.5	2.7	3.3	3.0
	B	3.2	9.3	11.0	12.4	21.0	16.6	31.0	34.0	32.5	1.7	4.0	2.9
pH	S	8.1	8.1	8.1	7.9	8.3	8.0	7.6	7.7	7.7	7.5	7.6	7.6
	B	8.1	8.1	8.1	7.8	8.0	7.9	7.7	7.8	7.8	7.5	7.6	7.6
Salinity(ppt)	S	35.1	35.0	35.1	31.5	35.0	33.3	25.8	28.3	27.1	14.6	20.6	17.6
	B	35.2	35.1	35.2	31.6	35.3	33.3	26.9	32.7	29.8	14.8	21.1	18.0
DO (mg/l)	S	7.0	7.0	6.7	5.8	6.7	6.3	4.4	5.4	4.9	4.8	5.8	5.3
	B	6.7	6.7	6.4	5.8	6.7	6.2	5.7	5.7	5.7	3.5	3.5	3.5
BOD (mg/l)	S	2.2	3.2	2.5	1.3	3.2	2.2	1.3	2.2	1.7	1.9	2.9	2.4
	B	2.6	3.4	2.5	1.3	3.5	2.4	2.2	2.2	2.2	1.0	1.9	1.5
PO ₄ ³⁻ -P (μmol/l)	S	0.9	0.9	0.8	0.8	1.2	1.0	1.2	1.5	1.4	1.0	1.3	1.2
	B	0.8	1.1	1.8	0.9	1.4	1.0	1.6	1.6	1.6	1.4	1.6	1.5
TP(μmol/l)	S	2.4	2.6	2.6	3.0	3.3	3.1	1.8	1.9	1.8	2.2	2.6	2.4
	B	2.8	3.0	2.9	2.9	3.2	3.1	2.4	2.5	2.4	2.4	2.8	2.6
NO ₃ ⁻ -N (μmol/l)	S	8.5	8.1	8.4	5.2	14.0	10.8	20.7	29.0	24.9	25.7	26.9	26.3
	B	8.4	8.7	6.3	6.9	14.0	10.8	14.7	33.1	23.9	28.4	29.5	29.0
NO ₂ ⁻ -N(μmol/l)	S	0.6	0.7	0.6	2.8	3.9	3.3	4.8	6.6	5.7	14.3	15.3	14.8
	B	0.7	0.9	0.8	2.4	3.7	2.9	1.6	5.8	3.7	14.0	16.4	15.2
NH ₄ ⁺ -N(μmol/l)	S	1.6	1.5	2.0	1.0	2.2	1.7	1.7	2.7	2.2	2.7	3.9	3.3
	B	1.5	2.4	2.2	1.2	2.3	1.8	2.4	2.5	2.5	3.5	4.4	3.9
TN(μmol/l)	S	21.9	23.5	32.9	18.9	28.5	23.7	38.3	45.8	42.0	57.3	63.8	60.5
	B	18.7	27.0	32.4	24.3	32.6	28.4	29.6	46.5	38.0	62.6	68.2	65.4
PHc(μg/l)	1m	3.5	5.3	5.1	4.4	8.5	6.5	5.9	8.9	7.4	2.7	3.7	3.2
Phenol (μg/l)	S	61.4	75.6	84.0	75.4	80.9	78.1	66.7	77.8	72.2	74.4	79.9	77.2

*Average of two readings

Air temperature given in parenthesis

Table 4.16.1 (Contd 1)

Parameter	Level	VS7			VS8			VS9			VS10		
		Min	Max	Avg									
Temperature(°C)	S	25.5	28.0	26.8	24.5	25.0	24.8	24.0	25.5	25.0	25.0	27.0	26.0
	B	26.0	27.5	26.8	25.0	25.5	25.3	24.5	25.5	24.8	25.5	26.5	26.0
		(27.0)	(29.0)	(28.0)	(24.0)	(30.0)	(27.0)	(16.0)	(30.0)	(23.8)	(24.5)	(30.0)	(27.3)
SS(mg/l)	S	17	25	21	18	20	19	32	32	32	25	32	28
	B	24	26	25	16	21	19	34	37	35	21	30	25
Turbidity(NTU)	S	4.4	5.4	4.9	3.2	4.4	3.8	8.3	21.4	17.4	1.4	1.6	1.5
	B	2.5	3.3	2.9	1.7	2.4	2.0	8.4	21.2	17.0	1.5	2.5	2.0
pH	S	7.4	7.4	7.4	6.9	7.0	7.0	6.9	7.4	7.1	7.0	7.4	7.2
	B	7.4	7.4	7.4	6.9	7.0	7.0	6.8	7.3	7.0	6.9	7.3	7.1
Salinity(ppt)	S	11.7	14.3	13.0	8.1	14.3	11.2	3.1	5.6	4.6	0.8	3.9	2.4
	B	12.0	14.4	13.2	10.9	15.3	13.1	4.8	7.2	6.2	0.6	4.0	2.3
DO (mg/l)	S	3.2	3.2	3.2	5.8	6.4	6.1	2.6	3.8	3.3	5.7	6.7	6.2
	B	3.2	3.5	3.4	4.8	5.8	5.3	2.6	4.2	3.4	5.4	6.3	5.9
BOD (mg/l)	S	1.6	2.2	1.9	4.5	4.8	4.6	2.6	12.7	7.6	3.2	3.8	3.5
	B	1.6	2.6	2.1	2.9	3.8	3.4	2.9	15.4	9.1	3.2	4.8	4.0
PO ₄ ³⁻ (μmol/l)	S	1.1	1.2	1.1	1.6	2.1	1.9	0.5	1.9	1.0	1.5	1.8	1.6
	B	1.4	1.5	1.5	1.8	2.2	2.0	0.7	2.2	1.0	1.2	2.0	1.6
TP(μmol/l)	S	2.3	2.7	2.5	2.2	2.4	2.3	2.6	2.8	2.7	3.0	3.1	3.1
	B	2.0	2.4	2.2	2.7	2.8	2.7	3.1	3.0	3.1	3.2	3.3	3.3
NO ₃ ⁻ -N (μmol/l)	S	28.1	38.4	33.3	30.7	31.4	31.0	24.6	37.4	31.4	19.1	21.7	20.4
	B	35.8	39.0	37.4	29.3	35.5	32.4	26.2	34.5	30.7	15.3	17.0	16.1
NO ₂ ⁻ -N(μmol/l)	S	10.1	17.3	13.7	5.6	5.8	5.7	3.6	6.6	5.4	2.5	5.0	3.8
	B	12.7	17.8	15.3	6.0	7.4	6.7	5.4	6.5	6.2	2.9	5.9	4.4
NH ₄ ⁺ -N(μmol/l)	S	5.5	19.7	12.6	8.5	18.5	13.5	14.8	26.7	20.7	3.6	24.5	14.1
	B	4.8	13.3	9.0	11.6	23.4	17.5	8.8	28.0	23.7	8.0	25.0	16.5
TN(μmol/l)	S	22.4	25.6	24.0	56.8	69.8	63.3	56.4	76.3	66.3	35.8	68.2	52.0
	B	23.8	26.8	25.3	59.3	78.3	68.8	49.3	81.7	65.5	38.2	64.6	51.4
PHc(μg/l)	1m	4.7	5.1	4.9	5.1	5.6	5.4	7.5	15.8	11.7	2.7	4.4	3.6
Phenol (μg/l)	S	61.9	71.5	66.7	66.7	73.4	70.1	138.7	145.7	142.2	83.8	93.6	88.7

Air temperature given in parenthesis

Table 4.16.2: Water quality off Vashishti estuary during March 2016

Parameter	Level	VS1	VS2	VS3	VS4			VS5			VS6		
		Avg*	Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	28.5	28.5	28.5	27.5	29.5	28.5	27.0	28.5	27.8	29.0	29.0	29.0
	B	28.5	28.0	28.0	27.0	29.0	28.1	27.5	28.5	28.0	28.5	29.0	29.0
		(29.5)	(29.0)	(29.0)	(22.0)	(32.0)	(29.0)	(26.5)	(30.5)	(28.5)	(30.5)	(34.5)	(32.5)
SS(mg/l)	S	72	80	126	114	124	119	140	148	144	14	20	17
	B	105	98	148	123	127	125	152	156	154	18	26	22
Turbidity(NTU)	S	2.6	8.4	15.8	9.5	25.0	17.6	33.1	34.8	34.0	1.2	4.2	2.7
	B	3.8	11.1	24.0	18.3	28.9	20.5	21.5	25.7	23.6	2.5	3.6	3.1
pH	S	8.0	8.0	8.0	7.9	8.0	7.9	7.6	7.8	7.7	7.5	7.6	7.6
	B	8.0	8.0	8.1	7.9	8.0	7.9	7.7	7.8	7.8	7.6	7.6	7.6
Salinity(ppt)	S	35.5	35.9	35.9	30.4	35.7	33.6	26.4	32.8	29.6	21.3	23.6	22.4
	B	35.8	36.0	36.2	31.0	35.8	34.2	27.5	32.2	29.8	20.9	25.2	23.1
DO (mg/l)	S	6.4	6.1	5.8	5.7	6.3	6.0	4.8	5.7	5.2	4.4	5.4	4.9
	B	6.2	5.8	5.4	5.7	6.3	6.0	4.8	6.0	5.4	5.4	5.7	5.5
BOD (mg/l)	S	4.5	4.8	3.2	1.5	3.1	2.3	2.9	3.2	3.0	1.9	2.5	2.2
	B	3.2	4.2	2.6	1.9	2.8	2.3	2.5	3.8	3.2	2.5	2.5	2.5
PO ₄ ³⁻ -P (μmol/l)	S	0.7	0.6	0.9	0.3	1.1	0.8	0.4	1.4	0.9	0.3	1.1	0.7
	B	1.6	1.4	1.8	0.7	1.1	1.0	0.8	1.0	0.9	0.4	1.1	0.8
TP(μmol/l)	S	1.9	1.8	1.6	1.8	1.9	1.9	1.5	1.5	1.5	0.7	1.8	1.3
	B	3.0	2.7	2.6	1.7	2.2	1.9	1.3	2.4	1.8	0.9	2.2	1.6
NO ₃ ⁻ -N (μmol/l)	S	3.8	4.1	4.4	0.7	10.4	5.1	10.0	23.6	16.8	26.8	29.5	28.2
	B	4.3	5.1	5.8	1.7	7.3	4.5	9.9	20.5	15.2	16.6	22.6	19.6
NO ₂ ⁻ -N(μmol/l)	S	1.9	2.0	2.5	1.8	5.8	3.8	3.5	4.0	3.8	9.6	10.0	9.8
	B	2.4	2.6	2.3	2.1	5.1	3.3	4.4	4.5	4.4	9.2	9.3	9.3
NH ₄ ⁺ -N(μmol/l)	S	0.8	0.9	5.8	0.6	1.6	0.9	1.5	2.0	1.8	1.1	1.4	1.2
	B	0.8	0.9	6.3	0.8	1.5	1.1	1.4	1.7	1.5	1.2	1.2	1.2
TN(μmol/l)	S	36.8	37.2	42.0	31.9	36.0	34.0	78.3	78.3	78.3	40.4	43.6	42.0
	B	41.1	39.2	43.5	28.9	41.9	35.4	87.9	113.5	100.7	39.5	47.5	43.5
PHc(μg/l)	1m	2.8	5.1	4.9	4.8	6.8	5.8	5.6	7.0	6.3	3.9	6.5	5.2
Phenol (μg/l)	S	45.1	48.7	54.7	89.3	91.4	90.4	82.6	86.2	84.4	79.4	82.6	81.0

*Average of two readings

Air temperature given in parenthesis

Table 4.16.2 (Contd 1)

Parameter	Level	VS7			VS8			VS9			VS10		
		Min	Max	Avg									
Temperature(°C)	S	29.5	30.0	29.8	28.0	29.0	28.5	27.5	31.5	28.5	28.0	29.0	28.5
	B	29.0	30.0	29.0	27.5	28.0	27.5	26.8	30.0	28.2	28.5	29.3	28.9
		(33.5)	(34.5)	(34.0)	(28.0)	(30.0)	(29.0)	(26.5)	(32.0)	(29.5)	(28.0)	(30.0)	(29.0)
SS(mg/l)	S	18	26	22	19	23	21	158	160	159	25	32	28
	B	24	26	25	18	24	21	181	186	184	20	31	25
Turbidity(NTU)	S	1.9	5.0	3.5	1.5	5.2	3.4	8.0	21.6	15.3	1.3	1.8	1.6
	B	2.8	3.2	3.0	2.3	3.6	3.0	8.3	2.1	15.3	2.8	3.3	3.0
pH	S	7.4	7.4	7.4	6.9	7.0	7.0	6.9	7.0	7.0	7.0	7.1	7.1
	B	7.4	7.4	7.4	6.9	7.0	7.0	6.9	7.0	7.0	7.0	7.1	7.1
Salinity(ppt)	S	17.2	18.9	18.0	8.2	12.9	10.6	5.1	11.4	9.0	6.1	6.6	6.3
	B	17.7	19.1	18.4	9.6	14.2	11.9	7.6	13.1	10.6	5.7	7.8	6.8
DO (mg/l)	S	5.4	5.7	5.5	3.5	3.8	3.6	1.9	4.4	3.2	4.1	4.8	4.4
	B	4.4	4.8	4.6	3.2	3.8	3.5	1.6	5.1	3.4	4.1	4.4	4.3
BOD (mg/l)	S	1.9	2.5	2.2	1.6	2.2	1.9	3.2	12.6	7.9	2.2	2.9	2.5
	B	1.9	2.2	2.1	1.6	2.2	1.9	2.8	15.4	9.1	2.5	2.9	2.7
PO ₄ ³⁻ -P (μmol/l)	S	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.7	0.4	0.2	0.4	0.3
	B	0.4	0.6	0.5	0.2	0.4	0.3	0.2	0.4	0.3	0.2	0.4	0.3
TP(μmol/l)	S	0.9	1.2	1.1	1.0	1.1	1.1	0.7	1.0	0.9	1.0	1.2	1.1
	B	1.0	1.5	1.2	1.0	1.2	1.1	0.5	0.6	0.5	1.0	1.2	1.1
NO ₃ ⁻ -N (μmol/l)	S	19.3	25.6	22.4	25.7	27.9	26.8	18.7	30.5	27.3	14.9	16.2	15.6
	B	9.7	21.2	15.5	21.8	32.4	27.1	27.7	30.9	29.6	11.2	16.7	13.9
NO ₂ ⁻ -N(μmol/l)	S	8.3	12.2	10.3	6.1	6.8	6.4	4.2	9.8	7.9	5.0	7.0	6.0
	B	9.0	12.3	10.7	6.4	6.9	6.6	7.0	9.5	8.7	5.2	7.3	6.2
NH ₄ ⁺ -N(μmol/l)	S	1.2	3.3	2.2	14.0	22.0	18.0	9.7	22.0	16.8	14.4	22.5	18.5
	B	1.1	2.4	1.7	11.5	22.3	16.9	10.7	30.2	20.2	22.5	26.4	24.4
TN(μmol/l)	S	35.6	38.2	36.9	49.7	64.7	57.2	50.3	72.0	61.2	81.4	89.6	85.5
	B	39.5	40.4	39.9	46.7	61.6	54.1	56.0	95.9	76.0	81.4	96.8	89.1
PHC(μg/l)	1m	5.2	5.6	5.4	4.0	5.6	4.8	8.4	12.0	10.2	3.3	4.7	4.0
Phenol (μg/l)	S	67.7	78.0	72.8	91.2	91.9	91.6	190.1	197.0	194.0	76.1	82.3	79.2

Air temperature given in parenthesis

Table 4.16.3: Sediment quality off Vashishti estuary during December 2015

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
VS1	1.5	89.9	8.6	7.1	156	732	7.7	38	62	89	89	0.12	0.14	12.2	2.5	1617	0.2
VS2	11.2	78.8	10.0	7.5	158	970	9.1	50	66	121	102	0.15	0.10	14.1	2.4	1572	0.9
VS3	73.6	17.4	9.0	5.3	280	2103	17.2	114	92	307	239	0.18	0.12	9.7	0.8	1014	1.1
VS4	37.5	46.3	16.2	6.3	283	2428	16.5	105	91	226	210	0.08	0.06	8.0	0.7	1095	5.1
VS5	80.2	11.0	8.8	7.7	270	2090	15.3	95	83	217	177	0.22	0.13	9.3	1.4	1545	6.4
VS6	9.8	60.3	29.9	9.0	205	1647	12.8	81	84	232	144	0.18	0.41	11.0	2.8	1240	4.0
VS7	19.2	57.4	23.4	8.3	182	1354	10.9	68	74	287	128	0.13	0.17	12.6	2.9	1740	5.1
VS8	32.0	56.2	11.8	7.9	207	1297	12.5	87	81	303	157	0.14	0.11	10.0	2.3	1362	1.9
VS9	9.5	69.1	21.4	9.0	215	1084	11.1	74	89	465	147	0.27	0.22	19.8	4.1	1622	8.2
VS10	7.8	75.4	16.8	8.2	201	1157	11.4	78	83	258	147	0.21	0.23	12.6	3.5	1380	6.0

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.16.4: Sediment quality off Vashishti estuary during March 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
VS1	0.1	98.7	1.2	6.8	126	599	6.6	45	77	105	83	0.17	0.14	8.1	2.0	1518	0.4
VS2	5.0	77.6	17.4	6.1	113	734	6.2	43	73	106	76	0.21	0.10	7.9	2.6	1807	0.2
VS3	6.3	87.9	5.8	6.1	162	1220	10.8	78	89	218	140	0.20	0.12	7.3	1.6	1091	0.4
VS4	96.0	1.2	2.8	6.2	183	1777	13.1	95	98	221	160	0.21	0.06	5.3	0.2	928	4.4
VS5	92.8	5.2	2.0	6.9	196	1552	12.7	84	97	265	156	0.24	0.13	6.4	1.8	1330	1.7
VS6	58.2	35.4	6.4	6.1	192	2092	11.9	91	92	203	152	0.14	0.15	3.1	0.3	1529	1.6
VS7	98.6	0.8	0.6	7.1	183	2068	11.6	81	88	183	130	0.17	0.10	3.8	0.2	1493	3.1
VS8	10.7	82.9	6.4	6.7	184	1417	11.2	76	87	247	145	0.15	0.11	2.9	0.5	712	3.9
VS9	25.7	65.1	9.2	7.2	151	962	9.9	75	94	297	132	0.17	0.41	16.6	1.8	1230	5.8
VS10	52.4	35.4	12.2	6.3	182	1328	11.7	88	100	266	166	0.19	0.17	4.4	1.2	1730	7.2

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.16.5: Microbial counts (CFU/ml) in water off Vashishti estuary during 2015- 2016

Type of Bacteria	Population in water (CFU/ml)									
	Postmonsoon (December 2015)					Premonsoon (March 2016)				
	VS1	VS2	VS3	VS4		VS1	VS2	VS3	VS4	
				Eb	FI				Eb	FI
TVC	1.2 x10 ³	0.2 x10 ³	1.5 x10 ³	5 x10 ³	4 x10 ³	3x10 ³	1.7x10 ³	2.5x10 ³	3.2x10 ³	2.8x10 ³
TC	ND	ND	120	ND	150	10	ND	20	170	30
FC	ND	ND	100	ND	100	10	ND	10	120	20
ECLO	ND	ND	100	ND	100	10	ND	10	60	10
SHLO	ND	ND	ND	ND	ND	130	ND	ND	10	10
SLO	ND	ND	ND	ND	ND	130	ND	ND	10	50
PKLO	ND	ND	ND	100	200	ND	ND	ND	40	90
VLO	20	ND	250	100	ND	90	40	80	160	40
VPLO	ND	ND	ND	ND	ND	70	10	30	90	10
VCL0	20	ND	250	100	ND	20	30	50	40	30
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	20	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.16.5 (Contd 1)

Table of Bacteria	Population in water (CFU/ml)											
	Postmonsoon (December 2015)					Premonsoon (March 2016)						
	VS5	VS6		VS7		VS8		VS5		VS6	VS7	VS8
		Eb	FI	Eb	FI	Eb	FI	Eb	FI			
TVC	2 x10 ³	4 x10 ³	6 x10 ³	3 x10 ³	5 x10 ³	6 x10 ³	8 x10 ³	4.5 x10 ³	8.0 x10 ³	5.1x10 ³	8x10 ³	13.6x10 ³
TC	80	ND	ND	ND	20	ND	10	30	50	736	520	5812
FC	70	ND	ND	ND	10	ND	10	20	40	508	112	1956
ECLO	50	ND	ND	ND	10	ND	10	20	30	244	236	3800
SHLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	20	40	ND	ND	ND	ND	ND	ND	ND	ND	ND
VLO	ND	300	200	20	80	20	80	ND	80	ND	50	1236
VPLO	ND	ND	ND	ND	10	ND	ND	ND	ND	ND	28	ND
VCL0	ND	300	200	20	80	20	80	ND	80	ND	22	1236
PALO	ND	ND	ND	ND	ND	ND	30	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.16.5 (Contd 2)

Table of Bacteria	Population in water (CFU/ml)							
	Postmonsoon (December 2015)				Premonsoon (March 2016)			
	VS9		VS10	VS9		VS10		
	Eb	Fl		Eb	Fl	Eb	Fl	
TVC			4×10^3	4.8×10^3	4.2×10^3	5.7×10^3	5.2×10^3	
TC	40	140	30	210	140	70	130	
FC	10	120	20	150	80	30	90	
ECLO	10	120	20	110	50	10	70	
SHLO	ND	ND	ND	10	ND	20	30	
SLO	ND	ND	ND	30	ND	20	30	
PKLO	ND	ND	50	ND	ND	ND	ND	
VLO	80	ND	30	100	80	50	60	
VPLO	ND	ND	ND	40	40	10	10	
VCLO	80	ND	30	60	40	40	50	
PALO	ND	ND	40	ND	ND	ND	ND	
SFLO	ND	ND	ND	ND	ND	ND	ND	

ND – Below Detectable Level

Table 4.16.6: Microbial counts (CFU/g) in sediment off Vashishti estuary during 2015-2016

Type of Bacteria	Population in sediment (CFU/g)							
	Postmonsoon (December 2015)				Premonsoon (March 2016)			
	VS1	VS2	VS3	VS4	VS1	VS2	VS3	VS4
TVC	400 x10 ³	100 x10 ³	1700 x10 ³	200 x10 ³	190x10 ³	210x10 ³	150x10 ³	390x10 ³
TC	ND	ND	ND	ND	ND	ND	ND	10
FC	ND	ND	ND	ND	ND	ND	ND	20
ECLO	ND	ND	ND	ND	ND	ND	ND	10
SHLO	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	200	ND	ND	ND	ND	ND
VLO	400	ND	3000	ND	20	20	10	90
VPLO	ND	ND	ND	ND	20	20	10	30
VCLO	ND	ND	ND	ND	ND	ND	ND	60
PALO	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.16.6 (Contd 1)

Type of Bacteria	Population in sediment (CFU/g)							
	Postmonsoon (December 2015)			Premonsoon (March 2016)				
	VS5	VS6	VS7	VS5	VS6	VS7		
TVC	280 x10 ³	80 x10 ³	120 x10 ³	250x10 ³	5.1x10 ³	8x10 ³		
TC	200	ND	ND	40	736	520		
FC	100	ND	ND	20	508	112		
ECLO	100	ND	ND	20	244	236		
SHLO	ND	ND	ND	ND	ND	ND		
SLO	ND	ND	ND	ND	ND	ND		
PKLO	ND	ND	ND	ND	ND	ND		
VLO	100	ND	ND	10	ND	50		
VPLO	ND	ND	ND	ND	ND	28		
VCLO	100	ND	ND	10	ND	22		
PALO	ND	ND	ND	ND	ND	ND		
SFLO	ND	ND	ND	ND	ND	ND		

ND – Below Detectable Level

Table 4.16.6 (Contd 2)

Type of Bacteria	Population in sediment (CFU/g)					
	Postmonsoon (December 2015)			Premonsoon (March 2016)		
	VS8	VS9	VS10	VS8	VS9	VS10
TVC	300 x10 ³	120 x10 ³	400 x10 ³	13.6x10 ³	390x10 ³	620x10 ³
TC	ND	400	ND	5812	70	30
FC	ND	300	ND	1956	50	20
ECLO	ND	100	ND	3800	20	20
SHLO	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	ND	ND	ND
VLO	ND	700	ND	1236	30	40
VPLO	ND	ND	ND	ND	ND	10
VCLO	ND	700	ND	1236	30	30
PALO	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.16.7: Range and average of phytopigments at different stations off Vashishti estuary during December 2015.

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg
VS1	28-12-2015	1.0	1.3	0.8	0.8	0.4	0.7	0.7	0.8	1.8	2.8	1.1	1.2
		1.2		0.8		0.5		0.7		2.3		1.1	
VS2	28-12-2015	1.5	1.5	0.7	0.8	0.4	0.5	1.3	1.4	2.7	3.6	0.5	0.6
		1.5		0.8		0.5		1.4		3.2		0.6	
VS3	28-12-2015	1.0	1.1	0.8	0.9	0.6	0.7	0.9	1.1	1.6	1.6	0.8	0.9
		1.0		0.8		0.7		1.0		1.6		0.8	
VS4	28-12-2015	0.9	1.9	0.8	1.7	0.4	0.9	0.5	1.6	1.4	3.6	0.6	3.3
		1.4		1.3		0.6		0.9		2.2		1.5	
VS5	29-12-2015	1.3	2.1	1.5	1.5	0.4	0.5	0.4	1.3	2.5	5.0	1.1	3.9
		1.7		1.5		0.5		0.8		3.8		2.5	
VS9	30-12-2015	0.7	3.0	0.5	1.4	0.6	1.2	0.6	1.5	0.8	3.3	0.6	1.3
		1.6		0.8		0.8		1.0		1.9		0.9	
VS10	30-12-2015	5.9	6.4	2.0	5.9	0.9	1.2	0.3	0.7	5.5	6.9	6.3	8.3
		6.1		4.0		1.0		0.5		6.2		7.3	

Table 4.16.8: Range and average of phytopigments at different stations off Vashishti estuary during March 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
VS1	23-03-2016	1.9	2.0	0.7	0.8	0.3	0.4	0.9	1.0	4.6	6.2	0.8	0.9
		1.9		0.8		0.4		0.9		5.4		0.8	
VS2	23-03-2016	2.0	2.2	0.8	0.8	0.4	0.6	0.8	0.8	3.6	4.7	1.0	1.1
		2.1		0.8		0.5		0.8		4.2		1.0	
VS3	23-03-2016	1.5	1.5	1.7	2.0	0.6	0.7	2.4	2.7	2.2	2.5	0.7	0.7
		1.5		1.9		0.6		2.6		2.3		0.7	
VS4	22-03-2016	1.4	2.4	1.4	1.9	0.6	2.0	1.0	4.3	1.0	3.8	0.4	1.3
		1.9		1.6		1.0		2.1		2.2		0.9	
VS5	24-03-2016	1.1	1.7	1.5	1.6	0.5	2.1	2.7	3.8	0.8	1.9	0.4	0.6
		1.4		1.5		1.3		3.3		1.4		0.5	
VS6	24-03-2016	1.6	1.9	1.2	1.5	0.5	0.6	1.5	1.5	2.9	3.3	0.8	1.0
		1.7		1.3		0.6		1.5		3.1		0.9	
VS7	24-03-2016	2.5	4.2	1.5	1.5	0.6	1.0	0.6	0.8	2.5	7.0	1.9	2.4
		3.4		1.5		0.8		0.7		4.8		2.2	
VS8	25-03-2016	2.1	4.0	1.4	1.5	0.4	1.1	0.5	0.6	3.8	5.9	2.3	2.5
		3.0		1.4		0.7		0.6		4.8		2.4	
VS9	25-03-2016	2.2	12.5	1.2	5.3	0.2	3.1	0.7	2.8	1.1	63.2	1.1	2.4
		5.6		2.6		0.7		1.6		18.8		1.8	
VS10	25-03-2016	2.1	4.3	2.5	6.2	1.2	1.4	1.2	1.4	1.8	3.0	2.1	4.5
		3.2		4.4		1.3		1.3		2.4		3.3	

Table 4.16.9: Range and average of phytoplankton at different stations off Vashishti estuary during December 2015

Station	Date	Cell count				Total genera				Major genera	
		(no x 10 ³ Cells/ l)				(nos.)					
		S		B		S		B		S	B
		Min	Max	Min	Max	Min	Max	Min	Max		
Avg		Avg		Avg		Avg		Avg			
VS1	28-12-2015	14.8		14.6		10.0		9.0		<i>Mallomonas</i>	<i>Trichodesmium</i>
										<i>Trichodesmium</i>	<i>Prorocentrum</i>
										<i>Ceratium</i>	<i>Amphora</i>
										<i>Cylindrotheca</i>	<i>Navicula</i>
VS2	28-12-2015	18.8		28.8		10.0		12.0		<i>Mallomonas</i>	<i>Thalassiosira</i>
										<i>Navicula</i>	<i>Navicula</i>
										<i>Nitzschia</i>	<i>Asterionella</i>
										<i>Ceratium</i>	<i>Nitzschia</i>
VS3	28-12-2015	14.6		12.8		9.0		9.0		<i>Prorocentrum</i>	<i>Ceratium</i>
										<i>Dinophysis</i>	<i>Navicula</i>
										<i>Navicula</i>	<i>Surirella</i>
										<i>Nitzschia</i>	<i>Mallomonas</i>
VS4	28-12-2015	20.6	24.6	15.0	23.0	11.0	11.0	10.0	13.0	<i>Navicula</i>	<i>Thalassionema</i>
		22.6		19.0		11.0		11.5		<i>Thalassiosira</i>	<i>Cyclotella</i>
										<i>Prorocentrum</i>	<i>Mallomonas</i>
										<i>Thalassionema</i>	<i>Coscinodiscus</i>
VS5	29-12-2015	14.8	16.8	17.6	24.6	8.0	14.0	9.0	11.0	<i>Thalassionema</i>	<i>Thalassionema</i>
		15.8		21.1		11.0		10.0		<i>Thalassiosira</i>	<i>Thalassiosira</i>
										<i>Navicula</i>	<i>Guinardia</i>
										<i>Amphora</i>	<i>Prorocentrum</i>
VS9	30-12-2015	16.8	28.6	32.8	35.6	10.0	11.0	12.0	12.0	<i>Thalassiosira</i>	<i>Thalassiosira</i>
		22.7		34.2		10.5		12.0		<i>Staurastrum</i>	<i>Cyclotella</i>
										<i>Cyclotella</i>	<i>Amphora</i>
										<i>Mallomonas</i>	<i>Coscinodiscus</i>
VS10	30-12-2015	36.2	152.4	65.4	119.2	12.0	15.0	16.0	18.0	<i>Cyclotella</i>	<i>Cyclotella</i>
		94.3		92.3		13.5		17.0		<i>Actinastrum</i>	<i>Aulacoseira</i>
										<i>Aulacoseira</i>	<i>Actinastrum</i>
										<i>Staurastrum</i>	<i>Coelastrum</i>

Table 4.16.10: Range and average of phytoplankton at different stations off Vashishti estuary during March 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B		S	B
		Min	Max	Min	Max	Min	Max	Min	Max		
		Avg		Avg		Avg		Avg			
VS1	23-03-2016	34.6		22.6		12.0		10.0		<i>Cylindrotheca</i>	<i>Coscinodiscus</i>
VS2	23-03-2016	19.6		15.4		11.0		9.0		<i>Prorocentrum</i>	<i>Guinardia</i>
VS3	23-03-2016	21.0		18.6		11.0		9.0		<i>Coscinodiscus</i>	<i>Cylindrotheca</i>
VS4	22-03-2016	24.8	31.2	13.0	19.0	9.0	12.0	9.0	10.0	<i>Gyrodinium</i>	<i>Prorocentrum</i>
		28.0		16.0		11		10		<i>Guinardia</i>	<i>Surirella</i>
VS5	24-03-2016	36.8	63.8	38.0	42.6	15.0	17.0	11.0	15.0	<i>Odontella</i>	<i>Cyclotella</i>
		50.3		40.3		16		13		<i>Cyclotella</i>	<i>Thalassiosira</i>
VS9	25-03-2016	62.8	75.0	61.2	68.8	13.0	15.0	11.0	12.0	<i>Gyrodinium</i>	<i>Melosira</i>
		68.9		65.0		14		12		<i>Asterionella</i>	<i>Skeletonema</i>
VS10	25-03-2016	61.0	80.4	51.6	128.6	15.0	16.0	13.0	21.0	<i>Staurastrum</i>	<i>Coscinodiscus</i>
		70.7		90.1		16		17		<i>Cyclotella</i>	<i>Cyclotella</i>
										<i>Thalassiosira</i>	<i>Cylindrotheca</i>

Table 4.16.11: Percentage composition of phytoplankton population at different station off Vashishti estuary during December 2015

Name of the genera	VS1	VS2	VS3	VS4	VS5	VS6	VS7	VS8	VS9	VS10	Total %.
Actinastrum	-	-	-	-	-				-	10.4	1.5
Alexandrium	0.7	-	-	-	2.7				-		0.5
Amphirora	-	-	-	-	-				1.5	0.3	0.3
Amphora	6.7			2.6	5.6				10.5	0.3	3.7
Anabaena	-	-	-	-	-				-	0.2	<0.1
Ankistrodesmus	-	-	-	-	-				-	1.4	0.2
Asterionella	-	8.3	-	-	-				-	-	1.2
Aulacoseira	-	-	-	-	-				0.3	6.7	1.0
Ceratium	6.7	4.2	15.0	-	2.7				1.5	0.5	4.4
Coelastrum	-	-	-	-					-	3.0	0.4
Coscinodiscus	0.7	4.2	0.7	8.6	2.2				4.5	0.2	3.0
Cosmarium	-	-	-	-	-				-	0.7	<0.1
Cyclotella	1.3	0.8	2.1	10.9	0.8	No collection	No collection	No collection	14.9	68.8	14.3
Cylindrotheca	7.4	4.2	-	2.1	2.7				-	-	2.3
Dactyliosolen	0.7	0.8	0.7	2.1	0.8				-	0.2	0.8
Dinophysis	0.7	0.4	14.3	-	0.3				-	0.2	2.3
Diploneis	-	-	-	4.3					-	<0.1	0.6
Ditylum	-	-	-	4.9	0.8				0.1	-	0.8
Dityocha	-	4.2		2.4					3.0	-	1.4
Eucampia	-	-	-	-	0.3				-	<0.1	<0.1
Gonyaulax	-	-	-	-	-				-	0.2	<0.1
Gramatophora	-	-	-	-	-				-	0.2	<0.1
Guinardia	0.7	-	-	-	8.1				-	0.3	1.3
Gyrosigma	-	-	-	-	-				0.3	0.3	<0.1
Mallomonas	13.4	16.7	7.9	10.7	-				4.6	0.3	7.7
Navicula	6.7	12.5	14.3	8.6	5.9				4.5	0.4	7.5
Nitzschia	6.7	8.3	7.1	2.6	2.7				1.8	0.5	4.3
Noctiluca	-	-	-	-	0.3				-	-	<0.1
Odontella		0.8	0.7	2.1	0.5				0.1	-	0.6
Pediastrum	-	-	-	-	-				1.5	-	0.2
Pleurosigma	-	-	-	-	-				0.1	0.2	<0.1
Prorocentrum	14.1	0.4	14.3	6.6	5.4				1.5	0.2	6.1
Protoperidinium	-	-	-	-	0.3				-	-	<0.1
Pseudo-nitzschia	-	-	-	-	-				0.3	0.5	0.1
Pyramimonas	6.7	0.4	-	2.1	-				-	-	1.3
Rhizosolenia	-	4.2	-	0.2	0.3				1.5	-	0.9
Staurastrum	-	-	-	-	-				8.2	1.7	1.4
Surirella		8.3	14.3	0.2	2.7				3.0	<0.1	4.1
Synedra	-	-	-	-	-				-	<0.1	<0.1
Thalassionema	-	0.4	1.4	11.3	26.9				3.0	0.5	6.2
Thalassiosira	-	16.7	7.1	10.7	22.6				31.4	1.4	12.8
Thalassiothrix	-	4.2	-	2.6	0.3				1.5	0.2	1.2
Triceratium	-	-	-	4.3	5.4				0.1	0.2	1.4
Trichodesmium	26.8	-	-	-	-				0.1	-	3.9
Total	100	100	100	100	100				100	100	100

Table 4.16.12: Percentage composition of phytoplankton population at different station off Vashishti estuary during March 2016

Name of the genera	VS1	VS2	VS3	VS4	VS5	VS6	VS7	VS8	VS9	VS10	Total %	
Actinastrum										2.49	0.36	
Alexandrium	3.50	5.71			0.33				1.49		1.58	
Amphora	0.35		0.51		2.21					1.24	0.62	
Ankistrodesmus	-	-	-	-	-					0.62	<0.1	
Asterionella	-	-	-	-	-				8.22		1.17	
Aulacoseira	-	-	-	-	-				4.48	5.35	1.40	
Bellerochea	-	-	-	-	-					0.25	<0.1	
Ceratium		0.57							0.75	1.87	0.45	
Coscinodiscus	17.48	11.43	10.10	6.82	10.38				11.20	8.15	10.79	
Cyclotella	3.50		0.51	11.8 2	7.73				6.05	9.33	5.56	
Cylindrotheca	17.48	11.43	5.05		3.64				1.12	8.08	6.69	
Cymatosira			10.10								1.44	
Dactyliosolen	0.35	1.14	5.05	0.68	2.21				5.23		2.09	
Dinophysis					1.10						0.16	
Diploneis			5.05								0.72	
Ditylum	-	-	-	-	-				2.99		0.74	
Eucampia	-	-	-	-	-	No collection	No collection	No collection	0.75		0.42	
Gonyaulax	0.35	-	-	5.23	3.31				-	-	1.27	
Guinardia	13.99	12.57	5.56	11.5 9	2.21					-	1.99	6.84
Gymnodinium	-	-	-	-	1.10				1.49	1.99	0.66	
Gyrodinium	10.49	2.29	-	9.09	0.33				5.97	0.81	4.14	
Gyrosigma	-	-	-	-	3.31				-	1.87	0.74	
Leptocylindrus	-	1.14	-	-	-				0.75	0.62	0.36	
Lithodesmium	-	5.71	-	-	-					0.25	0.85	
Mallomonas	6.99	-	-	4.55	4.42				3.73	<0.1	2.82	
Melosira	-	-	-	6.82	1.10					3.67	1.66	
Navicula	3.50	-	25.25	4.77	8.94				2.39	3.79	6.95	
Nitzschia	-	0.57	5.56	5.23	5.74				0.15	5.04	3.18	
Odontella	-	-	-	9.09	-				1.57	1.24	1.70	
Peridinium	0.35	5.71	5.05	0.23	0.44				0.15	0.68	1.80	
Plagioselmis	-	-	-	-	-				0.15	1.24	0.20	
Pleurosigma	0.35	0.57	10.10	2.27	0.22				1.49	2.61	2.52	
Prorocentrum	13.99	22.86		0.91	8.83				-	1.24	6.83	
Protoperidinium	-	-	-	-	0.11				1.49	<0.1	0.24	
Pseudo-nitzschia	-	-	1.01	--	3.42				-	1.87	0.90	
Rhizosolenia		12.00	10.10		2.32				0.15	3.73	4.04	
Skeletonema	-	-	-	-	-				14.19	12.94	3.88	
Staurastrum	-	-	-	-	-				5.97	4.73	1.53	
Surirella	-	-	0.51	11.3 6	4.42				<0.1	2.49	2.69	
Thalassionema	3.85	0.57	0.51	2.73	6.62				5.30	3.17	3.25	
Thalassiosira		5.71		6.82	7.73				9.71	3.11	4.73	
Thalassiothrix	-	-	-	-	-					0.12	<0.1	
Triceratium	3.50				3.42				1.49	2.05	1.49	
Trichodesmium	-	-	-	-	-				1.49	1.24	0.39	
Total	100	100	100	100	100				100	100	100	

Table 4.16.13: Range and average (parenthesis) of zooplankton at different stations off Vashishti estuary during December 2015

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
VS1 (28/12/2015)	0.8-0.8 (0.8)	22.2-30.0 (26.1)	7-10 (9)	Copepods (99.6), chaetognaths (0.2), decapod larvae (0.1), others (0.1).
VS2 (28/12/2015)	0.6-0.9 (0.8)	15.8-18.6 (17.2)	8-9 (9)	Copepods (98.4), chaetognaths (0.3), decapod larvae (0.7), fish eggs (0.3), fish larvae(0.2), others (0.1).
VS3 (28/12/2015)	0.5-0.8 (0.7)	9.2-10.9 (10.0)	12-13 (13)	Copepods (95.7), decapod larvae (1.8), fish eggs (1.7), chaetognaths (0.2), fish larvae(0.1), <i>Lucifer</i> sp. (0.1), lamellibranchs (0.1), gastropods (0.1), appendicularians (0.1), others (0.1).
VS4 (29/12/2015)	0.5-2.5 (1.2)	0.6-19.8 (8.2)	8-15 (11)	Copepods (96.7), chaetognaths (0.4), decapod larvae (1.2), gastropods (0.1), lamellibranchs (0.4), appendicularians (0.1), fish eggs (0.9), fish larvae (0.1), others (0.1)
VS5 (29/12/2015)	0.6-1.1 (0.9)	0.7-3.5 (2.1)	4-6 (5)	Copepods (98.4), fish larvae(0.8), decapod larvae (0.3), appendicularians (0.2), medusae (0.1), gastropods (0.1), others (0.1).
VS8 (30/12/2015)	0.5-0.9 (0.7)	0.05-0.4 (0.2)	4-7 (6)	Copepods (87.7), gastropods (7.7), amphipods (2.6), fish larvae(0.8), polychaetes (0.4), lamellibranchs (0.4), medusae (0.3), others (0.1).
VS9 (30/12/2015)	0.1-1.1 (0.6)	0.05-0.3 (0.1)	3-9 (6)	Copepods (81.4), gastropods (8.3), polychaetes (3.3), cladocerans (2.2), amphipods (1.4), fish larvae(1.2), decapod larvae (0.7), foraminifera (0.6), lamellibranchs (0.5), medusae (0.2), fish eggs (0.1), isopods (0.1), others (0.1).

VS10 (30/12/2015)	0.8-1.3 (1.1)	0.03-0.2 (0.09)	5-7 (6)	Copepods (87.0), gastropods (5.7), decapod larvae (2.6), polychaetes (1.5), lamellibranchs (1.1), cladocerans (1.0), fish larvae(0.5), medusae (0.5), others (0.1).
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Table 4.16.14: Range and average (parenthesis) of zooplankton at different stations off Vashishti estuary during March 2016

Station (Date)	Biomass (ml/100m ³)	Population (no x 10 ³ /100m ³)	Total Groups (no)	Major group (%)
VS1 (23/03/2016)	2.3-2.4 (2.4)	15.9-23.8 (19.9)	7-8 (8)	Copepods (97.3), fish eggs (1.6), chaetognaths (1.0), decapod larvae (0.1), others (0.1).
VS2 (23/03/2016)	3.7-3.8 (3.8)	20.8-28.5 (24.7)	(10)	Copepods (96.7), chaetognaths (2.3), fish eggs (0.5), gastropods (0.2), decapod larvae (0.1), lamellibranchs (0.1), others (0.1).
VS3 (23/03/2016)	2.7-4.1 (3.4)	12.5-19.5 (16.0)	(12)	Copepods (81.9), chaetognaths (9.0), gastropods (4.0), lamellibranchs (3.6), <i>Lucifer</i> sp. (1.2), decapod larvae (0.2), polychaetes (0.1), others (0.1).
VS4 (22/03/2016)	1.8-14.3 (5.8)	6.9-22.3 (15.6)	6-11 (9)	Copepods (91.4), chaetognaths (5.7), decapod larvae (0.9), <i>Lucifer</i> sp. (0.7), ctenophores (0.6), gastropods (0.4), lamellibranchs (0.3), others (0.1).
VS5 (24/03/2016)	3.2-6.4 (4.8)	21.3-21.8 (21.6)	9-11 (10)	Copepods (95.5), chaetognaths (2.3), <i>Lucifer</i> sp. (0.7), decapod larvae (0.6), fish eggs (0.4), ctenophores (0.2), gastropods (0.1), lamellibranchs (0.1), others (0.1).
VS6 (24/03/2016)	3.4-3.5 (3.5)	16.0-21.7 (18.8)	7-8 (8)	Copepods (97.8), decapod larvae (1.3), <i>Lucifer</i> sp. (0.7), medusae (0.1), gastropods (0.1), lamellibranchs (0.1), others (0.1).
VS7 (24/03/2016)	0.5-2.3 (1.4)	6.8-18.0 (12.4)	6-7 (7)	Copepods (98.8), <i>Lucifer</i> sp. (1.0), decapod larvae (0.1),

				gastropods (0.1), others (0.1).
VS8 (25/03/2016)	0.3-0.9 (0.6)	1.6-2.3 (1.9)	5-8 (7)	Copepods (52.9), gastropods (45.5), decapod larvae (0.8), amphipods (0.2), lamellibranchs (0.2), fish larvae(0.2), <i>Lucifer</i> sp. (0.1), others (0.1).
VS9 (25/03/2016)	0.6-9.1 (2.2)	0.08-7.2 (2.6)	2-8 (6)	Copepods (74.4), gastropods (24.1), decapod larvae (0.5), lamellibranchs (0.5), amphipods (0.2), <i>Lucifer</i> sp. (0.2), medusae (0.1), others (0.1).
VS10 (25/03/2016)	1.2-1.3 (1.3)	0.053-0.055 (0.054)	4-5 (5)	Gastropods (51.1), lamellibranchs (24.4), decapod larvae (13.9), copepods (7.6), cumaceans (3.7), others (0.1).

Table 4.16.15: Abundance of Zooplanktons off Vashishti estuary during December 2015

Faunal groups	VS1	VS2	VS3	VS4	VS5	VS8	VS9	VS 10
Foraminiferans	+	+	+	+	-	+	-	-
Siphonophores	-	-	-	+	-	-	-	-
Medusae	+	-	+	+	+	+	+	+
Chaetognaths	+	+	+	+	-	-	-	-
Polychaetes	-	-	-	+	-	+	+	+
Cladocerans	-	-	-	-	-	+	-	+
Ostracods	-	-	-	-	-	-	-	-
Copepods	+	+	+	+	+	+	+	+
Cumaceans	-	-	+	-	-	-	-	-
Amphipods	-	-	+	+	-	-	+	-
<i>Lucifer</i> sp.	+	+	+	+	-	-	-	-
Decapod larvae	+	+	+	+	+	+	-	+
Heteropods	-	-	+	+	-	-	-	-
Gastropods	+	-	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+	+	+
Appendicularians	-	+	+	+	+	-	-	-
Fish Eggs	+	+	+	+	+	+	-	-
Fish Larvae	+	+	+	+	+	+	+	+
Isopods	-	+	-	-	-	+	-	-
Acetes sp.	-	+	-	-	-	-	-	-
Others	-	-	-	-	+	-	-	-

Table 4.16.16: Abundance of zooplanktons off Vashishti estuary during March 2016

Faunal groups	VS1	VS2	VS3	VS4	VS5	VS6	VS7	VS8	VS9	VS10
Foraminiferans	-	+	+	+	-	+	-	-	+	-
Siphonophores	-	+	-	-	-	-	-	-	-	-
Medusae	-	-	+	+	+	+	+	+	+	-
Ctenophores	-	-	+	+	+	-	-	-	-	-
Chaetognaths	+	+	+	+	+	-	-	-	-	-
Polychaetes	+	+	+	+	+	-	-	-	+	-
Ostracods	-	-	-	-	+	-	-	-	-	-
Copepods	+	+	+	+	+	+	+	+	+	+
Amphipods	-	-	+	+	-	-	+	+	+	+
Lucifer sp.	+	+	+	+	+	+	+	+	+	-
Decapod larvae	+	+	+	+	+	+	+	+	+	+
Stomatopods	-	-	+	-	-	-	-	-	-	-
Gastropods	+	+	+	+	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+	+	+	+	+
Appendicularians	-	+	-	+	-	-	-	-	-	-
Fish Eggs	+	+	+	+	+	+	-	-	+	-
Fish Larvae	-	-	+	+	+	+	+	+	+	-

Table 4.16.17: Range and average of macrofauna off Vashishti estuary during Postmonsoon and Premonsoon 2015 - 2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (December 2015)									
VS1	0.03	0.20	0.10	50	175	100	1	2	1
VS2	0.20	5.70	1.90	175	875	419	1	2	2
VS3	0.70	6.20	3.10	125	225	175	1	2	2
VS4	0.04	0.10	0.10	25	125	81	1	1	1
VS5	0.03	0.20	0.10	25	325	144	1	1	1
VS6	0.60	1.10	1.00	125	700	444	1	1	1
VS7	5.30	40.20	15.10	1475	9425	5250	2	3	2
VS8	0.03	9.20	4.90	75	5975	4263	2	5	4
VS9	24.90	37.80	36.00	1100	2300	1425	2	3	3
VS10	2.80	15.00	9.20	700	1700	1250	3	3	3
Overall	0.03	40.20	7.15	25	9425	1355	1	5	2
Premonsoon (March 2016)									
VS1	0.50	5.70	3.50	225	900	419	2	3	2
VS2	0.10	4.90	1.90	125	225	175	1	2	2
VS3	0.20	12.80	7.50	200	3150	1850	1	4	3
VS4	13.80	90.70	36.60	200	475	331	2	3	3
VS5	0.20	32.70	15.70	175	1575	938	1	6	4
VS6	4.80	21.50	12.10	300	5925	2544	4	5	5
VS7	3.40	13.90	7.90	275	5350	2425	2	6	6
VS8	6.40	116.30	43.10	1300	10825	6076	2	3	3
VS9	9.70	46.20	23.30	3375	4850	4175	3	4	4
VS10	5.30	28.50	18.10	550	3825	2206	3	4	4
Overall	0.10	116.30	16.97	125	10825	2114	1	6	4

Table 4.16.18: Percentage composition of macrofauna off Vashishti estuary during December 2015

Phylum	Groups	Stations										Average
		VS 1	VS 2	VS 3	VS 4	VS 5	VS 6	VS 7	VS 8	VS 9	VS 10	
Annelida	Polychaeta	94.00	86.43	71.43	100.00	100.00	100.00	11.42	5.60	7.93	16.48	17.41
Arthropoda	Amphipoda	0.00	0.00	0.00	0.00	0.00	0.00	84.32	94.04	2.18	74.00	69.84
Arthropoda	Cumacea	0.00	0.00	0.00	0.00	0.00	0.00	3.80	0.00	0.00	0.00	1.16
Chordata	Fish larvae	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.04
Echinodermata	Ophiuroidea	0.00	3.10	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.19
Mollusca	Pelecypoda	6.00	10.48	28.57	0.00	0.00	0.00	0.00	0.36	89.89	9.52	11.34

Table 4.16.19: Percentage composition of macrofauna off Vashishti estuary during March 2016

Phylum	Groups	Stations										Average
		VS1	VS2	VS3	VS4	VS5	VS6	VS7	VS8	VS9	VS10	
Platyhelminthes	Turbellaria	0.00	0.00	0.00	0.00	0.00	0.75	0.86	0.00	0.45	1.13	0.42
Arthropoda	Amphipoda	0.00	0.00	6.10	9.34	12.69	1.73	39.89	94.85	71.68	21.53	49.17
Annelida	Polychaeta	31.26	93.14	88.82	65.96	68.02	36.86	17.86	4.11	3.90	29.19	24.34
Mollusca	Pelecypoda	67.06	0.00	2.70	20.78	4.05	57.21	3.63	1.04	23.65	47.60	18.48
Arthropoda	Cumacea	0.00	0.00	0.00	0.00	0.00	2.71	36.37	0.00	0.00	0.00	6.18
Echinodermata	Ophiuroidea	0.00	0.00	2.38	0.00	10.66	0.75	0.53	0.00	0.00	0.00	0.82
Mollusca	Gastropoda	0.00	0.00	0.00	3.92	3.30	0.00	0.17	0.00	0.00	0.27	0.25
Chordata	Fish larvae	1.67	6.86	0.00	0.00	0.64	0.00	0.17	0.00	0.00	0.00	0.14
Arthropoda	Tanaidacea	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.09
Nemertea	Nemertea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.06
Arthropoda	Brachyura	0.00	0.00	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.27	0.05

Table 4.16.20: Station-wise distribution of meiofauna parameters in Vashishthi estuary

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (December 2015)									
VS1	512.32	547.8	530.06	863	970	916	3	7	5
VS2	164.65	626.83	395.74	272	752	512	8	10	9
VS3	103.54	503.98	303.76	253	1059	656	4	5	4.5
VS4	12.36	53.72	33.04	17	129	73	3	4	3.5
VS5	127.96	158.74	143.35	185	191	188	5	5	5
VS6	No collection								
VS7	No collection								
VS8	No collection								
VS9	886.24	968.36	927.3	810	893	851	6	9	7.5
VS10	119.54	140.98	130.26	85	96	91	4	5	4.5
Premonsoon (March 2016)									
VS1	19.7	426.86	223.28	21	692	357	2	5	3.5
VS2	116.38	140.08	128.23	120	191	156	2	3	2.5
VS3	12.36	18.66	15.51	8	91	50	2	2	2
VS4	151.94	185.28	168.61	307	512	410	5	7	6
VS5	17.65	18.85	18.25	23	24	23	2	3	2.5
VS6	No collection								
VS7	No collection								
VS8	No collection								
VS9	39.63	46.18	42.905	91	91	91	3	4	3.5
VS10	59.63	244.41	152.02	37	156	96	3	7	5

Table 4.16.21: Percentage composition of meiofauna off Vashishti estuary during December 2015

Groups	VS1	VS2	VS3	VS4	VS5	VS6	VS7	VS8	VS9	VS10	Average
Amphipods	0.00	0.00	0.00	0.00	0.00	No collection	No collection	No collection	0.42	0.00	0.11
Bivalves	0.39	0.39	1.08	0.00	0.00				1.33	0.00	0.89
Cladocerans	0.00	0.00	0.00	0.00	0.38				0.00	0.00	0.02
Foraminiferans	5.41	5.41	10.25	18.09	35.61				3.49	20.31	9.20
Halacaroids	0.00	0.00	0.00	0.00	0.00				0.42	0.00	0.13
Harpacticoids	1.16	1.16	1.19	6.38	0.38				13.05	0.00	4.34
Hydrozoans	0.00	0.00	0.00	0.00	0.00				0.00	0.00	1.19
Insects	0.00	0.00	0.00	0.00	0.00				1.33	28.13	1.13
Kinorhynchs	0.00	0.00	0.00	0.00	0.00				0.00	0.00	0.13
Nauplius	0.77	0.77	0.00	0.00	0.38				6.98	0.00	2.17
Nematodes	91.51	91.51	84.57	75.53	4.92				45.89	32.03	68.80
Nemerteans	0.00	0.00	0.00	0.00	0.00				0.00	0.00	0.11
Ostracods	0.39	0.39	0.00	0.00	0.00				0.00	0.00	0.11
Phoronids	0.00	0.00	0.00	0.00	0.00				0.00	3.91	0.11
Polychaetes	0.39	0.39	2.91	0.00	58.33				27.10	15.63	11.56

Table 4.16.22: Percentage composition of meiofauna off Vashishti estuary during March 2016

Groups	VS1	VS2	VS3	VS4	VS5	VS6	VS7	VS8	VS9	VS10	Average
Amphipods	0.00	0.00	0.00	0.22	0.00	No collection	No collection	No collection	1.04	5.49	0.48
Bivalves	0.00	0.00	0.00	0.22	0.00				0.00	0.00	0.07
Cladocerans	0.00	0.00	0.00	0.00	0.00				16.67	0.00	1.09
Foraminiferans	5.00	6.82	0.00	7.08	66.67				27.08	0.00	8.21
Gastrotrichs	0.00	0.00	0.00	1.11	0.00				0.00	0.00	0.34
Harpacticoids	1.00	0.00	1.43	9.51	0.00				0.00	21.98	4.72
Hydrozoans	0.00	2.27	0.00	0.00	0.00				0.00	0.00	0.34
Insects	0.00	90.91	0.00	0.00	0.00				0.00	17.58	1.09
Nauplius	0.00	0.00	0.00	1.11	0.00				0.00	10.99	1.03
Nematodes	93.00	0.00	97.14	80.53	30.30				50.00	32.97	81.05
Ostracods	0.00	0.00	0.00	0.00	3.03				0.00	5.49	0.41
Polychaetes	1.00	0.00	1.43	0.22	0.00				5.21	5.49	1.16

Table 4.17.1: Water quality off Jaigad during January 2016

Parameter	Level	J1	J2	J3	J4			J5			J6		
		Avg*	Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	28.5	28.5	28.0	27.0	27.0	27.0	25.5	27.5	26.8	27.0	27.0	27.0
	B	28.0	28.0	27.5	26.5	26.5	26.5	25.5	27.0	26.4	26.5	27.0	26.8
		(29.0)	(29.0)	(28.0)	(29.0)	(29.5)	(29.3)	(25.0)	(30.0)	(28.6)	(29.0)	(29.5)	(29.3)
SS(mg/l)	S	16	18	16	21	24	23	26	32	29	18	20	19
	B	17	16	15	28	33	31	29	35	32	19	19	19
Turbidity(NTU)	S	1.3	1.4	1.3	1.1	1.6	1.4	1.0	2.2	1.7	1.2	2.0	1.6
	B	1.6	1.1	1.8	1.0	1.6	1.3	1.0	2.3	1.6	1.6	1.7	1.6
pH	S	8.0	8.0	7.9	7.8	7.9	7.9	7.8	7.9	7.9	7.8	7.9	7.9
	B	8.1	8.1	8.0	7.8	7.9	7.9	7.7	7.9	7.8	7.9	7.9	7.9
Salinity(ppt)	S	35.5	35.3	35.3	31.9	32.3	32.1	30.9	35.0	33.6	27.2	27.9	27.5
	B	35.5	35.7	35.7	34.2	34.9	34.5	29.7	35.1	33.5	31.6	32.6	32.1
DO (mg/l)	S	6.7	6.7	6.8	6.3	6.7	6.5	5.7	7.3	6.2	6.0	6.7	6.3
	B	6.5	6.7	6.5	5.7	6.7	6.2	5.7	7.3	6.1	5.7	6.0	5.9
BOD (mg/l)	S	2.2	1.9	2.5	2.9	3.5	3.2	2.5	2.9	2.7	2.5	2.9	2.7
	B	1.3	2.5	1.0	1.0	1.3	1.1	2.5	2.9	2.7	0.6	3.2	1.9
PO ₄ ³⁻ -P (μmol/l)	S	0.4	0.4	0.6	0.6	0.6	0.6	0.2	1.5	0.7	0.2	0.2	0.2
	B	0.7	0.6	0.7	0.7	0.8	0.8	0.6	1.5	0.9	0.6	0.6	0.6
TP(μmol/l)	S	1.3	1.2	0.9	1.1	1.3	1.2	0.9	1.5	1.2	0.6	0.9	0.8
	B	1.5	1.5	1.0	0.9	1.0	0.9	0.8	1.8	1.3	0.8	0.9	0.9
NO ₃ ⁻ -N (μmol/l)	S	5.8	4.7	3.4	4.1	7.1	5.6	5.4	11.1	8.4	4.3	7.4	5.8
	B	4.2	3.8	2.7	5.5	6.0	5.8	4.8	9.5	6.8	4.6	8.9	6.8
NO ₂ ⁻ -N(μmol/l)	S	0.8	0.9	1.2	0.9	1.6	1.3	1.1	1.9	1.5	1.5	1.8	1.7
	B	0.8	0.8	1.0	1.4	1.4	1.4	1.0	1.9	1.5	1.9	2.2	2.0
NH ₄ ⁺ -N(μmol/l)	S	2.2	1.5	3.8	0.8	1.3	1.0	1.1	5.8	2.7	0.8	3.6	2.2
	B	2.0	3.9	3.3	1.4	2.9	2.2	0.5	3.0	1.9	1.7	2.0	1.8
TN(μmol/l)	S	13.9	10.6	17.7	15.8	17.8	16.8	23.7	33.4	28.5	16.9	19.3	18.1
	B	15.6	12.3	14.1	12.8	14.1	13.5	24.5	29.9	27.2	15.8	17.6	16.7
PHc(μg/l)	1m	3.2	1.8	2.6	2.8	7.1	5.0	5.0	16.4	10.7	1.2	1.9	1.6
Phenol (μg/l)	S	56.4	59.5	35.8	86.9	92.4	89.6	54.7	61.0	57.8	88.3	98.4	93.4

* Average of two readings

Air temperature given in parenthesis

Table 4.17.2: Water quality off Jaigad during March 2016

Parameter	Level	J1	J2	J3	J4			J5			J6		
		Avg*	Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	29.5	29.0	28.5	28.0	28.0	28.0	28.5	29.5	29.0	28.5	29.5	29.0
	B	29.0	28.5	28.0	28.5	28.5	28.5	28.0	29.5	28.6	28.0	29.0	28.5
		(29.5)	(29.5)	(29.0)	(25.0)	(29.5)	(29.3)	(25.0)	(35.0)	(30.1)	(28.5)	(31.0)	(29.8)
SS(mg/l)	S	20	17	18	23	27	25	32	36	33	22	25	24
	B	16	15	16	18	20	19	22	27	24	18	19	19
Turbidity(NTU)	S	1.4	1.2	1.2	0.6	0.7	0.6	0.7	1.2	0.8	0.5	0.7	0.6
	B	0.6	1.0	2.2	0.4	0.5	0.4	0.3	0.6	0.5	0.3	0.4	0.4
pH	S	8.1	8.1	8.1	7.9	8.0	8.0	7.9	8.0	8.0	7.9	8.0	8.0
	B	8.0	8.0	8.1	7.9	8.0	8.0	7.9	8.0	8.0	7.9	8.0	8.0
Salinity(ppt)	S	35.8	35.8	35.8	35.3	35.6	35.4	35.1	36.5	35.7	33.5	35.2	34.4
	B	35.7	35.8	35.8	35.5	35.8	35.6	35.3	36.4	35.8	34.2	35.4	34.8
DO (mg/l)	S	6.0	6.0	6.0	6.0	6.3	6.2	5.1	6.7	5.9	4.8	5.7	5.2
	B	6.0	5.7	6.0	5.1	5.7	5.4	5.4	6.7	5.9	4.8	6.0	5.4
BOD (mg/l)	S	2.5	2.5	2.2	2.9	2.9	2.9	2.2	2.9	2.5	2.2	2.9	2.5
	B	1.9	2.9	2.5	2.2	2.9	2.5	2.2	3.2	2.7	2.5	3.8	3.2
PO ₄ ³⁻ -P (μmol/l)	S	0.2	0.4	0.3	0.1	1.8	1.0	ND	1.8	0.3	0.1	0.1	0.1
	B	0.4	0.4	0.5	0.4	1.9	1.2	ND	0.5	0.2	ND	0.3	0.2
TP(μmol/l)	S	0.8	1.2	1.0	0.9	2.1	1.5	0.6	0.9	0.8	0.5	0.6	0.6
	B	1.1	1.2	1.0	1.1	2.9	2.0	0.8	0.9	0.9	0.6	0.6	0.6
NO ₃ ⁻ -N (μmol/l)	S	1.3	1.6	1.6	1.1	1.3	1.2	0.5	1.4	0.8	0.6	1.4	1.0
	B	1.2	2.6	1.2	0.8	1.1	0.9	0.4	1.2	0.9	0.2	1.2	0.7
NO ₂ ⁻ -N(μmol/l)	S	0.1	0.2	0.1	ND	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	B	0.2	0.2	0.2	ND	0.1	ND	0.1	0.1	0.1	ND	ND	ND
NH ₄ ⁺ -N(μmol/l)	S	0.5	0.4	0.6	0.4	0.5	0.4	0.3	0.6	0.4	0.4	0.5	0.4
	B	0.5	0.7	1.2	0.4	0.4	0.4	0.4	0.7	0.5	0.4	0.4	0.4
TN(μmol/l)	S	11.9	13.2	16.9	8.3	10.6	9.4	16.4	18.6	17.5	15.3	16.8	16.0
	B	16.9	16.4	15.1	9.2	11.5	10.3	18.5	19.8	19.1	12.6	14.8	13.7
PHc(μg/l)	1m	6.4	3.5	3.1	3.1	3.5	3.3	4.8	5.3	5.1	7.5	8.4	8.0
Phenol (μg/l)	S	43.7	51.1	64.1	85.7	96.7	91.2	70.6	87.6	79.1	71.3	79.0	75.1

* Average of two readings

Air temperature given in parenthesis

Table 4.17.3:- Sediment quality off Jaigad during January 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
J1	4.2	90.7	5.1	5.6	186	1138	10.1	89	74	158	105	0.22	0.16	11.6	1.3	559	0.2
J2	30.7	48.5	20.8	7.3	204	1269	12.1	69	74	184	123	0.16	0.18	12.6	1.5	461	0.3
J3	39.8	46.8	13.4	7.2	206	1283	11.8	58	74	179	129	0.06	0.11	11.8	0.7	198	0.4
J4	6.6	88.2	5.2	5.4	264	1864	16.2	74	84	286	178	0.08	0.10	7.1	3.0	255	2.8
J5	68.9	22.2	8.9	11.0	198	1421	10.3	52	93	197	120	0.15	0.14	9.3	4.5	541	0.9
J6	96.6	1.2	2.2	7.5	298	1551	14.3	100	99	248	154	0.14	0.12	8.1	0.4	330	0.2

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.17.4:- Sediment quality off Jaigad during March 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
J1	27.0	61.0	12.0	7.2	206	1283	11.8	58	74	179	129	0.14	0.26	10.4	0.9	985	0.1
J2	78.8	15.0	6.2	4.7	245	1987	16.1	134	92	261	192	0.17	0.09	7.1	0.3	1149	0.2
J3	8.1	83.3	8.6	6.8	194	1206	11.1	55	70	169	121	0.16	0.30	11.4	2.3	1000	0.4
J4	1.6	86.0	12.4	8.8	178	1222	10.2	73	94	192	104	0.19	0.29	12.8	1.9	1516	1.6
J5	68.6	22.2	9.2	6.4	292	1881	18.3	147	111	343	224	0.17	0.29	9.8	0.1	849	0.7
J6	91.6	2.8	5.6	5.3	341	2371	20.9	118	129	415	290	0.13	0.07	8.1	0.3	758	0.2

Remark:-

*On dry weight basis except PHc which is in wet wt.

4.17.5: Microbial count (CFU/ml) in water off Jaigad during 2016.

Type of Bacteria	Population in surface water (CFU/ml)																	
	Postmonsoon (January 2016)												Premonsoon (March 2016)					
	J1	J2	J3	J4		J5		J6		J1	J2	J3	J4		J5		J6	
				Eb	Fl	Eb	Fl	Eb	Fl				Fl	Eb	Fl	Eb	Fl	Eb
TVC	10x 10 ³	21x 10 ³	13x 10 ³	18x 10 ³	13x 10 ³	10x 10 ³	17x 10 ³	15x 10 ³	14x 10 ³	11x 10 ³	6x 10 ³	13x 10 ³	13x 10 ³	8x 10 ³	10x 10 ³	18x 10 ³	14x 10 ³	32x 10 ³
TC	ND	ND	ND	ND	ND	10	ND	ND	ND	70	ND	40	900	ND	ND	ND	ND	ND
FC	ND	ND	ND	ND	ND	10	ND	ND	ND	60	ND	40	450	ND	ND	400	ND	100
ECLO	ND	ND	ND	ND	ND	10	ND	ND	ND	60	ND	40	100	350	110	330	ND	80
SHLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	170	30	390	200	200	430	ND	ND
VLO	50	10	30	50	ND	ND	30	40	ND	60	ND	520	500	800	210	800	10	320
VPLO	10	10	ND	20	ND	ND	10	10	ND	ND	ND	50	ND	NG	50	NG	10	NG
VCLO	10	10	ND	20	ND	ND	10	10	ND	60	ND	470	500	800	160	800	ND	320
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.17.6: Microbial counts (CFU/g) in sediment off Jaigad during 2016

Type of Bacteria	Population in sediment (CFU/g)											
	Postmonsoon (January 2016)						Premonsoon (March 2016)					
	J1	J2	J3	J4	J5	J6	J1	J2	J3	J4	J5	J6
TVC	190X10 ³	250 X10 ³	180X10 ³	190X10 ³	210X10 ³	230X10 ³	200x10 ³	100x10 ³	800x10 ³	120x10 ³	400x10 ³	280x10 ³
TC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1000
ECLO	ND	ND	ND	ND	ND	ND	ND	7000	ND	ND	ND	8000
SHLO	ND	ND	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6300	11000
VLO	20	10	40	ND	80	50	3000	12000	3000	NG	3600	12000
VPLO	ND	ND	10	ND	20	10	2000	ND	ND	ND	ND	ND
VCLO	20	10	30	ND	60	40	1000	12000	3000	1000	3600	12000
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.17.7: Range and average of phytopigments at different stations off Jaigad during January 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
J1	04-01-2016	0.7	1.1	0.7	0.9	0.0	0.1	0.1	0.1	5.8	36.3	6.2	11.0
		0.9		0.8		0.1		0.1		21.0		8.6	
J2	04-01-2016	1.0	1.0	0.5	1.0	0.1	0.1	0.1	0.1	6.9	20.8	8.5	17.3
		1.0		0.8		0.1		0.1		13.8		12.9	
J3	04-01-2016	0.1	0.6	0.5	0.6	0.1	0.7	0.1	0.1	0.1	5.3	5.4	6.2
		0.4		0.6		0.4		0.1		2.7		5.8	
J4	03-01-2016	0.2	1.4	0.8	0.8	0.2	2.5	0.3	0.3	0.1	7.8	2.9	2.9
		0.8		0.8		1.3		0.3		3.9		2.9	
J5	03-01-2016	0.7	1.4	0.9	2.0	0.1	1.2	0.1	0.5	0.9	8.0	3.5	16.2
		1.1		1.6		0.4		0.2		3.7		8.0	
J6	03-01-2016	1.6	2.2	1.1	1.9	0.4	0.7	0.7	0.7	3.2	3.7	1.6	2.8
		1.9		1.5		0.6		0.7		3.4		2.2	

Table 4.17.8: Range and average of phytopigments at different stations off Jaigad during March 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
J1	19-03-2016	1.3	1.5	0.5	0.7	0.3	0.4	0.3	0.3	3.5	4.5	1.4	2.2
		1.4		0.6		0.4		0.3		4.0		1.8	
J2	19-03-2016	1.1	1.2	0.8	0.9	0.3	0.3	0.3	0.4	3.4	3.7	2.2	2.7
		1.1		0.9		0.3		0.4		3.5		2.4	
J3	19-03-2016	1.7	1.7	1.3	1.5	0.4	0.4	0.5	0.7	4.0	4.4	2.1	3.0
		1.7		1.4		0.4		0.6		4.2		2.5	
J4	18-03-2016	2.0	2.5	1.5	2.9	0.6	0.6	0.5	0.7	3.6	4.2	3.3	4.2
		2.3		2.2		0.6		0.6		3.9		3.8	
J5	18-03-2016	1.5	3.1	1.8	2.7	0.2	0.6	0.1	0.7	3.1	18.2	3.1	19.1
		2.5		2.4		0.3		0.5		7.9		6.1	
J6	18-03-2016	1.9	1.9	2.4	3.1	0.3	0.5	0.4	0.6	3.5	6.0	5.3	5.3
		1.9		2.7		0.4		0.5		4.8		5.3	

Table 4.17.9: Range and average of phytoplankton at different stations off Jaigad during January 2016

Station	Date	Cell count				Total genera				Major genera	
		(no x 10 ³ Cells/ l)				(nos.)					
		S		B		S		B		S	B
		Min	Max	Min	Max	Min	Max	Min	Max		
Avg		Avg		Avg		Avg		Avg			
J1	04-01-2016	18.6		6.6		8.0		5.0		<i>Gymnodinium</i>	<i>Gymnodinium</i>
J2	04-01-2016	12.8		8.8		6.0		6.0		<i>Thalassiosira</i>	<i>Thalassiosira</i>
J3	04-01-2016	26.2		6.8		5.0		6.0		<i>Navicula</i>	<i>Gyrodinium</i>
J4	03-01-2016	24.4	24.8	10.8	12.4	6.0	8.0	5.0	7.0	<i>Rhodomonas</i>	<i>Dityocha</i>
J5	03-01-2016	22.4	34.6	12.6	23.8	9.0	9.0	7.0	10.0	<i>Trichodesmum</i>	<i>Melosira</i>
J6	03-01-2016	24.6	11.6		7.0		6.0		<i>Trichodesmum</i>	<i>Dityocha</i>	
J4	03-01-2016	Dityocha		Pyramimonas		Navicula		Cyclotella		<i>Pyramimonas</i>	<i>Cyclotella</i>
J5	03-01-2016	Cyclotella		Guinardia		Peridinium		Guinardia		<i>Guinardia</i>	<i>Guinardia</i>
J6	03-01-2016	Guinardia		Mallomonas		Ceratium		Mallomonas		<i>Mallomonas</i>	<i>Ceratium</i>
J4	03-01-2016	Mallomonas		Thalassiosira		Thalassiosira		Thalassiosira		<i>Thalassiosira</i>	<i>Thalassiosira</i>
J5	03-01-2016	Ceratium		Thalassiosira		Thalassiosira		Thalassiosira		<i>Thalassiosira</i>	<i>Thalassiosira</i>
J6	03-01-2016	Thalassiosira		Thalassiosira		Guinardia		Guinardia		<i>Thalassiosira</i>	<i>Thalassiosira</i>
J4	03-01-2016	Guinardia		Pyramimonas		Pyramimonas		Amphiprora		<i>Pyramimonas</i>	<i>Amphiprora</i>
J5	03-01-2016	Pyramimonas		Gyrosigma		Gyrosigma		Coscinodiscus		<i>Gyrosigma</i>	<i>Coscinodiscus</i>

Table 4.17.10: Range and average of phytoplankton at different stations off Jaigad during March 2016

Station	Date	Cell count				Total genera				Major genera	
		(no x 10 ³ Cells/ l)				(nos.)					
		S		B		S		B		S	B
		Min	Max	Min	Max	Min	Max	Min	Max		
Avg		Avg		Avg		Avg		Avg			
J1	19-3-2016	17.2		16.6		9.0		7.0		<i>Mallomonas</i>	<i>Navicula</i>
J2	19-3-2016	16.6		13.6		9.0		10.0		<i>Ceratium</i>	<i>Alexandrium</i>
J3	19-3-2016	12.4		8.4		7.0		6.0		<i>Odontella</i>	<i>Protoperidinium</i>
J4	18-3-2016	23.0	33.2	22.6	28.8	11.0	13.0	8.0	12.0	<i>Peridinium</i>	<i>Ceratium</i>
J5	18-3-2016	28.1		25.7		12.0		10.0		<i>Thalassiosira</i>	<i>Thalassiosira</i>
J6	18-3-2016	46.8	52.8	47.0	49.4	13.0	16.0	11.0	15.0	<i>Nitzschia</i>	<i>Nitzschia</i>
J6	18-3-2016	49.8		48.2		14.5		13.0		<i>Thalassionema</i>	<i>Chaetoceros</i>
J6	18-3-2016	79.0	96.4	35.2	48.2	16.0	16.0	14.0	15.0	<i>Nitzschia</i>	<i>Navicula</i>
J6	18-3-2016	87.7		41.7		16.0		14.5		<i>Anabaena</i>	<i>Chaetoceros</i>
J6	18-3-2016									<i>Thalassiosira</i>	<i>Thalassiosira</i>
J6	18-3-2016									<i>Bellorachea</i>	<i>Cylindrotheca</i>
J6	18-3-2016									<i>Cylindrotheca</i>	<i>Rhizosolenia</i>

Table 4.17.11: Percentage composition of phytoplankton population at different station off Jaigad during January 2016

Table 4.17.12: Percentage composition of phytoplankton population at different station off Jaigad during March 2016

Table 4.17.13: Range and average (parenthesis) of zooplankton at different stations off Jaigad during January 2016

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
J1 (04/01/2016)	0.7-1.7 (1.2)	8.8-12.1 (10.4)	12-13 (13)	copepods (94.5), chaetognaths (3.3), siphonophores (1.1), appendicularians (0.5), foraminifera (0.2), decapod larvae (0.1), gastropods (0.1), lamellibranchs (0.1), fish eggs (0.1), others (0.1).
J2 (04/01/2016)	1.1-2.8 (2.0)	15.8-19.9 (17.9)	10-11 (11)	copepods (97.1), chaetognaths (1.2), appendicularians (0.8), fish eggs (0.4), decapod larvae (0.2), foraminifera (0.1), siphonophores (0.1), gastropods (0.1), lamellibranchs (0.1), others (0.1).
J3 (04/01/2016)	1.8-3.6 (2.7)	36.3-50.1 (43.2)	12-13 (13)	copepods (97.2), appendicularians (1.2), chaetognaths (0.8), lamellibranchs (0.3), decapod larvae (0.2), gastropods (0.1), foraminifera (0.1), polychaetes (0.1), others (0.1).
J4 (03/01/2016)	0.3-0.5 (0.4)	3.5-20.1 (11.8)	8-10 (9)	copepods (98.0), appendicularians (1.0), decapod larvae (0.3), lamellibranchs (0.3), fish eggs (0.1), gastropods (0.1), <i>Lucifer sp.</i> (0.1), others (0.1).
J5 (03/01/2016)	0.2-1.2 (0.5)	3.3-20.1 (9.2)	9-12 (9)	copepods (97.7), appendicularians (0.8), decapod larvae (0.6), fish eggs (0.2), gastropods (0.2), lamellibranchs (0.2), <i>Lucifer sp.</i> (0.1), polychaetes (0.1), others (0.1).
J6 (03/01/2016)	0.1-0.2 (0.2)	4.6-8.7 (6.7)	8-9 (9)	copepods (98.0), appendicularians (1.3), decapod larvae (0.4), fish eggs (0.2), lamellibranchs (0.1), others (0.1).

Table 4.17.14: Range and average (parenthesis) of zooplankton at different stations off Jaigad during March 2016

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
J1 (19/03/2016)	2.7-5.3 (4.0)	30.6-31.8 (31.2)	11-14 (13)	Copepods (94.4), chaetognaths (4.0), siphonophores (1.2), decapod larvae (0.1), lamellibranchs (0.1), others (0.1).
J2 (19/03/2016)	2.4-2.6 (2.5)	27.4-34.8 (31.1)	8-11 (10)	Copepods (96.5), chaetognaths (1.7), siphonophores (1.2), <i>Lucifer</i> sp. (0.2), decapod larvae (0.2), gastropods (0.1), lamellibranchs (0.1), others (0.1).
J3 (19/03/2016)	3.0-3.2 (3.1)	32.0-49.1 (40.5)	10-11 (11)	Copepods (96.6), chaetognaths (1.6), siphonophores (0.7), <i>Lucifer</i> sp. (0.4), decapod larvae (0.2), fish eggs (0.2), gastropods (0.1), lamellibranchs (0.1), others (0.1).
J4 (18/03/2016)	0.5-1.2 (0.9)	3.9-7.0 (5.5)	8-15 (12)	Copepods (88.5), fish eggs (2.9), lamellibranchs (2.5), gastropods (1.7), <i>Lucifer</i> sp. (1.3), decapod larvae (1.0), polychaetes (0.8), chaetognaths (0.4), appendicularians (0.4), siphonophores (0.2), medusae (0.1), cladocerans (0.1), others (0.1).
J5 (18/03/2016)	0.6-1.4 (1.0)	4.2-20.9 (12.2)	10-12 (11)	Copepods (97.0), lamellibranchs (0.9), gastropods (0.5), <i>Lucifer</i> sp. (0.4), chaetognaths (0.3), decapod larvae (0.3), fish eggs (0.3), siphonophores (0.1), polychaetes (0.1), appendicularians (0.1), others (0.1).
J6 (18/03/2016)	0.9-1.1 (1.0)	6.7-12.2 (9.4)	8-10 (9)	Copepods (98.5), lamellibranchs (0.3), chaetognaths (0.2), <i>Lucifer</i> sp. (0.2), decapod larvae (0.2), gastropods (0.2), polychaetes (0.1), appendicularians (0.1), fish eggs (0.1), others (0.1).

Table 4.17.15: Abundance of zooplanktons off Jaigad during January 2016

Faunal groups	J1	J2	J3	J4	J5	J6
Foraminiferans	+	+	+	-	-	-
Siphonophores	+	+	+	-	-	-
Medusae	+	-	+	+	+	+
Chaetognaths	+	+	+	-	+	-
Polychaetes	+	+	+	+	+	+
Copepods	+	+	+	+	+	+
<i>Lucifer</i> sp.	-	+	+	+	+	+
Decapod larvae	+	+	+	+	+	+
Stomatopods	+	-	+	-	-	-
Pteropods	+	-	-	-	-	-
Cephalopods	+	-	-	-	-	-
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Appendicularians	+	+	+	+	+	+
Fish Eggs	+	+	+	+	+	+
Fish Larvae	+	-	+	+	+	-
<i>Acetes</i> sp.	+	-	-	-	-	-

Table 4.17.16: Abundance of zooplanktons off Jaigad during March 2016

Faunal groups	J1	J2	J3	J4	J5	J6
Foraminiferans	+	+	+	-	-	-
Siphonophores	+	+	+	+	+	-
Medusae	+	-	-	+	+	-
Ctenophores	-	-	-	-	+	+
Chaetognaths	+	+	+	+	+	+
Polychaetes	+	-	-	+	+	+
Cladocerans	+	-	+	+	+	-
Copepods	+	+	+	+	+	+
Amphipods	-	-	-	-	+	-
Mysids	-	-	-	-	+	-
<i>Lucifer</i> sp.	+	+	+	+	+	+
Decapod larvae	+	+	+	+	+	+
Pteropods	-	-	-	+	-	-
Cephalopods	-	-	-	+	-	-
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Appendicularians	+	+	+	+	+	+
Salpids	-	+	-	-	-	-
Fish Eggs	+	+	+	+	+	+
Fish Larvae	+	+	+	+	+	-

Table 4.17.17: Range and average of macrofauna off Jaigad during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (January 2016)									
J1	1.40	3.90	3.10	1200	1600	1338	4	5	4
J2	1.60	6.10	3.30	875	2800	1975	4	5	5
J3	5.30	10.80	8.90	2575	4350	3469	5	5	5
J4	3.00	15.10	8.20	900	2500	1638	2	4	4
J5	3.40	6.70	4.60	1275	3075	2306	3	4	4
J6	0.40	2.20	1.00	175	250	200	2	4	3
Overall	0.40	15.10	4.90	175	4350	1821	2	5	4
Premonsoon (March 2016)									
J1	9.00	20.00	15.70	1300	13175	7294	3	7	5
J2	2.80	12.10	5.80	1450	3475	2263	3	7	5
J3	6.00	11.40	7.9	3625.00	6325	4738	3	5	4
J4	12.10	26.60	18.60	3200	7275	4938	5	7	6
J5	7.40	105.00	46.30	3475	6425	4413	5	6	6
J6	0.70	3.20	1.90	200	600	419	4	5	5
Overall	0.70	105.00	16.00	200	13175	4011	3	7	5

Table 4.17.18: Percentage composition of macrofauna off Jaigad during January 2016

Phylum	Groups	Stations						Average
		J1	J2	J3	J4	J5	J6	
Annelida	Polychaeta	62.10	87.00	91.20	87.80	81.60	25.00	83.10
Arthropoda	Amphipoda	0.50	1.90	1.10	0.40	5.40	3.10	2.00
Arthropoda	Cumacea	0.00	0.60	0.20	1.10	0.30	3.10	0.46
Arthropoda	Brachyura	0.00	0.00	0.00	0.40	0.00	0.00	0.10
Arthropoda	Copepoda	0.00	0.00	0.00	0.00	0.00	0.00	0.10
Chordata	Fish Larvae	0.50	0.00	0.00	0.00	0.00	0.00	0.05
Echinodermata	Ophiuroidea	0.00	1.30	0.00	0.00	0.00	0.00	0.20
Mollusca	Pelecypoda	14.50	6.30	2.00	1.10	0.00	56.30	4.80
Mollusca	Gastropoda	5.60	1.60	0.40	0.00	0.00	0.00	1.10
Nemertea	Nemertea	0.50	0.00	0.20	0.00	0.00	0.00	0.11
Phoronida	Phoronida	0.00	0.00	0.00	0.00	0.50	0.00	0.12
Sipuncula	Sipuncula	16.30	1.30	4.70	9.20	12.20	12.50	7.90

Table 4.17.19: Percentage composition of macrofauna off Jaigad during March 2016

Phylum	Groups	Stations						Average
		J1	J2	J3	J4	J5	J6	
Annelida	Polychaeta	36.20	89.00	29.20	42.20	63.50	37.30	46.00
Annelida	Oligochaeta	0.00	0.00	0.00	0.50	1.00	0.00	0.30
Arthropoda	Amphipoda	0.50	1.70	20.70	45.10	1.10	6.00	13.90
Arthropoda	Brachyura	0.30	0.30	0.30	2.50	0.80	0.00	0.90
Arthropoda	Cumacea	0.20	0.00	0.10	2.00	0.40	7.50	0.70
Arthropoda	Mysida	0.00	0.00	0.10	0.30	0.60	25.40	0.60
Arthropoda	Copepoda	0.00	0.60	0.00	0.00	0.00	0.00	0.10
Cnidaria	Anthozoa	0.20	0.00	0.00	0.00	0.00	0.00	0.10
Echinodermata	Ophiuroidea	0.20	3.00	1.10	0.40	0.10	0.00	0.70
Echiura	Echiura	0.00	0.00	0.10	0.00	9.60	0.00	1.80
Mollusca	Pelecypoda	61.50	5.20	48.40	2.70	22.80	23.90	33.80
Mollusca	Gastropoda	0.10	0.00	0.00	0.00	0.00	0.00	0.02
Nemertea	Nemertea	0.80	0.00	0.00	0.00	0.00	0.00	0.20
Phoronida	Phoronida	0.00	0.00	0.00	0.10	0.00	0.00	0.02
Sipuncula	Sipuncula	0.00	0.30	0.00	4.30	0.00	0.00	0.90

Table 4.17.20: Station-wise distribution of meiofauna parameters in Jaigad

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (January 2016)									
J1	106.33	250.71	178.52	272	870	571	6	7	7
J2	2564.63	3612.17	3088.4	1104	1496	1300	9	9	9
J3	236.66	355.04	295.85	708	948	828	8	8	8
J4	11.02	14.82	12.92	64	100	82	3	6	5
J5	415.92	461.1	438.51	99	106	103	4	4	4
J6	226.58	290.88	258.73	416	510	463	3	7	5
Premonsoon (March 2016)									
J1	42.35	48.37	45.36	99	185	142	2	2	2
J2	1764.62	2995.98	2380.3	705	1132	919	4	12	8
J3	244.79	315.33	280.06	399	686	543	3	7	5
J4	86.24	260.44	173.34	382	892	637	2	4	3
J5	439.56	1118.76	779.16	361	991	676	7	10	9
J6	131.62	145.84	138.73	219	293	256	7	7	7

Table 4.17.21: Percentage composition of meiofauna off Jaigad during January 2016

Groups	J1	J2	J3	J4	J5	J6	Average
Bivalves	1.89	0.05	0.98	0.00	0.00	0.89	0.70
Foraminiferans	3.41	1.15	4.88	0.00	6.90	10.99	3.83
Harpacticoids	1.39	0.66	2.93	6.17	6.90	10.11	2.82
Hydrozoans	0.13	20.58	0.49	0.00	0.00	0.89	8.74
Kinorhynchs	0.00	1.69	2.44	0.00	0.00	0.00	1.26
Nauplius	0.00	0.87	5.37	6.17	0.00	0.00	1.71
Nematodes	90.66	62.39	80.98	74.07	62.07	75.18	73.55
Nemerteans	0.00	0.00	0.49	0.00	0.00	0.00	0.11
Ostracods	0.63	0.55	0.00	6.17	0.00	0.00	0.45
Polychaetes	1.89	12.06	1.46	7.41	17.24	1.95	6.60
Turbellarians	0.00	0.00	0.00	0.00	6.90	0.00	0.23

Table 4.17.22: Percentage composition of meiofauna off Jaigad during March 2016

Groups	J1	J2	J3	J4	J5	J6	Average
Bivalves	0.00	0.39	0.00	0.00	1.69	0.00	0.48
Ciliophores	0.00	0.00	0.00	0.00	0.53	0.00	0.11
Cladocerans	0.00	0.00	0.00	0.00	0.11	0.00	0.02
Echiurans	0.00	0.39	0.00	0.56	0.00	0.00	0.23
Foraminiferans	2.49	1.24	7.71	2.23	1.69	3.25	2.86
Gastropods	0.00	0.39	0.00	0.00	0.00	0.00	0.11
Harpacticoids	0.00	4.49	0.00	3.91	7.27	17.53	4.90
Hydrozoans	0.00	0.08	2.09	0.00	0.53	0.00	0.50
Insects	0.00	0.00	0.00	0.00	1.16	0.00	0.25
Kinorhynchs	0.00	1.62	1.44	0.00	0.00	0.00	0.73
Nauplius	0.00	1.24	0.00	0.00	0.53	3.25	0.70
Nematodes	95.02	84.61	86.67	93.30	81.03	72.08	85.56
Nemerteans	0.00	0.00	0.00	0.00	2.21	0.65	0.52
Ostracods	0.00	0.39	0.00	0.00	0.00	0.00	0.11
Polychaetes	2.49	5.18	2.09	0.00	3.27	3.25	2.92

Table 4.18.1: Water quality off Ratnagiri during January 2016

Parameter	Level	R1	R2			R3			R4			R5		
		Avg*	Min	Max	Avg									
Temperature(°C)	S	27.0	26.5	27.0	26.8	27.0	28.0	27.5	26.5	28.0	27.0	27.0	27.5	27.3
	B	27.0	27.0	27.0	27.0	27.0	27.5	27.3	26.0	27.5	27.0	27.0	27.0	27.0
		(24.0)	(23.0)	(29.0)	(26.0)	(24.0)	(31.0)	(27.5)	(23.0)	(31.0)	(27.5)	(24.0)	(29.0)	(26.5)
SS(mg/l)	S	18	19	19	19	17	19	18	19	21	20	19	20	19
	B	21	18	20	19	18	18	18	20	21	21	21	21	21
TURBIDITY(NTU)	S	1.3	1.1	1.5	1.3	1.2	1.4	1.3	1.0	2.0	1.5	1.0	1.5	1.2
	B	1.8	1.3	1.9	1.6	1.2	2.0	1.6	1.0	2.0	1.5	1.4	1.4	1.4
pH	S	8.0	8.0	8.1	8.1	7.9	7.9	7.9	7.8	8.0	7.9	7.9	7.9	7.9
	B	8.1	8.1	8.1	8.1	7.8	7.8	7.8	7.8	8.0	7.9	7.8	7.8	7.8
Salinity(ppt)	S	35.6	35.5	35.6	35.5	35.4	35.6	35.5	35.5	35.8	35.6	35.0	35.0	35.0
	B	35.5	35.5	35.5	35.5	35.6	35.8	35.7	35.4	35.8	35.5	35.1	35.1	35.1
DO (mg/l)	S	5.9	6.3	6.3	6.3	5.4	6.0	5.7	5.1	8.2	6.2	0.6	0.6	0.6
	B	7.3	6.3	6.7	6.5	5.1	5.7	5.4	5.1	7.0	6.2	1.0	1.0	1.0
BOD (mg/l)	S	1.4	1.6	1.9	1.7	2.5	2.9	2.7	1.9	3.2	2.5	6.5	19.4	13.0
	B	3.3	2.2	2.2	2.2	1.3	2.5	1.9	2.5	3.5	3.0	12.9	12.9	12.9
PO ₄ ³⁻ -P (μmol/l)	S	0.1	0.2	0.2	0.2	0.7	1.8	1.3	0.3	0.7	0.5	25.7	27.6	26.7
	B	0.2	0.2	0.3	0.2	0.6	1.0	0.8	0.4	2.5	1.2	26.2	26.2	26.2
TP(μmol/l)	S	0.9	2.8	3.2	3.0	2.1	3.2	2.6	1.2	1.9	1.6	32.0	36.2	34.1
	B	1.2	2.4	2.9	2.6	1.6	2.9	2.3	1.5	3.7	2.6	33.5	39.3	36.4
NO ₃ ⁻ -N (μmol/l)	S	3.7	2.1	2.2	2.1	1.5	1.9	1.7	1.0	3.8	2.3	1.7	4.2	3.0
	B	1.5	2.1	3.3	2.7	1.8	2.7	2.3	0.5	3.8	1.8	2.9	2.9	2.9
NO ₂ ⁻ -N(μmol/l)	S	ND	ND	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	1.1	0.6
	B	ND	ND	ND	ND	0.1	0.1	0.1	0.1	0.4	0.2	0.1	0.1	0.1
NH ₄ ⁺ -N(μmol/l)	S	1.6	2.1	2.2	2.2	1.1	2.6	1.9	0.5	2.1	1.0	2.8	3.0	2.9
	B	1.0	1.4	1.9	1.6	0.6	0.6	0.6	0.5	3.4	1.9	2.4	2.4	2.4
TN(μmol/l)	S	9.3	9.1	10.6	9.9	7.6	8.2	7.9	5.9	11.6	8.8	11.6	14.6	9.5
	B	6.2	10.3	12.2	8.2	6.4	7.6	7.0	6.3	12.6	9.5	10.6	16.4	13.4
PHe(μg/l)	1m	3.0	1.7	2.5	2.1	1.9	2.2	2.1	2.4	2.7	2.6	2.5	3.6	3.1
Phenol (μg/l)	S	114.6	53.0	110.6	81.8	35.3	61.9	48.6	82.1	99.8	91.0	64.3	75.8	70.1

* Average of two reading

Air temperature given in parenthesis

Table 4.18.2: Water quality off Ratnagiri during March 2016

Parameter	Level	R1	R2			R3			R4			R5		
		Avg*	Min	Max	Avg									
Temperature(°C)	S	28.5	28.5	29.0	28.8	29.0	29.5	29.3	28.5	29.5	29.1	28.5	29.0	28.8
	B	28.3	28.0	28.5	28.3	28.5	29.0	28.8	28.0	29.0	28.6	28.5	28.5	28.5
		(28.0)	(29.0)	(29.5)	(29.3)	(28.0)	(29.5)	(28.8)	(26.0)	(31.0)	(29.2)	(27.0)	(29.5)	(28.3)
SS(mg/l)	S	12	15	17	16	15	18	17	13	15	14	18	25	22
	B	10	14	17	16	12	14	13	20	28	24	10	10	10
Turbidity(NTU)	S	1.7	0.7	0.9	0.8	0.7	1.2	0.8	1.2	1.9	1.8	2.5	3.4	2.8
	B	0.6	1.4	1.5	1.4	0.5	0.6	0.4	0.8	1.6	1.3	2.0	2.2	2.1
pH	S	8.2	8.0	8.1	8.1	8.0	8.0	8.0	8.0	8.1	8.1	7.6	7.8	7.7
	B	8.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0	8.2	8.1	7.9	7.9	7.9
Salinity(ppt)	S	35.8	36.0	36.0	36.0	36.0	36.0	36.0	35.0	36.1	35.9	35.8	36.0	35.9
	B	35.6	35.9	36.0	35.9	35.9	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0
DO (mg/l)	S	5.4	6.4	7.0	6.7	6.4	6.4	6.4	5.4	7.3	6.3	2.2	6.7	4.4
	B	5.9	6.4	6.4	6.4	6.4	7.0	6.7	5.4	7.3	6.5	7.0	7.0	7.0
BOD (mg/l)	S	2.2	2.1	2.2	2.2	1.5	2.9	2.2	2.5	4.1	3.3	0.8	3.9	2.4
	B	0.9	0.5	0.8	0.6	2.5	2.9	2.7	1.9	2.9	2.4	3.2	3.2	3.2
PO ₄ ³⁻ -P (μmol/l)	S	0.1	0.3	0.4	0.3	0.2	0.4	0.3	0.1	0.6	0.2	3.1	24.6	13.9
	B	0.1	0.4	0.5	0.5	0.4	0.6	0.5	0.1	0.8	0.5	2.4	2.4	2.4
TP(μmol/l)	S	1.0	1.3	1.9	1.6	1.3	2.1	1.7	1.9	1.9	1.3	4.2	31.2	17.7
	B	1.3	1.9	2.6	2.2	1.8	2.7	2.2	0.9	2.3	1.6	3.4	3.8	3.6
NO ₃ ⁻ -N (μmol/l)	S	0.5	0.9	1.3	1.1	0.9	1.2	1.1	0.4	2.4	1.1	4.5	19.0	11.8
	B	0.4	0.6	0.9	0.7	0.9	2.3	1.6	0.1	2.3	1.0	2.7	2.7	2.7
NO ₂ ⁻ -N(μmol/l)	S	0.1	ND	0.1	0.1	ND	0.1	0.1	ND	0.2	0.1	1.3	2.2	1.8
	B	0.1	ND	0.1	0.1	0.1	0.1	0.1	ND	0.2	0.1	1.2	1.2	1.2
NH ₄ ⁺ -N(μmol/l)	S	1.3	0.6	0.8	0.7	0.2	0.4	0.3	0.1	0.6	0.3	4.7	28.0	16.3
	B	0.7	0.4	0.5	0.5	0.3	0.5	0.4	0.1	0.5	0.3	2.5	2.5	2.5
TN(μmol/l)	S	8.0	6.6	9.2	7.9	8.1	8.9	8.5	5.5	7.9	6.7	15.3	64.3	39.8
	B	6.9	5.3	6.1	5.7	6.8	7.4	7.1	4.9	8.6	6.7	8.9	12.2	10.5
PHc(μg/l)	1m	3.6	4.8	9.2	7.0	5.1	11.0	8.1	4.1	9.1	6.6	4.0	5.5	4.8
Phenol (μg/l)	S	99.8	75.0	109.8	92.4	52.2	63.8	58.0	83.5	90.2	86.9	109.9	117.6	113.8

*Average of two readings

Air temperature given in parenthesis

Table 4.18.3: Sediment quality off Ratnagiri during January 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
R1	82.8	8.8	8.4	4.8	95	642	6.5	33	48	93	71	0.17	0.13	6.9	1.2	934	0.5
R2	72.4	9.6	18.0	3.7	139	1097	9.6	72	45	125	101	0.14	0.04	9.4	0.3	628	0.4
R3	2.1	60.3	37.6	4.2	155	1234	8.8	59	69	163	112	0.14	0.09	10.2	2.6	510	0.7
R4	8.6	67.8	23.6	5.6	112	927	7.6	54	58	95	64	0.14	0.02	10.3	2.2	980	1.4
R5	92.2	5.4	2.4	1.4	47	482	3.3	21	14	29	31	0.11	0.05	4.7	0.3	1001	2.8

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.18.4: Sediment quality off Ratnagiri during March 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
R1	1.6	81.4	17	7.5	143	972	9.9	66	89	170	107	0.17	0.17	10.4	1.4	2016	0.7
R2	0.2	87.6	12.2	8.2	162	582	8.1	50	84	104	83	0.19	0.04	12.6	2.7	2111	0.6
R3	88.9	4.5	6.6	4.4	161	1285	11.8	61	72	170	117	0.17	0.01	9.3	0.4	1442	0.9
R4	71.4	21.2	7.4	6.1	123	1019	8.4	60	64	104	71	0.17	0.02	8.7	0.6	1300	1.8
R5	91.8	1.8	6.4	1.7	57	500	3.7	34	33	52	38	0.14	0.07	5.0	0.4	3777	3.0

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.18.5: Microbial counts (CFU/ml) in water off Ratnagiri during 2015-16

Type of Bacteria	Population in water (CFU/ml)														
	Postmonsoon (January 2016)						Premonsoon (March 2016)								
	R1	R2	R3	R4		R5	R1	R2		R3		R4		R5	
TVC	0.6x10 ³	1.2x10 ³	1.5x10 ³	1x10 ³	1.6x10 ³	8.6x10 ³	20x10 ³	11x10 ³	25x10 ³	20x10 ³	27x10 ³	20x10 ³	45x10 ³	35x10 ³	14x10 ³
TC	97	174	270	160	176	2980	ND	100	400	50	150	300	400	800	100
FC	62	68	118	70	86	1900	ND	80	300	50	120	290	400	700	100
ECLO	ND	12	88	52	18	992	ND	80	200	30	30	260	350	550	520
SHLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	ND	ND	ND	ND	ND	150	ND	30	ND	350	1500	500
VLO	ND	ND	ND	550	336	860	ND	150	600	ND	130	ND	120	700	580
VPLO	ND	ND	ND	180	136	300	ND	50	100	20	70	ND	20	300	ND
VCLO	ND	ND	ND	370	200	560	ND	100	500	30	60	400	100	400	580
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30	ND	ND	ND	ND

ND- Below Detectable Level

Table 4.18.6: Microbial counts (CFU /g) in sediment off Ratnagiri during 2015-16

Type of Bacteria	Population in sediment (CFU/g)									
	Postmonsoon (January 2016)					Premonsoon (March 2016)				
	R1	R2	R3	R4	R5	R1	R2	R3	R4	R5
TVC	11.5 x10 ³	9.2 x10 ³	9.8 x10 ³	11.8 x10 ³	10.9 x10 ³	100 x10 ³	200x10 ³	400x10 ³	150x10 ³	800x10 ³
TC	2730	979	1412	2967	2010	ND	6000	1000	8000	120000
FC	2416	516	1014	1312	972	ND	4000	1000	7000	90000
ECLO	448	62	582	88	638	ND	4000	1000	5000	60000
SHLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	ND	ND	ND	2000	NG	17000	15000
VLO	ND	ND	ND	772	252	ND	4000	1200	8000	73000
VPLO	ND	ND	ND	122	162	ND	ND	200	ND	1000
VCLO	ND	ND	ND	650	480	ND	4000	1000	8000	72000
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	3000	80000

ND- Below Detectable Level

Table 4.18.7: Range and average of phytopigments at different stations off Ratnagiri during January 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
R1	08/01/2016	1.5	1.6	1.8	1.9	0.2	0.2	0.2	0.3	8.9	10.7	7.4	12.2
		1.6		1.8		0.2		0.2		9.8		9.8	
R2	06/01/2016	2.4	4.3	2.2	2.9	0.6	1.4	1.3	2.2	3.0	4.0	1.3	1.7
		3.3		2.5		1.0		1.8		3.5		1.5	
R3	08/01/2016	2.8	6.0	2.4	2.9	1.3	1.7	1.3	1.6	1.7	4.6	1.5	2.3
		4.4		2.6		1.5		1.4		3.2		1.9	
R4	06/01/2016	2.0	12.9	1.7	17.3	0.2	1.9	0.5	4.5	2.9	32.1	1.6	17.3
		7.4		9.7		0.9		1.4		10.7		8.5	
R5	06/01/2016	6.1	7.0	8.7	8.7	1.7	1.8	1.8	1.8	3.5	4.2	4.9	4.9
		6.6		8.7		1.7		1.8		3.8		4.9	

Table 4.18.8: Range and average of phytopigments at different stations off Ratnagiri during March 2016

Station	Date	CHLOROPHYLL				PHAEOPHYTIN				RATIO			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
R1	16/03/2016	1.4	1.5	1.5	1.6	0.3	0.4	0.4	0.6	4.1	5.4	2.4	3.8
		1.4		1.6		0.3		0.5		4.7		3.1	
R2	15/03/2016	2.8	2.8	2.8	3.2	0.4	0.5	0.4	0.7	5.9	7.6	4.6	7.1
		2.8		3.0		0.4		0.5		6.8		5.8	
R3	14/03/2016	2.0	2.4	1.9	1.9	0.3	0.7	0.3	0.5	2.9	7.8	3.9	5.9
		2.2		1.9		0.5		0.4		5.4		4.9	
R4	14/03/2016	2.9	9.0	3.0	12.8	0.1	1.3	0.3	1.4	3.3	65.3	2.8	22.8
		5.2		4.9		0.6		0.8		14.1		7.1	
R5	14/03/2016	6.8	8.7	5.1	13.4	0.9	2.1	0.8	1.7	3.2	9.5	6.1	7.8
		7.8		9.3		1.5		1.3		6.4		7.0	

Table 4.18.9: Range and average of phytoplankton at different stations off Ratnagiri during January 2016

Station	Date	Cell count				Total genera				Major genera					
		(no x 10 ³ Cells/ l)				(nos.)									
		S		B		S		B		S	B				
		Min	Max	Min	Max	Min	Max	Min	Max						
		Avg		Avg		Avg		Avg							
R1	08/01/2016	140		173		19		22		Anacystis	Cylindrotheca				
R2	06/01/2016	369	450	279	649	20	25	20	22	Cylindrotheca	Chaetoceros				
R3	08/01/2016	409		464		23		21		Chaetoceros	Pseudo-nitzschia				
		67	134	55	81	14	14	13	14	Thalassiosira	Thalassiosira				
R4	06/01/2016	100		68		14		14		Chaetoceros	Cylindrotheca				
		1000	1614	564	2352	22	23	18	21	Cylindrotheca	Chaetoceros				
		1307		1458		23		20		Dactyliosolen	Guinardia				
		434	1221	912	1069	20	20	24	24	Guinardia	Thalassiosira				
		828		991		20		24		-	-				
R5	06/01/2016	472	690	623		16	19	18		Cylindrotheca	Cylindrotheca				
		581				18				Spirulina	Spirulina				
										Navicula	Navicula				
										Nitzschia	Thalassiosira				

Table 4.18.10: Range and average of phytoplankton at different stations off Ratnagiri during March 2016

Station	Date	Cell count				Total genera				Major genera	
		(no x 10 ³ Cells/l)				(nos.)					
		S		B		S		B		S	B
		Min	Max	Min	Max	Min	Max	Min	Max		
Avg		Avg		Avg		Avg		Avg			
R1	16/03/2016	28.0		22.6		9		6		<i>Cylindrotheca</i>	<i>Cylindrotheca</i>
R2	15/03/2016	47.6	56.0	34.6	45.6	9	13	7	9	<i>Navicula</i>	<i>Chaetoceros</i>
R3	14/03/2016	51.8		40.1		11		8		<i>Nitzschia</i>	<i>Navicula</i>
		47.6	51.0	34.6	59.0	8	13	7	10	<i>Pleurosigma</i>	<i>Nitzschia</i>
R4	14/03/2016	49.3		46.8		11		9		<i>Cylindrotheca</i>	<i>Chaetoceros</i>
		116.6	145.2	36.6	97.4	15	17	12	13	<i>Lithodesmium</i>	<i>Navicula</i>
R5	14/03/2016	130.9		67.0		16		13		<i>Skeletonema</i>	<i>Guinardia</i>
		1064.0	1205.4	717.0	817.2	14	17	14	18	<i>Navicula</i>	<i>Navicula</i>
		1134.7		767.1		16		16		<i>Chaetoceros</i>	<i>Cylindrotheca</i>
										<i>Cylindrotheca</i>	<i>Skeletonema</i>

Table 4.18.11: Percentage composition of phytoplankton population at different station off Ratnagiri during January 2016

Table 4.18.12: Percentage composition of phytoplankton population at different station off Ratnagiri during March 2016

Name of the genera	R1	R2	R3	R4	R5	Total %
<i>Achnanthes</i>	-	-	-	-	0.63	0.13
<i>Alexandrium</i>	-	-	-	-	<0.1	<0.1
<i>Amphiprora</i>	-	-	-	0.10	-	<0.1
<i>Amphora</i>	-	-	-	2.02	0.15	0.43
<i>Bacillaria</i>	-	-	-	-	<0.1	<0.1
<i>Ceratium</i>	-	0.22	0.10	0.20	<0.1	0.11
<i>Chaetoceros</i>	11.86	26.44	12.90	6.62	39.96	19.56
<i>Coscinodiscus</i>	-	-	0.21	0.61	<0.1	0.17
<i>Cyclotella</i>	-	-	-	-	<0.1	<0.1
<i>Cylindrotheca</i>	23.72	19.59	19.77	11.12	5.43	15.92
<i>Diploneis</i>	0.40	5.55	5.20	1.06	-	2.44
<i>Eucampia</i>	-	-	-	-	0.12	<0.1
<i>Fragillaria</i>	-	-	-	0.10	-	<0.1
<i>Gonyaulax</i>	-	-	-	-	<0.1	<0.1
<i>Guinardia</i>	-	0.54	8.64	1.06	0.13	2.07
<i>Gymnodinium</i>	-	2.18	2.29	0.51	<0.1	1.00
<i>Gyrodinium</i>	-	1.09	1.04	-	-	0.43
<i>Hemiaulus</i>	-	-	-	-	<0.1	<0.1
<i>Lauderia</i>	-	-	-	-	<0.1	<0.1
<i>Leptocylindrus</i>	-	-	-	-	<0.1	<0.1
<i>Lithodesmium</i>	0.79	8.71	10.41	2.68	-	4.52
<i>Navicula</i>	19.76	20.67	21.85	44.47	49.95	31.34
<i>Nitzschia</i>	19.76	5.55	1.56	5.56	0.92	6.67
<i>Odontella</i>	-	0.11	0.21	<0.1	<0.1	<0.1
<i>Peridinium</i>	-	-	-	0.10	0.21	<0.1
<i>Pleurosigma</i>	7.91	3.26	1.04	5.05	0.11	3.47
<i>Prorocentrum</i>	-	-	-	1.52	-	0.30
<i>Protoperidinium</i>	4.35	0.33	0.21	0.66	<0.1	1.11
<i>Pyrophacus</i>	-	-	-	0.10	-	<0.1
<i>Rhizosolenia</i>	-	-	-	-	<0.1	<0.1
<i>Skeletonema</i>	3.56	1.41	12.17	11.32	1.58	6.01
<i>Surirella</i>	-	-	-	0.56	-	0.11
<i>Thalassiosira</i>	7.91	3.26	1.04	4.04	0.52	3.35
<i>Thalassiothrix</i>	-	1.09	1.35	-	-	0.49
Total	100	100	100	99	100	100

Table 4.18.13: Range and average (parenthesis) of zooplankton at different stations off Ratnagiri during January 2016

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
R1 (08/01/2016)	0.4-0.8 (0.6)	2.4-3.3 (3.0)	13-14 (14)	Copepods (92.0), chaetognaths (3.1), appendicularians (1.9), pteropods (0.7), decapod larvae (0.5), <i>Lucifer sp.</i> (0.5), lamellibranchs (0.3), siphonophores (0.3), medusae (0.2), gastropods (0.1), ctenophores (0.1), cladocerans (0.1), polychaetes (0.1), doliolids (0.1), others (0.1)
R2 (06/01/2016)	0.4-0.6 (0.5)	3.7-3.8 (3.8)	14-16 (15)	Copepods (75.6), chaetognaths (3.4), appendicularians (3.3), lamellibranchs (1.9), gastropods (1.6), decapod larvae (0.9), <i>Lucifer sp.</i> (0.8), siphonophores (0.3), polychaetes (0.2), foraminifera (0.1), medusae (0.1), ctenophores (0.1), cladocerans (0.1), pteropods (0.1), doliolids (0.1), others (0.1).
R3 (08/01/2016)	0.3-0.8 (0.6)	2.1-3.7 (2.9)	13-18 (16)	Copepods (75.6), lamellibranchs (26.4), gastropods (3.5), chaetognaths (2.8), appendicularians (2.4), polychaetes (1.6), <i>Lucifer sp.</i> (0.8), siphonophores (0.3), foraminifera (0.1), medusae (0.1), ctenophores (0.1), cladocerans (0.1), pteropods (0.1), others (0.1).
R4 (06/01/2016)	0.6-1.4 (0.9)	1.6-11.2 (4.3)	9-11 (13)	Foraminifera (), copepods (87.4), chaetognaths (3.6), lamellibranchs (3.1), appendicularians (2.1), <i>Lucifer sp.</i> (1.2), decapod larvae (0.9), polychaetes (0.6), fish eggs (0.3), fish larvae (0.1), gastropods (0.1), pteropods (0.1), siphonophores (0.1),

				medusae (0.1), others (0.1).
R5 (06/01/2016)	(0.6)	(2.4)	(10)	Copepods (86.4), lamellibranchs (7.1), appendicularians (3.6), chaetognaths (1.0), <i>Lucifer sp.</i> (0.7), fish larvae(0.4), decapod larvae (0.4), fish eggs (0.3), polychaetes (0.2), gastropods (0.1), others (0.1).

Table 4.18.14: Range and average (parenthesis) of zooplankton at different stations off Ratnagiri during March 2016

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
R1 (16/03/16)	0.8- 2.3 (1.6)	12.58-9.8 (11.2)	13-11 (12)	Foraminiferans(0.1), siphonophores (1.1), chaetognaths (0.8), copepods (93.5), <i>Lucifer sp.</i> (0.7), decapod larvae (0.2), gastropods (0.5), lamellibranchs (2.6), Fish eggs (0.3) Fish larvae (0.1), others (0.1).
R2 (16/03/16)	1.5-24.1 (12.8)	13.44-331.44 (172.44)	14-14 (14)	siphonophores (0.1), Ctenophores (0.1) chaetognaths (0.5), polychaetes (0.5), cladocerans (0.2), copepods (69.8), <i>Lucifer sp.</i> (23.1), decapod larvae (0.3), pteropods (0.5), gastropods (1.1), lamellibranchs (3.2), Fish eggs (0.5), others (0.1).
R3 (14/03/16)	0.7-1.1 (0.9)	13.41-13.93 (13.67)	14-13 (14)	Foraminiferans (0.1), siphonophores (0.6), chaetognaths (2.8), cladocerans(0.1), polychaetes (0.3), copepods (94.0), <i>Lucifer sp.</i> (0.5), decapods larvae (0.1), gastropods (0.1), lamellibranchs (1.1), appendicularians (0.9), fish eggs (1.0), fish larvae (0.1), others (0.1).
R4 (16/03/16)	0.2-2.8 (1.3)	7.53-57.19 (29.28)	11-14 (12)	foraminiferans (0.2), siphonophores (0.5), chaetognaths (0.1),

				polychaetes (0.2), cladocerans (1.6) copepods (94.4), <i>Lucifer</i> sp. (0.8), decapod larvae (0.4), gastropods (0.1), lamellibranchs (0.9), appendicularians (0.3), fish eggs (0.3), others (0.1).
R5 (14/03/16)	0.2 (0.2)	6.86 (6.86)	11 (11)	Foraminiferans (0.1), siphonophores (0.7), cladocerans (1.0), polychaetes (0.2), copepods (96.7), <i>Lucifer</i> sp. (0.1), gastropods (0.1), lamellibranchs (0.8), fish eggs (0.1), fish larvae(0.1), others (0.1).

Table 4.18.15: Abundance of zooplanktons off Ratnagiri during January 2016

Faunal groups	R 1	R 2	R 3	R 4	R 5
Foraminiferans	-	+	+	-	-
Siphonophores	+	+	+	+	-
Medusae	+	+	+	+	-
Ctenophores	+	+	+	+	-
Chaetognaths	+	+	+	+	+
Polychaetes	+	+	+	+	+
Cladocerans	+	+	+	+	-
Copepods	+	+	+	+	+
<i>Lucifer</i> sp.	+	+	+	+	+
Decapod larvae	+	+	+	+	+
Pteropods	+	+	+	+	-
Gastropods	+	+	+	+	+
Lamellibranchs	+	+	+	+	+
Appendicularians	+	+	+	+	+
Doliolids	+	+	+	-	-
Fish Eggs	-	+	+	+	+
Fish Larvae	+	-	+	+	+

Table 4.18.16: Abundance of zooplanktons off Ratnagiri during March 2016

Faunal groups	R1	R2	R3	R4	R5
Foraminiferans	+	+	+	+	+
Siphonophores	+	+	+	+	+
Medusae	+	+	+	+	-
Ctenophores	+	+	+	+	-
Chaetognaths	+	+	+	+	-
Polychaetes	+	+	+	+	+
Cladocerans	-	+	+	+	+
Copepods	+	+	+	+	+
<i>Lucifer</i> sp.	+	+	+	+	+
Decapod larvae	+	+	+	+	+
Pteropods	-	+	-	-	-
Gastropods	+	+	+	+	+
Lamellibranchs	+	+	+	+	+
Appendicularians	+	-	+	+	-
Fish Eggs	+	+	+	+	+
Fish Larvae	+	+	+	+	+

Table 4.18.17: Range and average of macrofauna off Ratnagiri during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (January 2016)									
R1	11.38	157.09	68.06	2300	3925	2831	5	10	7
R2	3.00	8.00	5.00	525	1625	1045	3	6	4
R3	1.00	5.20	2.00	1175	3200	1814	5	7	6
R4	5.80	12.40	9.00	4550	7200	5680	6	7	6
R5	0.04	0.09	0.07	225	725	419	2	3	3
Overall	0.04	157.09	16.83	225	7200	2358	2	10	5
Premonsoon (March 2016)									
R1	31.07	79.59	48.27	3825	12500	7656	6	10	8
R2	6.26	10.60	8.02	1700	6050	3200	4	8	6
R3	2.22	5.94	4.89	3050	6925	4500	6	11	8
R4	16.86	65.10	39.05	10175	12475	10956	9	10	9
R5	0.47	5.02	2.89	250	1225	819	1	4	3
Overall	0.47	79.59	20.62	250	12500	5426	1	11	7

Table 4.18.18: Percentage composition of macrofauna off Ratnagiri during January 2016

Phylum	Groups	Stations					Average
		R1	R2	R3	R4	R5	
Annelida	Polychaeta	78.10	80.19	69.07	57.76	7.46	64.58
Arthropoda	Tanaidacea	0.00	0.00	0.00	28.06	0.00	13.54
Arthropoda	Amphipoda	2.21	1.82	7.27	8.03	0.00	5.68
Arthropoda	Isopoda	0.00	0.00	3.83	0.00	0.00	0.59
Arthropoda	Cumacea	0.66	0.57	1.39	0.00	0.00	0.42
Arthropoda	Brachyura	0.22	1.24	0.00	0.11	0.00	0.21
Arthropoda	Sergestidae	0.00	0.00	0.72	0.00	0.00	0.11
Arthropoda	Decapoda larvae	0.00	1.24	0.00	0.00	2.99	0.22
Arthropoda	Anomura	0.00	0.00	0.33	0.00	0.00	0.05
Arthropoda	Stomatopoda	0.00	0.57	0.00	0.00	0.00	0.05
Arthropoda	Copepoda	0.88	0.00	0.00	0.00	85.07	3.24
Arthropoda	Luciferidae	0.22	0.00	0.00	0.00	0.00	0.05
Arthropoda	Penaeid shrimp	0.22	0.00	0.00	0.00	0.00	0.05
Brachiopoda	Brachiopoda	0.00	0.00	0.33	0.00	0.00	0.05
Chaetognatha	Chaetognatha	0.00	0.00	0.00	0.00	4.48	0.16
Chordata	Fish larvae	0.22	0.00	0.00	0.00	0.00	0.05
Echinodermata	Ophiuroidea	0.44	4.78	0.00	0.99	0.00	1.01
Echinodermata	Holothuroidea	0.00	0.00	1.39	0.00	0.00	0.21
Echiura	Echiura	0.00	0.00	12.16	0.00	0.00	1.86
Mollusca	Pelecypoda	14.82	6.60	0.00	3.63	0.00	5.89
Mollusca	Gastropoda	1.11	0.00	0.00	0.00	0.00	0.27
Nemertea	Nemertea	0.88	2.97	3.50	0.00	0.00	1.01
Sipuncula	Sipuncula	0.00	0.00	0.00	1.43	0.00	0.69

Table 4.18.19: Percentage composition of macrofauna off Ratnagiri during March 2016

Phylum	Groups	Stations					Average
		R1	R2	R3	R4	R5	
Annelida	Polychaeta	66.23	62.48	54.01	35.65	90.84	52.15
Arthropoda	Tanaidacea	0.00	1.19	9.18	18.48	2.29	9.20
Arthropoda	Amphipoda	1.14	0.59	30.97	8.62	0.76	9.04
Arthropoda	Cumacea	0.16	0.00	0.29	0.86	0.00	0.44
Arthropoda	Sergestidae	0.00	0.19	0.56	0.00	0.00	0.11
Arthropoda	Non-penaeid shrimp	0.00	0.00	0.29	0.00	0.00	0.05
Arthropoda	Brachyura	0.33	0.00	0.13	0.05	0.00	0.14
Arthropoda	Anomura	0.00	0.00	0.13	0.00	0.00	0.02
Arthropoda	Mysida	0.08	0.00	0.13	0.00	0.00	0.05
Arthropoda	Penaeid shrimp	0.00	0.00	0.00	0.05	0.00	0.02
Arthropoda	Copepoda	0.00	0.00	0.00	0.00	4.58	0.14
Arthropoda	Luciferidae	0.00	0.00	0.00	0.00	1.53	0.05
Echinodermata	Ophiuroidea	0.00	1.19	0.00	1.26	0.00	0.65
Echinodermata	Holothuroidea	0.16	0.19	0.00	0.00	0.00	0.07
Echiura	Echiura	0.08	0.19	0.00	0.00	0.00	0.05
Mollusca	Pelecypoda	30.42	31.43	2.36	25.10	0.00	22.81
Mollusca	Gastropoda	0.65	0.41	0.13	0.17	0.00	0.32
Mollusca	Scaphopoda	0.08	0.19	0.00	0.00	0.00	0.05
Nemertea	Nemertea	0.57	0.00	0.29	0.91	0.00	0.58
Phoronida	Phoronida	0.00	0.00	0.00	0.12	0.00	0.05
Protista	Foraminifera	0.00	1.97	0.13	5.76	0.00	2.58
Sipuncula	Sipuncula	0.08	0.00	1.40	2.97	0.00	1.45

Table 4.18.20: Station-wise distribution of meiofauna parameters in Ratnagiri

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon (January 2016)									
R1	471.53	534.97	503.25	440	737	589	5	7	6
R2	259.81	1013.57	636.66	201	327	264	3	9	6
R3	119.36	326.76	223.06	433	1352	892	4	8	6
R4	781.34	1123.82	952.58	251	457	354	3	5	4
R5	209.37	252.91	231.14	44	75	59	1	3	2
Premonsoon (March 2016)									
R1	44.19	68.37	56.28	251	365	308	2	6	4
R2	77.45	644.63	361.04	42	425	234	2	5	3
R3	1156.22	1423.78	1290	1553	1737	1645	7	7	7
R4	961.84	2039.36	1500.6	675	1335	1005	8	8	8
R5	161.59	346.17	253.88	120	290	205	4	5	4

Table 4.18.21: Percentage composition of meiofauna off Ratnagiri during January 2016

Groups	R1	R2	R3	R4	R5	Average
Bivalves	0.00	1.47	4.09	0.00	0.00	1.87
Cumaceans	0.00	1.47	0.00	0.00	0.00	0.17
Echiurans	0.00	0.00	0.00	1.00	5.95	0.33
Foraminiferans	6.66	3.24	9.63	2.60	13.10	7.01
Halacaroids	0.00	1.47	0.00	0.00	0.00	0.17
Harpacticoids	1.21	4.72	0.80	0.00	0.00	1.20
Hydrozoans	0.12	0.00	0.00	3.20	0.00	0.57
Kinorhynchs	1.21	0.00	0.40	0.00	0.00	0.50
Nauplius	1.21	1.47	0.00	0.00	0.00	0.50
Nematodes	88.38	72.27	82.66	91.80	80.95	84.54
Nemerteans	0.00	0.00	0.00	1.00	0.00	0.17
Ostracods	0.00	0.00	1.20	0.00	0.00	0.50
Polychaetes	1.21	13.86	0.80	0.40	0.00	2.30
Pycnogonids	0.00	0.00	0.40	0.00	0.00	0.17

Table 4.18.22: Percentage composition of meiofauna off Ratnagiri during March 2016

Groups	R1	R2	R3	R4	R5	Average
Amphipods	0.00	0.00	0.48	0.07	0.00	0.26
Bivalves	0.00	0.00	0.22	0.42	0.00	0.24
Echiurans	0.00	1.52	0.00	0.00	0.00	0.11
Foraminiferans	3.94	3.03	16.76	23.68	29.58	17.92
Gastropods	0.00	0.00	0.00	0.07	0.00	0.02
Gastrotrichs	0.00	0.00	0.22	0.00	0.00	0.11
Harpacticoids	0.00	0.30	0.96	4.79	0.00	1.98
Hydrozoans	0.36	1.52	0.00	0.00	0.00	0.13
Nauplius	0.00	0.00	1.62	1.55	1.76	1.39
Nematodes	94.98	92.12	78.44	60.82	63.03	74.04
Nemerteans	0.36	0.00	0.00	0.07	0.00	0.04
Polychaetes	0.36	1.52	1.31	8.53	5.63	3.76

Table 4.19.1: Water quality off Vijaydurg during January 2016

Parameter	Level	VJ1	VJ2	VJ3	VJ4			VJ5			VJ6		
		Avg*	Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	28.0	27.5	27.5	25.0	28.0	26.7	24.5	28.5	26.5	26.0	28.0	27.0
	B	27.5	27.5	27.0	25.0	27.5	26.5	25.0	28.0	26.5	26.0	27.5	26.8
		(28.5)	(28.5)	(30.0)	(19.5)	(30.0)	(25.1)	(20.0)	(30.0)	(25.0)	(20.5)	(29.5)	(25.0)
SS(mg/l)	S	31	30	32	25	32	28	26	27	27	23	29	26
	B	35	31	28	26	33	29	25	29	27	26	33	30
Turbidity(NTU)	S	1.7	3.2	2.2	1.0	2.4	1.6	1.4	2.0	1.7	1.4	2.0	1.7
	B	1.9	3.0	2.0	1.0	2.6	1.7	2.0	2.4	2.2	2.0	2.4	2.2
pH	S	8.0	8.1	8.1	8.0	8.2	8.2	8.1	8.2	8.2	8.1	8.2	8.2
	B	8.1	8.1	8.1	8.1	8.2	8.2	8.1	8.2	8.2	8.1	8.2	8.2
Salinity(ppt)	S	35.3	35.4	35.5	35.2	35.5	35.4	34.9	35.4	35.2	34.7	35.3	35.0
	B	35.4	35.3	35.4	35.1	35.4	35.3	35.0	35.4	35.2	34.8	35.2	35.0
DO (mg/l)	S	6.3	5.5	5.9	5.4	7.3	6.5	6.0	6.7	6.3	4.8	7.0	5.9
	B	7.8	6.7	7.1	4.4	7.0	5.5	3.5	4.8	4.1	6.0	7.0	6.5
BOD (mg/l)	S	4.4	3.5	3.8	2.9	4.1	3.5	3.8	3.8	3.8	1.9	4.1	3.0
	B	5.4	3.8	4.1	1.9	3.2	2.5	1.6	3.2	2.4	2.5	4.1	3.3
PO ₄ ³⁻ -P (μmol/l)	S	1.2	0.8	0.8	0.3	1.5	0.8	1.2	2.1	1.7	1.1	1.7	1.4
	B	1.1	0.8	0.8	0.4	1.6	0.7	1.6	2.2	1.9	1.4	2.1	1.8
TP(μmol/l)	S	2.5	1.6	1.9	0.9	2.9	1.9	1.8	3.3	2.6	1.8	2.7	2.3
	B	2.2	1.9	1.8	1.1	3.2	2.2	2.2	3.5	2.9	2.6	3.1	2.9
NO ₃ ⁻ -N (μmol/l)	S	3.1	2.2	1.4	0.4	2.4	1.5	0.3	0.6	0.4	0.1	0.2	0.1
	B	2.0	2.1	1.0	0.1	2.4	1.3	0.2	0.3	0.3	0.4	1.8	1.1
NO ₂ ⁻ -N(μmol/l)	S	0.2	0.2	0.2	ND	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	B	0.2	0.2	0.2	ND	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NH ₄ ⁺ -N(μmol/l)	S	2.2	2.7	1.7	1.1	2.4	1.9	3.3	15.9	9.6	12.0	18.9	15.5
	B	2.6	1.6	1.5	0.2	2.4	1.4	4.2	19.4	11.8	14.2	19.3	16.7
TN(μmol/l)	S	9.7	7.8	8.3	10.2	11.3	10.8	12.2	28.9	20.6	23.2	35.3	29.2
	B	8.6	7.9	7.8	8.9	9.6	9.3	16.2	33.2	24.7	29.6	35.2	32.4
PHe(μg/l)	1m	4.3	4.1	9.0	4.0	4.2	4.1	2.2	3.4	2.8	3.1	7.5	5.3
Phenol (μg/l)	S	51.1	107.0	83.5	88.1	95.5	91.8	129.8	144.0	136.9	89.5	127.9	108.7

*Average of two readings

Air temperature given in parenthesis

Table 4.19.2: Water quality off Vijaydurg during March 2016

Parameter	Level	VJ1	VJ2	VJ3	VJ4			VJ5			VJ6		
		Avg*	Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	29.5	29.5	29.5	28.5	30.0	29.4	28.5	28.5	28.5	28.5	29.5	29.0
	B	29.0	29.0	29.5	28.0	29.5	28.9	28.5	28.5	28.5	28.0	29.0	28.5
		(30.0)	(30.0)	(30.5)	(26.5)	(31.0)	(29.3)	(27.0)	(30.0)	(28.5)	(27.0)	(30.5)	(28.8)
SS(mg/l)	S	143	151	167	118	145	132	99	115	107	116	157	137
	B	169	158	129	130	160	145	111	126	119	138	179	158
Turbidity(NTU)	S	4.3	5.7	2.4	1.1	1.9	1.5	1.7	1.8	1.8	1.8	2.1	2.0
	B	3.8	7.0	1.8	1.2	1.9	1.5	1.7	1.9	1.8	1.8	2.5	2.2
pH	S	8.1	8.1	8.1	8.0	8.2	8.1	8.1	8.2	8.2	8.0	8.2	8.1
	B	8.0	8.1	8.1	8.0	8.2	8.1	8.1	8.2	8.2	8.1	8.2	8.2
Salinity(ppt)	S	35.7	35.7	35.8	35.8	35.8	35.8	35.6	35.8	35.7	35.4	35.8	35.6
	B	35.7	35.6	35.7	35.7	35.8	35.8	35.7	35.8	35.7	35.3	35.8	35.6
DO (mg/l)	S	6.0	6.3	6.2	4.8	6.4	5.7	6.4	6.4	6.4	6.1	6.4	6.2
	B	6.3	7.3	6.8	4.5	6.4	5.8	6.1	6.4	6.2	5.4	6.1	5.8
BOD (mg/l)	S	1.3	2.2	1.6	1.9	3.2	2.6	3.5	3.9	3.7	3.2	5.1	4.2
	B	1.9	2.2	1.9	1.6	1.6	1.6	2.0	3.2	2.6	1.6	2.3	2.0
PO ₄ ³⁻ -P (μmol/l)	S	0.1	0.3	0.3	0.3	1.4	0.7	2.7	4.2	3.4	2.6	4.3	3.5
	B	0.2	0.2	0.4	0.5	2.4	1.0	4.1	4.4	4.3	4.8	6.4	5.6
TP(μmol/l)	S	0.8	1.2	1.0	0.9	2.1	1.5	3.6	5.8	4.7	3.4	6.9	5.1
	B	1.1	1.2	1.0	1.1	2.9	2.0	5.6	6.2	5.9	6.3	7.8	7.0
NO ₃ -N (μmol/l)	S	1.3	1.9	1.0	0.9	2.0	1.4	1.2	1.3	1.2	1.1	1.1	1.1
	B	1.0	1.6	1.1	0.8	1.6	1.2	0.9	1.2	1.1	0.9	1.2	1.1
NO ₂ -N(μmol/l)	S	0.1	0.1	0.1	ND	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1
	B	0.1	0.1	0.1	0.1	0.4	0.2	0.3	0.3	0.3	0.2	0.2	0.2
NH ₄ ⁺ -N(μmol/l)	S	0.7	6.8	1.1	0.3	0.7	0.4	0.4	0.7	0.5	0.6	0.9	0.8
	B	0.7	6.8	1.2	0.4	1.0	0.6	0.5	0.6	0.6	0.5	0.5	0.5
TN(μmol/l)	S	11.9	16.9	16.4	8.3	10.6	9.4	16.4	18.6	17.5	15.3	16.8	16.0
	B	13.2	16.9	15.1	9.2	11.5	10.3	18.5	19.8	19.1	12.6	14.8	13.7
PHc(μg/l)	1m	17.2	11.6	10.5	7.6	14.2	10.9	5.7	8.0	6.9	6.7	6.8	6.8
Phenol (μg/l)	S	85.7	127.7	72.6	80.9	112.1	96.5	104.6	136.3	120.5	117.8	143.3	130.6

*Average of two readings

Air temperature given in parenthesis

Table 4.19.3: Sediment quality off Vijaydurg during January 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	Al (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
VJ1	2.1	67.9	30	8.6	192	1225	12.7	63	86	217	137	0.14	0.12	9.5	1.7	801	0.3
VJ2	4.2	64.2	31.6	9.6	182	1108	11.1	64	83	182	114	0.17	0.10	10.7	2.7	744	0.4
VJ3	77.6	13.2	9.2	8.2	187	1495	13.9	68	82	238	150	0.15	0.13	9.8	1.0	364	0.5
VJ4	83.6	13.8	2.6	8.4	226	1814	16.7	93	133	280	199	0.14	0.06	8.1	1.1	1689	1.8
VJ5	95.4	3.4	1.2	9.1	235	1782	17.1	79	103	313	207	0.11	0.04	2.4	0.3	2306	1.3
VJ6	87.2	7.4	5.4	8.4	241	2153	18.3	93	97	283	216	0.10	0.05	5.1	0.3	999	0.5

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.19.4: Sediment quality off Vijaydurg during March 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	Al (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
VJ1	1.1	47.2	51.7	7.5	231	1075	11.4	80	104	166	128	0.19	0.16	14.0	2.3	1961	0.8
VJ2	4.5	79.2	16.3	7.5	213	863	8.8	57	99	122	98	0.21	0.18	12.6	3.0	1885	0.8
VJ3	84.4	6.4	9.2	6.0	255	2138	17.1	96	121	298	218	0.16	0.21	9.6	1.4	368	0.6
VJ4	89.6	9.2	1.2	5.9	299	2142	18.7	162	126	317	251	0.13	0.16	8.4	0.7	498	2.7
VJ5	14.4	69	16.6	6.8	309	2148	18.4	156	132	319	238	0.18	0.14	9.5	1.8	1478	1.5
VJ6	85.0	8.4	6.6	7.4	258	1845	16.6	138	120	267	191	0.15	0.15	10.4	1.7	741	0.6

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.19.5: Microbial counts (CFU/ml) in water off Vijaydurg during 2016

Type of Bacteria	Population in surface water (CFU/ml)																	
	Postmonsoon (January 2016)									Premonsoon (March 2016)								
	VJ1	VJ2	VJ3	VJ4		VJ5		VJ6		VJ1	VJ2	VJ3	VJ4		VJ5		VJ6	
				Eb	Fl	Eb	Fl	Eb	Fl				Fl	Eb	Fl	Eb	Fl	Eb
TVC	9.1 x10 ³	15.2 x10 ³	30 x10 ³	170 x10 ³	6.0 x10 ³	120 x10 ³	18 x10 ³	50 x10 ³	35 x10 ³	21 x10 ³	15 x10 ³	21 x10 ³	19 x10 ³	12 x10 ³	31 x10 ³	12 x10 ³	22 x10 ³	19 x10 ³
TC	90	60	ND	10	ND	20	ND	20	ND	20	500	500	200	100	90	80	100	900
FC	80	40	ND	ND	ND	10	ND	20	ND	10	400	500	200	100	50	20	70	700
ECLO	ND	ND	ND	ND	ND	10	ND	10	ND	10	400	400	150	60	40	20	50	500
SHLO	480	90	ND	550	ND	580	140	640	550	NG	NG	NG	NG	NG	NG	NG	NG	NG
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	NG	NG	NG	NG	NG	NG	NG	NG	NG
PKLO	ND	30	10	20	ND	ND	ND	280	50	10	50	1000	20	20	10	NG	NG	300
VLO	10	30	10	60	10	ND	40	800	320	50	700	NG	150	120	450	200	100	600
VPLO	10	20	10	30	10	ND	30	ND	10	NG	NG	NG	NG	NG	100	NG	80	NG
VCLO	ND	10	ND	30	ND	ND	10	800	310	50	700	NG	150	120	350	200	20	600
PALO	30	20	ND	140	ND	70	ND	100	40	NG	NG	NG	NG	NG	NG	NG	NG	NG
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	NG	NG	NG	NG	NG	NG	NG	NG	NG

ND – Below Detectable Level

Table 4.19.6: Microbial counts (CFU /g) in sediment off Vijaydurg during 2016

Types of Bacteria	Population in sediment (CFU/g)											
	Postmonsoon (January 2016)						Premonsoon (March 2016)					
	VJ1	VJ2	VJ3	VJ4	VJ5	VJ6	VJ1	VJ2	VJ3	VJ4	VJ5	VJ6
TVC	1880 x10 ³	40 x10 ³	740 x10 ³	200 x10 ³	400 x10 ³	100 x10 ³	600 x10 ³	400 x10 ³	900 x10 ³	400 x10 ³	200 x10 ³	300 x10 ³
TC	ND	ND	10	ND	ND	ND	3000	3000	7000	1000	ND	ND
FC	ND	ND	10	ND	ND	ND	2000	1000	6000	1000	ND	ND
ECLO	ND	ND	ND	ND	ND	ND	2000	1000	6000	1000	ND	ND
SHLO	ND	ND	10	ND								
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	10	ND	ND	ND	1000	NG	NG	ND	ND	ND
VLO	70	330	660	ND	250	70	ND	ND	3000	ND	ND	ND
VPLO	70	210	120	10	50	40	ND	ND	1000	ND	ND	ND
VCLO	ND	120	540	ND	200	30	ND	ND	2000	ND	ND	ND
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND-Below Detectable Level

Table 4.19.7: Range and average of phytopigments at different stations off Vijaydurg during January 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
VJ1	11-01-2016	0.8	1.1	0.7	1.1	0.2	0.3	0.3	0.9	3.5	3.6	1.1	2.1
		1.0		0.9		0.3		0.6		3.6		1.6	
VJ2	11-01-2016	1.1	1.5	1.2	1.5	0.2	0.4	0.4	0.4	4.2	4.7	3.2	3.5
		1.3		1.3		0.3		0.4		4.4		3.4	
VJ3	11-01-2016	1.5	2.2	0.9	1.1	0.2	0.3	0.6	0.7	5.2	11.5	1.6	1.6
		1.9		1.0		0.2		0.6		8.4		1.6	
VJ4	12-01-2016	1.3	10.9	0.1	11.2	0.4	2.4	0.3	9.5	2.0	7.2	0.5	6.0
		3.2		2.7		0.9		1.5		3.8		2.5	
VJ5	12-01-2016	2.6	2.6	2.8	3.4	0.4	1.6	1.0	2.8	1.6	7.5	1.0	3.3
		2.6		3.1		1.0		1.9		4.6		2.2	
VJ6	12-01-2016	3.2	7.1	3.9	6.9	0.5	2.4	0.6	2.4	3.0	6.7	2.9	6.0
		5.1		5.4		1.4		1.5		4.8		4.5	

Table 4.19.8: Range and average of phytopigments at different stations off Vijaydurg during March 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
VJ1	10-03-2016	1.8	2.9	1.9	2.2	0.2	0.4	0.6	0.6	7.8	8.5	3.0	3.7
		2.3		2.1		0.3		0.6		8.2		3.4	
VJ2	10-03-2016	1.3	1.4	1.7	2.3	0.1	0.3	0.4	0.6	4.1	9.6	3.5	4.8
		1.3		2.0		0.2		0.5		6.9		4.2	
VJ3	10-03-2016	1.2	1.6	1.7	1.9	0.1	0.3	0.7	1.1	4.1	15.8	1.8	2.5
		1.4		1.8		0.2		0.9		10.0		2.1	
VJ4	11-03-2016	1.3	3.7	1.4	4.2	0.1	1.8	0.3	2.1	1.7	13.9	1.5	9.4
		2.2		2.3		0.8		0.8		4.2		3.5	
VJ5	11-03-2016	2.3	3.0	2.2	3.9	0.7	2.0	0.5	2.0	1.5	3.3	1.9	4.6
		2.6		3.0		1.3		1.2		2.4		3.3	
VJ6	11-03-2016	2.4	3.2	2.9	3.7	0.6	2.4	1.0	2.5	1.3	4.1	1.5	2.9
		2.8		3.3		1.5		1.7		2.7		2.2	

Table 4.19.9: Range and average of phytoplankton at different stations off Vijaydurg during January 2016

Station	Date	Cell count (no × 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
VJ1	11-01-2016	12.2		22.8		7.0		7.0		<i>Coscinodiscus</i>	<i>Skeletonema</i>
										<i>Gonyaulax</i>	<i>Mallomonas</i>
										<i>Guinardia</i>	<i>Cyclotella</i>
										<i>Mallomonas</i>	<i>Coscinodiscus</i>
VJ2	11-01-2016	14.8		12.8		10.0		8.0		<i>Mallomonas</i>	<i>Amphiprora</i>
										<i>Cyclotella</i>	<i>Mallomonas</i>
										<i>Nitzschia</i>	<i>Coscinodiscus</i>
										<i>Eucampia</i>	<i>Gonyaulax</i>
VJ3	11-01-2016	18.2		17.0		8.0		9.0		<i>Mallomonas</i>	<i>Cyclotella</i>
										<i>Pyramimonas</i>	<i>Navicula</i>
										<i>Diploneis</i>	<i>Mallomonas</i>
										<i>Nitzschia</i>	<i>Nitzschia</i>
VJ4	12-01-2016	15.4	24.6	18.8	37.0	10.0	10.0	9.0	14.0	<i>Mallomonas</i>	<i>Cylindrotheca</i>
		20.0		27.9		10.0		11.5		<i>Cylindrotheca</i>	<i>Diploneis</i>
										<i>Dactyliosolen</i>	<i>Tropidoneis</i>
										<i>Coscinodiscus</i>	<i>Navicula</i>
VJ5	12-01-2016	43.0	87.8	89.4	136.6	11.0	12.0	13.0	15.0	<i>Pseudo-nitzschia</i>	<i>Pseudo-nitzschia</i>
										<i>Coscinodiscus</i>	<i>Coscinodiscus</i>
		65.4		113.0		11.5		14.0		<i>Navicula</i>	<i>Thalassionema</i>
										<i>Amphiprora</i>	<i>Navicula</i>
VJ6	12-01-2016	52.2	176.6	156.2	203.2	12.0	14.0	15.0	17.0	<i>Coscinodiscus</i>	<i>Coscinodiscus</i>
		114.4		179.7		13.0		16.0		<i>Pseudo-nitzschia</i>	<i>Pseudo-nitzschia</i>
										<i>Nitzschia</i>	<i>Bacillaria</i>
										<i>Amphiprora</i>	<i>Nitzschia</i>

Table 4.19.10: Range and average of phytoplankton at different stations off Vijaydurg during March 2016

Station	Date	Cell count (no × 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg		
VJ1	10-3-2016	44.6	62.8	11.0	9					<i>Cylindrotheca</i>	<i>Bellorachea</i>
										<i>Lithodesmium</i>	<i>Lithodesmium</i>
										<i>Gymnodium</i>	<i>Cylindrotheca</i>
										<i>Rhizosolenia</i>	<i>Prorocentrum</i>
VJ2	10-3-2016	38.6	27.0	15.0	11.0					<i>Cylindrotheca</i>	<i>Pleurosigma</i>
										<i>Guinardia</i>	<i>Guinardia</i>
										<i>Thalassiothrix</i>	<i>Navicula</i>
										<i>Rhizosolenia</i>	<i>Rhizosolenia</i>
VJ3	10-3-2016	42.2	67.2	13.0	12.0					<i>Cylindrotheca</i>	<i>Bellorachea</i>
										<i>Pleurosigma</i>	<i>Guinardia</i>
										<i>Thalassiosira</i>	<i>Cyclotella</i>
										<i>Navicula</i>	<i>Pleurosigma</i>
VJ4	11-3-2016	78.6	82.4	24.2	78.8	14.0	15.0	12.0	12.0	<i>Bacteriastrum</i>	<i>Bacteriastrum</i>
		80.5		51.5		14.5		12.0		<i>Pleurosigma</i>	<i>Pleurosigma</i>
										<i>Bacillaria</i>	<i>Coscinodiscus</i>
										<i>Coscinodiscus</i>	<i>Odontella</i>
VJ5	11-3-2016	58.2	98.8	43.6	127.2	16.0	17.0	16.0	16.0	<i>Bacteriastrum</i>	<i>Bacteriastrum</i>
		78.5		85.4		16.5		16.0		<i>Pleurosigma</i>	<i>Pleurosigma</i>
										<i>Navicula</i>	<i>Coscinodiscus</i>
										<i>Cylindrotheca</i>	<i>Cylindrotheca</i>
VJ6	11-3-2016	47.4	299.6	95.8	257.4	14.0	17.0	14.0	18.0	<i>Bacteriastrum</i>	<i>Bacteriastrum</i>
		173.5		176.6		15.5		16.0		<i>Navicula</i>	<i>Bellorachea</i>
										<i>Cylindrotheca</i>	<i>Cylindrotheca</i>
										<i>Pleurosigma</i>	<i>Pleurosigma</i>

Table 4.19.11: Percentage composition of phytoplankton population at different station off Vijaydurg during January 2016

Table 4.19.12: Percentage composition of phytoplankton population at different stations off Vijaydurg during March 2016

Table 4.19.13: Range and average (parenthesis) of zooplankton at different stations off Vijaydurg during January 2016

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
VJ1 (11/01/2016)	2.4-2.5 (2.5)	18.5-26.8 (22.7)	14-14 (14)	Copepods (93.5), lamellibranchs (3.2), chaetognaths (1.3), gastropods (1.2), pteropods (0.1), decapod larvae (0.1), cladocerans (0.1) siphonophores (0.1), others (0.1).
VJ2 (11/01/2016)	2.2-3.4 (2.8)	16.5-17.6 (17.1)	13-15 (14)	Copepods (92.9), chaetognaths (4.8), fish eggs (1.2), decapod larvae (0.5), siphonophores (0.3), lamellibranchs (0.2), others (0.1).
VJ3 (11/01/2016)	2.7-4.0 (3.4)	18.3-9.6 (14.0)	15-17 (16)	Copepods (90.0), chaetognaths (6.4), lamellibranchs (0.8), siphonophores (0.7), decapod larvae (0.5), fish eggs (0.3), gastropods (0.2), fish larvae(0.1), others (0.1).
VJ4 (12/01/2016)	0.9-7.7 (3.0)	10.2-29.9 (15.8)	14-16 (15)	Copepods (87.8), chaetognaths (8.5), siphonophores (0.7), cladocerans (0.2), decapod larvae (1.5), lamellibranchs (0.4), pteropods (0.4), fish eggs (0.1), appendicularians (0.1), doliolids (0.1), others (0.1).
VJ5 (12/01/2016)	0.9-5.4 (3.2)	16.2-18.5 (17.3)	15-16 (15)	Copepods (96.6), chaetognaths (1.6), siphonophores (0.5), gastropods (0.4), decapod larvae (0.2), fish eggs (0.1), pteropods (0.1), lamellibranchs (0.1), appendicularians (0.1), cladocerans (0.1), others (0.1).
VJ6 (12/01/2016)	1.8-2.6 (2.2)	8.1-18.2 (13.1)	15-15 (15)	Copepods (89.6), chaetognaths (3.7), decapod larvae (2.4), amphipods (1.6), medusae (1.2), appendicularians (0.6), fish eggs (0.2), lamellibranchs (0.2), gastropods (0.1), cladocerans (0.1), pteropods (0.1), doliolids (0.1), others (0.1).

Table 4.19.14: Range and average (parenthesis) of zooplankton at different stations off Vijaydurg during March 2016

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
VJ1 (10/03/2016)	1.2-3.0 (2.1)	28.3-50.8 (39.6)	16-17 (17)	Copepods (90.1), cladocerans (3.4), chaetognaths (2.3), lamellibranchs (1.2), siphonophores (1.1), gastropods (0.6), decapod larvae (0.5), appendicularians(0.4), <i>Lucifer</i> sp. (0.2), fish eggs (0.1), others (0.1).
VJ2 (10/03/2016)	0.3-0.9 (0.6)	11.1-23.9 (17.5)	13-13 (13)	Copepods (86.7), cladocerans (6.0), fish eggs (2.0), siphonophores (1.9), chaetognaths (1.5), decapod larvae (1.4), lamellibranchs (0.3), <i>Lucifer</i> sp. (0.1), appendicularians(0.1), others (0.1).
VJ3 (10/03/2016)	0.7-4.0 (2.4)	27.5-75.1 (51.3)	13-15 (14)	Copepods (87.1), cladocerans (3.1), fish eggs (2.4), lamellibranchs (2.2), decapod larvae (1.7), chaetognaths (1.6), siphonophores (1.4), <i>Lucifer</i> sp. (0.4), gastropods (0.1), others (0.1).
VJ4 (11/03/2016)	1.7-10.9 (5.2)	22.2-151.8 (56.0)	15-18 (16)	Copepods (76.8), siphonophores (6.3), decapod larvae (5.1), lamellibranchs (4.4), chaetognaths (3.1), <i>Lucifer</i> sp. (1.4), cladocerans (1.3), gastropods (0.6), fish eggs (0.5), appendicularians(0.3), polychaetes (0.1), others (0.1).
VJ5 (11/03/2016)	1.1-5.6 (3.4)	24.2-115.5 (69.9)	14-19 (17)	Copepods (81.2), siphonophores (9.4), chaetognaths (3.1), decapod larvae (3.1), cladocerans (1.5), <i>Lucifer</i> sp. (0.9), lamellibranchs (0.2), fish eggs (0.2), polychaetes (0.1), gastropods (0.1), appendicularians(0.1), others (0.1).
VJ6 (11/03/2016)	0.9-2.3 (1.6)	14.2-38.8 (26.5)	15-17 (16)	Copepods (77.4), decapod larvae (6.0), lamellibranchs (4.4), chaetognaths (3.8),

					siphonophores (3.4), cladocerans (1.7), gastropods (1.3), appendicularians(1.2), <i>Lucifer</i> sp. (0.7), fish eggs (0.2), polychaetes (0.1), isopods (0.1), others (0.1).
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Table 4.19.15: Abundance of zooplanktons off Vijaydurg during January 2016

Faunal groups	VJ1	VJ2	VJ3	VJ4	VJ5	VJ6
Foraminiferans	+	+	+	+	+	-
Siphonophores	+	+	+	+	+	+
Medusae	+	+	+	+	+	+
Ctenophores	+	-	-	+	-	-
Chaetognaths	+	+	+	+	+	+
Polychaetes	+	-	+	+	+	+
Cladocerans	+	+	+	+	+	+
Copepods	+	+	+	+	+	+
Cumaceans	-	-	-	+	+	-
Amphipods	-	+	+	+	+	+
<i>Lucifer</i> sp.	+	+	+	+	+	+
Decapod larvae	+	+	+	+	+	+
Stomatopods	-	+	-	-	-	-
Heteropods	-	-	+	+	-	-
Pteropods	+	+	+	+	+	+
Cephalopods	-	-	-	-	-	+
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Appendicularians	+	+	+	+	+	+
Doliolids	+	+	+	+	+	+
Fish Eggs	-	+	+	+	+	+
Fish Larvae	+	+	+	+	-	+
Others	-	-	-	+	+	-

Table 4.19.16: Abundance of zooplanktons off Vijaydurg during March 2016

Faunal groups	VJ 1	VJ 2	VJ 3	VJ 4	VJ 5	VJ 6
Foraminiferans	+	+	-	+	+	+
Siphonophores	+	+	+	+	+	+
Medusae	+	+	+	+	+	+
Ctenophores	+	-	+	+	-	-
Chaetognaths	+	+	+	+	+	+
Polychaetes	+	+	+	+	+	+
Cladocerans	+	+	+	+	+	+
Ostracods	-	-	-	+	+	-
Copepods	+	+	+	+	+	+
Cumaceans	-	-	+	+	-	-
Amphipods	+	-	-	+	+	+
<i>Lucifer</i> sp.	+	+	+	+	+	+
Decapod larvae	+	+	+	+	+	+
Stomatopods	+	-	-	+	+	-
Heteropods	-	-	-	-	+	-
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Appendicularians	+	+	-	+	+	+
Doliolids	-	-	-	-	-	+
Fish Eggs	+	+	+	+	+	+
Fish Larvae	+	+	+	+	+	+
Isopods	+	-	-	+	+	+

Table 4.19.17: Range and average of macrofauna off Vijaydurg during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon January 2016									
VJ1	4.83	21.63	13.42	1400	2025	1775	6	12	10
VJ2	0.65	5.67	2.13	850	1250	981	3	4	4
VJ3	0.00	28.08	8.29	0	3050	1781	0	11	6
VJ4	0.45	26.40	7.86	300	2525	1356	5	9	7
VJ5	0.30	6.13	2.45	250	2725	1138	4	10	6
VJ6	0.07	1.41	0.50	275	1025	569	6	9	7
Overall	0.00	28.08	5.77	0	3050	1267	0	12	7
Premonsoon March 2016									
VJ1	1.18	24.08	8.65	525	7000	2769	2	6	4
VJ2	0.00	0.62	0.16	0	725	250	0	5	3
VJ3	0.00	0.00	0.00	100	300	206	2	3	3
VJ4	0.27	0.88	0.58	325	575	481	6	10	7
VJ5	0.02	0.19	0.09	25	75	56	1	3	2
VJ6	0.90	17.45	8.27	725	3350	2244	5	10	7
Overall	0.00	24.08	2.96	0	7000	1001	0	10	4

Table 4.19.18: Percentage composition of macrofauna off Vijaydurg during January 2016

Phylum	Group	Stations						Average
		VJ1	VJ2	VJ3	VJ4	VJ5	VJ6	
Annelida	Polychaeta	70.32	87.82	84.56	77.00	38.46	25.27	68.93
Arthropoda	Amphipoda	1.06	-	0.70	1.88	15.93	3.30	3.39
Arthropoda	Tanaidacea	-	-	-	5.16	28.02	-	5.12
Arthropoda	Cumacea	-	-	0.35	1.88	8.24	20.88	3.22
Arthropoda	Brachyura	6.36	-	0.70	-	-	-	1.65
Arthropoda	Mysida	0.35	-	-	2.82	1.10	6.59	1.24
Arthropoda	Copepoda	1.06	0.64	1.40	0.94	1.10	2.20	1.16
Arthropoda	Cladocera	2.12	-	-	-	-	-	0.50
Arthropoda	Anomura	-	-	-	0.94	-	3.30	0.41
Arthropoda	Isopoda	-	-	0.70	0.47	-	-	0.25
Arthropoda	Caridean shrimp	-	0.64	-	-	-	-	0.08
Arthropoda	Decapoda Larvae	-	-	-	-	-	1.10	0.08
Arthropoda	Stomatopoda	0.35	-	-	-	-	-	0.08
Chaetognatha	Chaetognatha	0.35	-	0.35	-	-	1.10	0.25
Chordata	Fish larvae	0.71	-	-	-	-	-	0.17
Cnidaria	Hydrozoa colony	1.06	-	-	-	1.10	-	0.41
Echinodermata	Ophiuroidea	1.77	-	-	0.47	2.75	4.40	1.24
Echinodermata	Holothuroidea	-	-	-	-	-	7.69	0.58
Echiura	Echiura	-	-	1.40	-	0.55	-	0.41
Mollusca	Pelecypoda	7.07	0.64	3.51	1.41	-	18.68	4.21
Mollusca	Gastropoda	0.71	8.33	1.05	-	-	-	1.49
Nemertea	Nemertea	6.01	1.92	4.56	7.04	2.75	5.49	4.79
Phoronida	Phoronida	0.71	-	0.35	-	-	-	0.25
Platyhelminthes	Turbellaria	-	-	0.35	-	-	-	0.08

Table 4.19.19: Percentage composition of macrofauna off Vijaydurg during March 2016

Phylum	Groups	Stations						Average
		VJ1	VJ2	VJ3	VJ4	VJ5	VJ6	
Annelida	Polychaeta	86.46	50.00	60.61	44.16	33.33	10.58	51.82
Arthropoda	Amphipoda	0.68	-	-	10.39	-	2.79	2.19
Arthropoda	Tanaidacea	-	-	-	--	33.33	41.23	15.71
Arthropoda	Penaeid shrimp	-	-	-	9.09	-		0.73
Arthropoda	Cirripedia	-	-	-	-		1.67	0.62
Arthropoda	Cumacea	0.23	-	-	1.30	-	1.11	0.62
Arthropoda	Anomura	-	-	-	-	-	1.39	0.52
Arthropoda	Decapoda Larvae	-	-	-	2.60	-	-	0.21
Arthropoda	Ostracoda	-	2.50	-	-	-	0.28	0.21
Arthropoda	Brachyura	-	-	-	-	-	0.28	0.10
Arthropoda	Caridean shrimp	-	-	-	-	11.11	-	0.10
Arthropoda	Luciferidae	-	-	-	1.30	-	-	0.10
Brachiopoda	Brachiopoda	-	-	-	2.60	-	-	0.21
Chaetognatha	Chaetognatha	-	-	-	1.30	-	-	0.10
Cnidaria	Hydrozoa colony	-	-	-	-	-	0.56	0.21
Echinodermata	Ophiuroidea	0.90	-	-	1.30	22.22	5.01	2.60
Mollusca	Pelecypoda	11.29	37.50	33.33	7.79	-	1.67	9.16
Mollusca	Gastropoda	-	2.50	3.03	3.90	-	-	0.52
Mollusca	Scaphopoda	-	2.50	-	-	-	-	0.10
Nemertea	Nemertea	0.45	5.00	3.03	11.69	-	1.95	2.19
Phoronida	Phoronida	-	-	-	-	-	0.28	0.10
Platyhelminthes	Turbellaria	-	-	-	-	-	31.20	11.65
Sipuncula	Sipuncula	-	-	-	2.60	-	-	0.21

Table 4.19.20: Station-wise distribution of meiofauna parameters in Vijaydurg

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon January 2016									
VJ1	695.23	852.27	773.75	951	1022	987	7	7	7
VJ2	610.16	677.6	643.88	457	879	668	5	6	6
VJ3	1193.28	1342.86	1268.07	558	562	560	7	7	7
VJ4	2768.9	5766.9	4267.9	132	268	200	2	3	3
VJ5	213.65	337.71	275.68	217	229	223	4	7	6
VJ6	1155.43	1537.93	1346.68	801	1042	921	6	7	6
Premonsoon March 2016									
VJ1	209.3	304.98	257.14	61	64	63	4	5	5
VJ2	28.54	50.24	39.39	40	164	102	2	5	4
VJ3	2293.72	2918.56	2606.14	280	361	321	2	6	4
VJ4	176.54	204.04	190.29	100	102	101	2	3	3
VJ5	63.96	490.62	277.29	41	450	246	3	7	5
VJ6	659.38	816.78	738.08	203	277	240	8	8	8

Table 4.19.21: Percentage composition of meiofauna off Vijaydurg during January 2016

Groups	VJ1	VJ2	VJ3	VJ4	VJ5	VJ6	Average
Bivalves	0.36	0.42	0.38	0.00	0.00	0.00	0.24
Foraminiferans	31.85	2.33	2.65	0.00	6.98	10.91	12.95
Halacaroids	0.00	0.11	0.13	0.00	0.00	0.00	0.04
Harpacticoids	0.22	1.27	4.05	1.06	0.63	14.44	4.77
Kinorhynchs	0.79	0.00	0.00	0.00	0.00	0.00	0.22
Mysis	0.00	0.00	0.00	0.00	0.00	0.15	0.04
Nauplius	0.07	0.00	0.38	0.00	0.00	12.52	3.32
Nematodes	65.49	95.13	90.01	96.10	83.81	60.83	76.57
Nemerteans	0.00	0.00	0.00	0.00	0.95	0.00	0.06
Oligochaetes	0.07	0.32	0.00	1.42	6.98	0.00	0.60
Ostracods	0.72	0.00	0.25	0.00	0.32	0.54	0.40
Polychaetes	0.43	0.42	2.15	1.42	0.32	0.61	0.80

Table 4.19.22: Percentage composition of meiofauna off Vijaydurg during March 2016

Table 4.20.1: Water quality off Deogad during January 2016

Parameter	Level	D1	D2	D3	D4			D5			D6		
		Avg*	Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	28.0	28.0	28.0	23.5	27.5	25.6	24.0	27.0	25.5	24.0	27.5	25.8
	B	28.0	27.5	28.5	24.0	27.5	25.9	23.5	26.5	25.0	26.5	27.5	27.0
		(26.0)	(27.5)	(27.5)	(21.5)	(28.0)	(24.5)	(22.0)	(27.5)	(24.8)	(22.0)	(28.0)	(25.0)
SS(mg/l)	S	21	17	18	14	22	18	15	20	17	16	17	17
	B	19	20	21	22	22	22	14	20	17	20	20	20
Turbidity(NTU)	S	2.0	1.1	1.5	1.8	2.7	2.1	1.9	2.5	2.2	2.2	3.1	2.6
	B	1.6	2.2	2.2	1.7	2.4	2.0	2.8	3.0	2.9	2.0	2.0	2.0
pH	S	8.2	8.2	8.1	8.0	8.2	8.1	8.1	8.2	8.2	8.0	8.2	8.1
	B	8.2	8.2	8.2	8.1	8.2	8.2	8.1	8.2	8.2	8.2	8.2	8.2
Salinity(ppt)	S	35.4	35.3	34.8	34.3	35.1	34.6	31.9	34.8	33.4	25.2	34.1	29.7
	B	35.4	35.3	35.3	34.7	35.2	35.0	30.5	35.0	32.8	34.6	34.6	34.6
DO (mg/l)	S	6.9	7.2	6.2	6.1	6.7	6.4	6.1	6.4	6.2	5.8	5.8	5.8
	B	6.4	5.9	5.8	5.1	6.4	5.6	6.7	7.7	7.2	6.4	6.4	6.4
BOD (mg/l)	S	4.2	4.5	2.6	3.6	3.9	3.7	3.8	4.1	4.0	3.8	3.8	3.8
	B	3.8	2.9	3.2	2.6	2.6	2.6	4.8	5.7	5.3	4.5	4.5	4.5
PO ₄ ³⁻ -P (μmol/l)	S	0.6	0.1	0.5	0.2	0.9	0.5	0.4	0.7	0.5	0.5	1.4	1.0
	B	0.7	0.1	0.7	0.5	0.9	0.7	0.5	1.0	0.7	0.6	0.6	0.6
TP(μmol/l)	S	1.2	0.7	1.4	0.3	1.6	0.9	0.7	1.1	0.9	1.1	2.3	1.7
	B	1.6	0.9	1.5	0.9	1.7	1.3	1.0	1.3	1.1	1.2	1.3	1.2
NO ₃ ⁻ -N (μmol/l)	S	1.6	2.2	1.0	1.0	4.1	2.6	1.0	1.2	1.1	0.7	1.9	1.3
	B	1.9	1.1	0.9	1.8	3.7	2.6	0.7	1.4	1.1	1.1	1.1	1.1
NO ₂ ⁻ -N(μmol/l)	S	0.4	0.3	0.2	ND	0.4	0.1	0.1	0.3	0.2	ND	0.3	0.1
	B	0.3	0.3	0.4	ND	0.4	0.1	0.2	0.3	0.2	ND	ND	ND
NH ₄ ⁺ -N(μmol/l)	S	2.1	1.7	1.9	2.1	3.6	3.0	2.0	2.9	2.4	2.3	3.3	2.8
	B	2.1	2.1	1.7	3.0	3.9	3.3	2.7	2.8	2.8	3.3	3.3	3.3
TN(μmol/l)	S	12.8	10.9	9.3	10.9	16.3	13.6	6.8	12.3	9.3	8.2	12.2	10.2
	B	14.6	9.5	8.9	12.9	17.2	15.0	10.2	12.5	11.3	10.2	11.3	10.7
PHc(μg/l)	1m	2.9	1.0	2.6	6.5	7.6	7.1	3.4	5.2	4.3	5.6	6.8	6.2
Phenol (μg/l)	S	23.8	92.4	21.6	27.8	38.2	33.0	8.4	26.2	17.3	85.4	117.4	101.4

*Average of two readings

Air temperature given in parenthesis

Table 4.20.2: Water quality off Deogad during March 2016

Parameter	Level	D1	D2	D3	D4			D5			D6		
		Avg*	Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	29.0	29.0	28.5	27.0	35.0	29.0	28.0	29.0	28.5	27.0	29.0	28.0
	B	28.5	28.5	28.0	26.5	29.0	27.8	27.5	28.5	28.0	28.5	28.5	28.5
		(28.5)	(29.5)	(27.0)	(25.0)	(32.0)	(28.8)	(29.0)	(30.0)	(29.5)	(29.0)	(31.0)	(30.0)
SS(mg/l)	S	21	21	17	19	26	22	19	22	20	20	22	21
	B	18	18	19	17	17	17	18	20	19	18	18	18
Turbidity(NTU)	S	1.7	1.9	1.5	1.7	2.8	2.2	3.3	3.9	3.6	2.2	2.9	2.5
	B	1.6	2.6	1.5	1.9	3.2	2.3	2.8	3.5	3.2	2.1	2.1	2.1
pH	S	8.2	8.2	8.2	8.1	8.2	8.2	8.0	8.0	8.0	8.1	8.1	8.1
	B	8.2	8.2	8.2	8.1	8.2	8.2	8.1	8.1	8.1	8.1	8.1	8.1
Salinity(ppt)	S	35.7	35.6	35.7	35.1	35.2	35.1	34.1	35.0	34.6	33.9	35.1	34.5
	B	35.6	35.6	35.6	35.1	35.2	35.2	34.1	35.6	34.8	35.3	35.3	35.3
DO (mg/l)	S	6.7	6.4	5.8	5.4	6.7	5.9	6.3	7.0	6.7	6.3	6.3	6.3
	B	5.8	5.8	5.8	5.7	6.7	6.2	6.0	6.3	6.2	7.0	7.0	7.0
BOD (mg/l)	S	3.8	3.8	4.2	3.8	4.1	4.0	4.4	4.8	4.6	4.4	4.8	4.6
	B	3.5	3.2	3.2	2.2	2.2	2.2	3.5	3.8	3.6	3.8	3.8	3.8
PO ₄ ³⁻ -P (μmol/l)	S	0.6	0.1	0.6	0.3	0.7	0.4	0.4	0.4	0.4	0.3	0.4	0.4
	B	0.6	0.1	0.6	0.2	0.9	0.5	0.3	0.4	0.3	0.5	0.5	0.5
TP(μmol/l)	S	1.6	0.9	5.2	0.7	1.3	1.0	1.0	1.1	1.0	0.9	1.1	1.0
	B	1.4	1.3	4.1	1.0	1.0	1.0	1.0	1.1	1.0	0.8	0.8	0.8
NO ₃ ⁻ -N (μmol/l)	S	1.6	2.1	1.4	0.7	3.8	1.9	1.8	2.0	1.9	1.4	1.9	1.6
	B	1.7	2.0	1.5	0.7	2.9	1.7	1.5	1.6	1.5	1.1	1.1	1.1
NO ₂ ⁻ -N(μmol/l)	S	0.1	0.1	0.1	ND	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	B	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1
NH ₄ ⁺ -N(μmol/l)	S	0.8	0.3	0.6	0.4	3.3	1.5	0.5	0.7	0.6	0.9	1.1	1.0
	B	0.7	0.4	0.7	0.5	1.5	0.9	1.0	1.7	1.4	0.6	0.6	0.6
TN(μmol/l)	S	8.7	4.1	1.0	0.7	1.3	1.0	6.9	8.2	7.6	7.4	9.3	8.4
	B	9.9	5.2	0.9	1.0	1.0	1.0	9.5	11.3	10.4	5.4	5.4	5.4
PHe(μg/l)	1m	2.5	3.0	8.0	2.9	7.5	5.2	3.3	12.2	7.8	2.9	3.4	3.2
Phenol (μg/l)	S	54.7	85.7	30.0	66.2	77.0	71.6	16.1	38.4	27.2	68.2	114.7	91.4

*Average of two readings

Air temperature given in parenthesis

Table 4.20.3: Sediment quality off Deogad January 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
D1	0.4	83.6	16.0	9.3	182	471	7.8	43	80	87	89	0.12	0.15	17.7	3.4	465	0.2
D2	0.9	57.3	41.8	9.5	185	531	8.3	46	81	94	90	0.15	0.14	16.3	3.3	452	0.9
D3	77.8	12.8	9.4	7.0	167	1195	11.3	56	62	135	115	0.16	0.12	16.6	1.1	416	1.0
D4	40.4	51.0	8.6	7.1	167	1002	10.6	69	61	113	126	0.11	0.11	16.1	1.9	1279	1.4
D5	80.0	12.2	7.8	4.8	181	1052	11.4	55	53	135	99	0.08	0.03	10.1	0.4	1037	0.8
D6	93.4	4.4	2.2	5.1	194	1375	14.4	76	62	208	147	0.11	0.02	12.0	0.3	1019	0.9

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.20.4: Sediment quality off Deogad March 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}} (\%)$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
D1	37.2	50.2	12.6	6.8	214	517	7.7	48	92	86	87	0.14	0.19	11.9	2.8	2125	0.3
D2	2.1	35	62.9	7.3	234	565	8.1	50	100	90	95	0.15	0.06	14.3	3.0	1578	1.3
D3	88.4	6.2	5.4	3.5	222	701	6.8	38	46	56	51	0.18	0.04	19.0	1.1	1268	1.4
D4	96.6	0.8	2.6	6.1	201	827	9.4	76	81	101	105	0.20	0.12	12.4	2.3	1687	1.9
D5	47.4	42.2	10.4	3.4	191	890	11.0	90	56	93	94	0.17	ND	8.5	0.1	1798	1.3
D6	97.8	1.0	1.2	2.4	158	940	8.9	80	53	109	85	0.17	ND	4.8	0.2	618	1.0

Remark:-

*On dry weight basis except PHc which is in wet wt.

ND- Not Detectable

Table 4.20.5: Microbial counts (CFU/ml) in water off Deogad during 2016

Type of Bacteria	Population in surface water (CFU/ml)																	
	Postmonsoon (January 2016)									Premonsoon (March 2016)								
	D1	D2	D3	D4		D5		D6		D1	D2	D3	D4		D5		D6	
				Eb	Fl	Eb	Fl	Eb	Fl				Fl	Eb	Fl	Eb	Fl	Eb
TVC	11x10 ³	4x10 ³	5x10 ³	3x10 ³	2x10 ³	1x10 ³	4x10 ³	45x10 ³	6x10 ³	15x10 ³	11x10 ³	25x10 ³	40x10 ³	82x10 ³	12x10 ³	8x10 ³	14x10 ³	5x10 ³
TC	20	120	ND	40	10	20	60	310	240	200	20	900	200	900	200	20	600	60
FC	20	30	ND	20	ND	10	20	200	50	200	20	800	200	700	100	20	400	40
ECLO	ND	20	ND	30	ND	10	10	30	ND	200	10	600	180	600	100	10	210	10
SHLO	290	510	150	130	ND	ND	180	20	250	ND	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	40	ND	10	10	50	ND	10	ND	ND	ND	1600	60	150	20	60	60	100
VLO	20	50	90	250	70	240	30	450	40	30	300	600	330	510	400	90	230	200
VPLO	20	ND	40	80	20	10	10	ND	30	10	ND	ND	ND	ND	ND	40	ND	ND
VCLO	ND	50	50	170	50	230	20	450	10	20	300	600	330	510	400	50	230	200
PALO	ND	50	10	ND	ND	ND	30	ND	ND	ND	ND	ND	ND	250	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	30	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.20.6: Microbial counts (CFU/g) in sediment off Deogad during 2016

Type of Bacteria	Population in sediment (CFU/g)											
	Postmonsoon (January 2016)						Premonsoon (March 2016)					
	D1	D2	D3	D4	D5	D6	D1	D2	D3	D4	D5	D6
TVC	700 10^3	200×10^3	600×10^3	400×10^3	600×10^3	300×10^3	100×10^3	30×10^3	100×10^3	320×10^3	400×10^3	1200×10^3
TC	ND	ND	ND	ND	ND	ND	ND	ND	400	2000	4000	8000
FC	ND	ND	ND	ND	ND	ND	ND	ND	300	1000	3000	4000
ECLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	1000	1000	2000
SHLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	ND	ND	ND	ND	ND	100	ND	ND	ND
VLO	120	ND	150	10	390	190	ND	ND	900	ND	ND	ND
VPLO	120	ND	90	10	150	120	ND	ND	200	ND	ND	ND
VCLO	ND	ND	60	ND	240	70	ND	ND	700	ND	ND	ND
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND- Below Detectable Level

Table 4.20.7: Range and average of phytopigments at different stations off Deogad during January 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
D1	13/01/2016	1.1	1.4	1.1	1.3	0.7	0.8	0.6	0.8	1.4	2.0	1.3	2.2
		1.2		1.2		0.7		0.7		1.7		1.8	
D2	13/01/2016	1.5	1.5	1.2	1.3	0.6	0.7	0.7	0.9	2.1	2.7	1.6	1.8
		1.5		1.3		0.6		0.8		2.4		1.7	
D3	13/01/2016	3.6	3.9	1.4	1.6	0.8	0.9	1.1	1.2	4.0	4.6	1.1	1.4
		3.8		1.5		0.9		1.2		4.3		1.3	
D4	14/01/2016	2.0	6.9	2.0	3.5	0.5	2.6	0.5	1.2	1.8	7.9	2.3	4.3
		3.7		2.8		1.1		0.9		3.9		3.2	
D5	14/01/2016	3.8	4.4	3.7	4.6	0.8	1.0	0.7	0.8	3.8	5.4	5.1	5.9
		4.1		4.1		0.9		0.8		4.6		5.5	
D6	14/01/2016	4.6	6.2	6.0	6.0	0.5	0.7	1.0	1.0	8.4	8.5	6.2	6.2
		5.4		6.0		0.6		1.0		8.5		6.2	

Table 4.20.8: Range and average of phytopigments at different stations off Deogad during March 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
D1	08/03/2016	1.6	1.8	1.5	2.0	0.5	0.5	0.1	0.4	3.5	4.1	5.8	11.3
		1.7		1.8		0.5		0.2		3.8		8.6	
D2	08/03/2016	1.2	1.4	1.4	1.5	0.2	0.3	0.3	0.3	5.2	5.4	5.1	5.1
		1.3		1.4		0.3		0.3		5.3		5.1	
D3	08/03/2016	2.4	2.5	13.5	13.6	0.3	0.3	0.2	0.6	6.9	8.1	23.8	56.5
		2.4		13.5		0.3		0.4		7.5		40.1	
D4	09/03/2016	2.2	7.2	2.4	7.1	0.5	1.4	0.6	1.8	2.6	9.9	2.7	7.5
		4.1		4.2		0.9		1.0		4.9		4.4	
D5	09/03/2016	3.1	3.5	1.8	3.5	0.4	0.9	0.6	1.1	3.8	8.6	3.0	3.2
		3.3		2.7		0.6		0.9		6.2		3.1	
D6	09/03/2016	3.5	3.5	2.8	2.8	0.2	1.2	0.4	0.4	2.9	20.5	6.7	6.7
		3.5		2.8		0.7		0.4		11.7		6.7	

Table 4.20.9: Range and average of phytoplankton at different stations off Deogad during January 2016

Station	Date	Cell count (no × 10 ³ Cells/l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg		
D1	13/01/2016	32.4		10.8		11.0		6		<i>Cylindrotheca</i>	<i>Nitzschia</i>
D2	13/01/2016	24.4		30.6		6.0		7		<i>Nitzschia</i>	<i>Coscinodiscus</i>
D3	13/01/2016	503.0		87.0		17.0		10		<i>Thalassiosira</i>	<i>Amphiphora</i>
D4	14/01/2016	477.6	3747.2	359.0	12.0	10.0	14.0	14	21	<i>Ceratium</i>	<i>Bacillaria</i>
D5	14/01/2016	2112.4				15.0	17.0			<i>Skeletonema</i>	<i>Skeletonema</i>
D6	14/01/2016	590.4	2271.2	423.2	572.0	1430.8	497.6	17.0	18.0	<i>Cylindrotheca</i>	<i>Nitzschia</i>
		442.6	651.4	508.4	17.5	547.0		17.0	18.0	<i>Pseudo-nitzschia</i>	<i>Cylindrotheca</i>
										<i>Pseudo-nitzschia</i>	<i>Pseudo-nitzschia</i>
										<i>Bacillaria</i>	<i>Bacillaria</i>
										<i>Thalassionema</i>	<i>Thalassionema</i>

Table 4.20.10: Range and average of phytoplankton at different stations off Deogad during March 2016

Station	Date	Cell count (no × 10 ³ Cells/l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
D1	8/3/2016	30.2		60.6		14.0		10.0		<i>Cylindrotheca</i>	<i>Pleurosigma</i>
D2	8/3/2016	34.6		41.4		13.0		11.0		<i>Navicula</i>	<i>Cylindrotheca</i>
D3	8/3/2016	57.8		218.0		16.0		13.0		<i>Diploneis</i>	<i>Navicula</i>
D4	9/3/2016	86.8	116.6	177.0	177.0	15.0	20.0	21.0	21.0	<i>Guinardia</i>	<i>Pseudo-nitzschia</i>
		101.7		177.0		17.5		21.0		<i>Cylindrotheca</i>	<i>Mallomonas</i>
D5	9/3/2016	51.8	93.6	46.4	85.6	14.0	18.0	16.0	21.0	<i>Nitzschia</i>	<i>Pleurosigma</i>
		72.7		66.0		16.0		18.5		<i>Coscinodiscus</i>	<i>Gyrosigma</i>
D6	9/3/2016	96.0	117.2	96.4	96.4	15.0	20.0	19.0	19.0	<i>Bacillaria</i>	<i>Nitzschia</i>
				96.4				19.0		<i>Thalassiosira</i>	<i>Cyclotella</i>

Table 4.20.11: Percentage composition of phytoplankton population at different station off Deogad during January 2016

Genera	D1	D2	D3	D4	D5	D6	Total Avg.
<i>Actinastrum</i>	-	-	-			<0.1	0.0
<i>Alexandrium</i>	-	-	-	<0.1	<0.1		0.0
<i>Amphiphora</i>	4.6	-	-	-	<0.1		0.8
<i>Amphora</i>	-	-	-		<0.1		0.0
<i>Asterionella</i>	-	-	-		<0.1	7.1	1.2
<i>Astromaphalus</i>	-	-	-			<0.1	0.0
<i>Aulaeoseira</i>			<0.1			0.1	0.0
<i>Bacillaria</i>	4.6		0.2	0.5	1.2	0.1	1.1
<i>Bacteriastrum</i>	-	-	-			0.2	0.0
<i>Biddulphia</i>	-	-	-			<0.1	0.0
<i>Ceratium</i>	4.6			<0.1			0.8
<i>Chaetoceros</i>			0.7			<0.1	0.1
<i>Chodatella</i>	-	-	-			0.3	0.0
<i>Coccineis</i>	-	-	-			0.2	0.0
<i>Coscinodiscus</i>	9.3	7.6	0.3	<0.1	0.5		3.0
<i>Cyclotella</i>	0.5	0.4		<0.1	0.3		0.2
<i>Cylindrotheca</i>	27.8	7.3	7.5	1.5	5.3		8.2
<i>Dactyliosolen</i>	-	-	-	<0.1			0.0
<i>Dinophysis</i>	-	-	-		<0.1		0.0
<i>Diploneis</i>		3.6			0.1		0.6
<i>Ditylum</i>	-	-	-			0.4	0.1
<i>Dityocha</i>		0.4					0.1
<i>Eucampia</i>	-	-	-	<0.1		0.5	0.1
<i>Fragillaria</i>	-	-	-		0.8		0.1
<i>Guinardia</i>			0.3	<0.1	0.1	2.6	0.5
<i>Gymnodium</i>			0.7				0.1
<i>Gyrosigma</i>			0.4		<0.1		0.1
<i>Hemiaulus</i>	-	-	-			0.1	0.0
<i>Hemidiscus</i>	-	-	-			0.1	0.0
<i>Lauderia</i>			0.3	<0.1	<0.1		0.1
<i>Leptocylindrus</i>	4.6			0.1	<0.1		0.8
<i>Licmophora</i>	-	-	-			0.4	0.1
<i>Lithodesmium</i>	-	-	-			8.6	1.4
<i>Mallomonas</i>		7.6	<0.1	<0.1	<0.1		1.3
<i>Melosira</i>	-	-	-			1.6	0.3
<i>Navicula</i>	4.6		0.7	0.2	0.2		1.0
<i>Neodenticula</i>	-	-	-			<0.1	0.0
<i>Nitzschia</i>	13.9		1.0	1.3	<0.1		2.7
<i>Noctiluca</i>	-	-	-			2.0	0.3
<i>Odontella</i>	-	-	-		<0.1	<0.1	0.0
<i>Ornithocercus</i>	4.6	-	-	-			0.8
<i>Peridinium</i>			<0.1		0.1		0.0
<i>Pinnularia</i>	-	-	-			70.1	11.7
<i>Pleurosigma</i>	0.5	3.6	0.7	<0.1	0.3	0.1	0.9
<i>Prorocentrum</i>			<0.1		<0.1		0.0
<i>Protoperidinium</i>			0.7		0.2	<0.1	0.2
<i>Pseudo-nitzschia</i>	4.6		0.1	<0.1	3.8		1.4
<i>Rabdonema</i>	-	-	-			<0.1	0.0
<i>Rhizosolenia</i>			<0.1	<0.1	0.1		0.0
<i>Skeletonema</i>		65.5	84.7	95.6	85.4		55.2
<i>Spirulina</i>	-	-	-			3.4	0.6
<i>Stawraneis</i>	-	-	-			1.3	0.2

<i>Surirella</i>	4.6	3.6	0.4		<0.1		1.5
<i>Synedra</i>	-	-	-			<0.1	0.0
<i>Tetraspora</i>	-	-	-			0.2	0.0
<i>Thalassionema</i>				0.2	0.5		0.1
<i>Thalassiosira</i>	11.1		1.0	0.1	0.2		2.1
<i>Thalassiothrix</i>	-	-	-		<0.1		0.0
<i>Trichodesmum</i>		0.4			<0.1		0.1
<i>Ulothrix</i>	-	-	-		<0.1		0.0
Total	100.0						

Table 4.20.12: Percentage composition of phytoplankton population at different station off Deogad during March 2016

Genera	D1	D2	D3	D4	D5	D6	Total%
<i>Alexandrium</i>	-	-	0.73	<0.1	<0.1	0.65	0.25
<i>Amphiprora</i>	-	0.26	0.73	0.53	1.01	0.78	0.55
<i>Amphora</i>	-	-	-	<0.1	0.72	-	0.13
<i>Aulaeoseira</i>	-	-	-	-	0.72	-	0.12
<i>Bacillaria</i>	-	-	-	2.10	5.05	2.58	1.62
<i>Bacteriastrum</i>	-	2.63	-	9.67	2.16	0.19	2.44
<i>Bellorachea</i>	-	-	-	0.53	-	-	<0.1
<i>Cerataulina</i>	0.22	5.26	0.73	<0.1	1.44	2.00	1.62
<i>Ceratium</i>	-	-	-	<0.1	-	-	<0.1
<i>Chaetoceros</i>	-	-	-	3.15	0.43	7.75	1.89
<i>Coscinodiscus</i>		0.26	0.73	3.26	10.96	27.13	7.06
<i>Cyclotella</i>	0.22	2.89	-	2.10	0.72	3.94	1.65
<i>Cylindrotheca</i>	19.82	7.89	5.08	9.88	12.26	2.65	9.60
<i>Dactyliosolen</i>	-	-	-	-	0.14	-	<0.1
<i>Dinophysis</i>	-	-	-	0.53	-	-	<0.1
<i>Diploneis</i>	4.41	-	-	2.10	0.14	-	1.11
<i>Eucampia</i>	-	-	-	0.53	-	1.29	0.30
<i>Gonyaulax</i>	-	-	-	-	-	0.26	<0.1
<i>Guinardia</i>	2.20	-	4.35	5.31	3.03	<0.1	2.49
<i>Gymnodium</i>	2.20	-	-	0.53		2.58	0.89
<i>Gyrodinium</i>	-	-	-	-	0.72		0.12
<i>Gyrosigma</i>	2.86	13.16	21.75	0.53	0.14	2.00	6.74
<i>Hemiaulus</i>	-	-	-	-	0.72	-	0.12
<i>Lauderia</i>	-	-	-	<0.1	-	-	<0.1
<i>Leptocylindrus</i>	-	-	<0.1	-	0.72	-	0.13
<i>Lithodesmium</i>	-	1.05	0.29	1.58	-	-	0.49
<i>Mallomonas</i>	0.44	18.42	0.73	1.16	<0.1	2.00	3.80
<i>Navicula</i>	17.62	5.26	3.63	3.68	10.81	2.58	7.26
<i>Nitzschia</i>	0.44	10.53	7.98	3.84	11.54	7.30	6.94
<i>Noctiluca</i>	-	-	0.73	-	-	<0.1	0.13
<i>Odontella</i>	0.22	-	-	0.58	2.38	0.65	0.64
<i>Peridinium</i>	2.20	0.26	0.15	1.05	4.47	3.94	2.01
<i>Pleurosigma</i>	26.43	16.05	46.41	2.63	11.54	1.29	17.39
<i>Prorocentrum</i>	2.20	2.89	0.73	0.11	0.72	2.00	1.44
<i>Protoperidinium</i>	-	-	-	-	-	<0.1	<0.1
<i>Pseudo-nitzschia</i>	11.01	7.89	0.58	0.58	2.31	2.58	4.16
<i>Pyromimonas</i>	-	-	-	-	-	1.29	0.22
<i>Rhizosolenia</i>	-	-	<0.1	<0.1	2.31	0.65	0.51
<i>Skeletonema</i>	-	-	-	39.43	-	-	6.57
<i>Surirella</i>	2.20	2.63	2.18	1.68	1.59	-	1.71
<i>Thalassionema</i>	-	-	-	0.53	2.24	0.32	0.51

<i>Thalassiosira</i>	-	-	0.22	1.58	5.05	17.44	4.05
<i>Thalassiothrix</i>	-	-	2.18	-	<0.1	-	0.37
<i>Triceratium</i>		2.63	-	-	-	-	0.44
<i>Tropidoneis</i>	5.29	-	-	0.53	3.75	3.94	2.25
Total	100.00						

Table 4.20.13: Range and average (parenthesis) of zooplankton at different stations off Deogad during January 2016

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
D1 (13/01/2016)	4.9-5.7 (5.3)	35.3-37.7 (36.5)	14-16 (15)	copepods (87.9), chaetognaths (6.3), <i>Lucifer sp.</i> (3.5), siphonophores (1.2), decapod larvae (0.6), lamellibranchs (0.3), fish larvae(0.1), foraminifera (0.1), others (0.1)
D2 (13/01/2016)	1.0-7.1 (4.1)	18.6-44.9 (31.7)	11-12 (12)	copepods (90.3), chaetognaths (5.8), siphonophores (1.2), <i>Lucifer sp.</i> (1.1), decapod larvae (0.6), lamellibranchs (0.6), fish larvae(0.1), fish eggs (0.1), others (0.1).
D3 (13/01/2016)	0.6-0.8 (0.7)	3.2-11.3 (7.2)	13-14 (14)	copepods (77.6), chaetognaths (10.7), decapod larvae (4.2), siphonophores (3.4), <i>Lucifer sp.</i> (2.2), lamellibranchs (0.8), fish eggs (0.4), gastropods (0.2), fish larvae(0.2), foraminifera (0.1), others (0.1).
D4 (14/01/2016)	0.4-0.7 (0.6)	3.6-8.3 (5.9)	11-12 (11)	copepods (76.8), appendicularians (6.8), chaetognaths (5.6), decapod larvae (3.9), lamellibranchs (3.7), <i>Lucifer sp.</i> (1.3), gastropods (0.8), siphonophores (0.4), fish larvae(0.4), fish eggs (0.1), foraminifera (0.1), others (0.1).
D5 (14/01/2016)	0.7-1.8 (1.3)	5.9-7.6 (6.7)	12-14 (13)	copepods (81.4), decapod larvae (5.3), chaetognaths (4.4), gastropods (4.0), lamellibranchs (2.2), appendicularians (1.2), polychaetes (0.4),

				foraminifera (0.2), siphonophores (0.2), <i>Lucifer</i> sp. (0.2), fish eggs (0.2), fish larvae(0.1), others (0.1).
D6 (14/01/2016)	(1.8)	(6.1)	(14)	copepods (82.7), decapod larvae (8.6), gastropods (3.8), chaetognaths (2.7), appendicularians (0.6), fish eggs (0.5), lamellibranchs (0.4), polychaetes (0.3), <i>Lucifer</i> sp. (0.2), fish larvae(0.1), foraminifera (0.1), siphonophores (0.1), others (0.1).

Table 4.20.14: Range and average (parenthesis) of zooplankton at different stations off Deogad during March 2016

Station (Date)	Biomass (ml/100m ³)	Population (no×10 ³ /100m ³)	Total Groups (no)	Major group (%)
D1 (08/03/2016)	4.1-6.9 (5.5)	35.3-47.5 (41.4)	12-14 (13)	Copepods (73.6), chaetognaths (12.8), cladocerans (8.2), cumaceans (2.9), siphonophores (1.1), gastropods (0.6), foraminifera (0.3), lamellibranchs (0.3), others (0.1).
D2 (08/03/2016)	3.6-8.6 (6.1)	30.5-43.5 (37.0)	14 (14)	Copepods (73.2), chaetognaths (12.5), cumaceans (4.3), cladocerans (3.7), decapod larvae (2.0), gastropods (1.4), fish eggs (1.4), siphonophores (0.9), ctenophores (0.2), lamellibranchs (0.1), appendicularians(0.1), others (0.1).
D3 (08/03/2016)	1.1-2.1 (1.6)	31.0-77.7 (54.3)	13-14 (14)	Copepods (75.5), cladocerans (12.5), lamellibranchs (4.1), siphonophores (1.9), chaetognaths (1.7), decapod larvae (1.6), <i>Lucifer</i> sp. (1.3), gastropods (1.0), appendicularians(0.1), fish eggs (0.1), others (0.1).
D4 (09/03/2016)	1.2-5.2 (3.2)	45.8-189. (123.6)	12-14 (13)	Copepods (89.4), decapod larvae (4.0), gastropods (2.1), lamellibranchs (2.1),

				chaetognaths (0.7), <i>Lucifer</i> sp. (0.5), siphonophores (0.4), cladocerans (0.4), appendicularians(0.2), fish eggs (0.2), others (0.1).
D5 (09/03/2016)	2.3-5.1 (3.7)	111.7-115.6 (113.7)	13-16 (15)	Copepods (45.2), cumaceans (35.6), <i>Lucifer</i> sp. (7.1), lamellibranchs (3.2), cladocerans (2.4), decapod larvae (2.2), siphonophores (1.5), gastropods (1.3), chaetognaths (1.1), fish eggs (0.4), others (0.1).
D6 (09/03/2016)	(2.4)	(104.8)	(15)	Copepods (90.8), decapod larvae (2.4), lamellibranchs (1.9), chaetognaths (1.2), gastropods (1.0), cladocerans (0.9), siphonophores (0.8), <i>Lucifer</i> sp. (0.6), fish eggs (0.3), others (0.1).

Table 4.20.15: Abundance of zooplankton off Deogad during January 2016

Faunal Groups	D1	D2	D3	D4	D5	D6
Foraminiferans	+	+	+	+	+	+
Siphonophores	+	+	+	+	+	+
Medusae	+	-	+	+	+	+
Chaetognaths	+	+	+	+	+	+
Polychaetes	+	+	+	+	+	+
Copepods	+	+	+	+	+	+
Amphipods	+	-	+	-	-	-
<i>Lucifer</i> sp.	+	+	+	+	+	+
Decapod larvae	+	+	+	+	+	+
Stomatopods	+	-	+	-	-	-
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Appendicularians	-	+	+	+	+	+
Doliolids	+	+	-	-	-	-
Fish Eggs	-	+	+	+	+	+
Fish Larvae	+	+	+	+	+	+
Isopods	-	-	+	-	+	-
<i>Acetes</i> sp.	-	-	-	-	-	+

Table 4.20.16: Abundance of zooplankton off Deogad during March 2016

Faunal groups	D1	D2	D3	D4	D5	D6
Foraminiferans	+	+	+	+	+	+
Siphonophores	+	+	+	+	+	+
Medusae	-	+	+	+	+	-
Ctenophores	+	+	+	-	-	+
Chaetognaths	+	+	+	+	+	+
Polychaetes	+	+	+	+	+	+
Cladocerans	+	+	+	+	+	+
Copepods	+	+	+	+	+	+
Cumaceans	+	+	-	-	+	-
Amphipods	-	-	-	+	-	-
<i>Lucifer</i> sp.	+	+	+	+	+	+
Decapod larvae	+	+	+	+	+	+
Heteropods	-	-	-	+	+	+
Pteropods	-	+	-	-	-	-
Gastropods	+	+	+	+	+	+
Lamellibranchs	+	+	+	+	+	+
Appendicularians	+	+	+	+	+	-
Fish Eggs	+	+	+	+	+	+
Fish Larvae	+	+	+	+	+	+
Isopods	-	-	-	+	+	+

Table 4.20.17: Range and average (parenthesis) of sub tidal macro benthos off Deogad during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon January 2016									
D1	3.59	8.72	6.44	975	1200	1075	7	13	9
D2	2.53	49.24	25.89	675	1050	919	5	7	6
D3	3.01	50.41	15.98	1625	3575	2750	5	10	7
D4	14.12	53.21	25.94	1125	7225	3144	6	7	6
D5	0.50	24.73	7.32	250	1625	863	4	7	5
D6	2.23	78.73	25.32	225	1250	850	5	7	6
Overall	0.50	78.73	17.82	225	7225	1600	4	13	7
Premonsoon March 2016									
D1	0.00	1.16	0.38	0	375	106	0	5	2
D2	0.00	12.91	3.24	0	325	88	0	3	1
D3	0.28	9.13	5.66	275	3100	2100	7	12	9
D4	0.09	24.29	7.16	200	6250	2300	4	9	6
D5	0.19	1.75	0.71	200	1375	725	3	6	4
D6	0.79	50.09	14.45	175	675	413	3	5	4
Overall	0.00	50.09	5.27	0	6250	955	0	12	4

Table 4.20.18: Percentage composition of macrofauna off Deogad during January 2016

Phylum	Groups	Stations						Average
		D1	D2	D3	D4	D5	D6	
Annelida	Polychaeta	44.77	75.51	84.09	36.38	28.99	7.35	51.50
Arthropoda	Amphipoda	0.58	4.08	3.41	13.12	0.72	-	5.79
Arthropoda	Tanaidacea	-	-	6.14	39.56	-	-	14.71
Arthropoda	Copepoda	10.47	-	0.23	-	-	2.21	1.43
Arthropoda	Cumacea	0.58	-	0.45	0.99	3.62	2.21	1.04
Arthropoda	Brachyura	1.74	2.72	0.23	0.20	-	-	0.59
Arthropoda	Anomura	-	-	0.23	-	-	3.68	0.39
Arthropoda	Mysida	0.58	-	0.23	0.20	0.72	0.74	0.33
Arthropoda	Isopoda	-	-	-	0.60	0.72	-	0.26
Arthropoda	Luciferidae	0.58	1.36	0.23	-	-	-	0.26
Arthropoda	Caridean shrimp	-	-	-	-	0.72	-	0.07
Arthropoda	Decapoda Larvae	-	-	0.23	-	-	-	0.07
Brachiopoda	Brachiopoda	-	-	-	-	-	0.74	0.07
Chaetognatha	Chaetognatha	2.33	-	-	-	-	-	0.26
Cnidaria	Anthozoa	-	-	-	-	0.72	-	0.07
Cnidaria	Hydrozoa colony	0.58	-	-	-	-	-	0.07
Echinodermata	Holothuroidea	0.58	-	-	-	-	1.47	0.20
Echinodermata	Ophiuroidea	0.58	-	-	-	-	1.47	0.20
Mollusca	Pelecypoda	5.23	6.12	1.59	8.35	48.55	77.94	15.63
Mollusca	Gastropoda	19.77	1.36	-	0.40	4.35	0.74	2.93
Mollusca	Scaphopoda	-	1.36	0.45	-	-	-	0.26
Nemertea	Nemertea	6.98	7.48	1.59	0.20	8.70	1.47	2.93
Phoronida	Phoronida	2.33	-	-	-	-	-	0.26
Platyhelminthes	Turbellaria	0.58	-	0.68	-	2.17	-	0.46
Sipuncula	Sipuncula	1.74	-	0.23	-	-	-	0.26

Table 4.20.19: Percentage composition of macrofauna off Deogad during March 2016

Phylum	Groups	Stations						Average
		D1	D2	D3	D4	D5	D6	
Annelida	Polychaeta	64.71	28.57	58.93	40.76	22.41	4.55	42.75
Arthropoda	Amphipoda			25.89	13.32			14.83
Arthropoda	Tanaidacea				27.17	0.86		11.01
Arthropoda	Isopoda			2.08	2.45	49.14	1.52	8.07
Arthropoda	Brachyura	5.88		2.68	0.54			1.31
Arthropoda	Cumacea	5.88		0.89	0.54			0.65
Arthropoda	Anomura			0.30		3.45		0.55
Arthropoda	Caridean shrimp			1.19				0.44
Arthropoda	Mysida			0.30		1.72	1.52	0.44
Arthropoda	Ostracoda			0.89				0.33
Arthropoda	Copepoda						1.52	0.11
Arthropoda	Luciferidae				0.27			0.11
Chaetognatha	Chaetognatha			0.30				0.11

Cnidaria	Anthozoa						1.52	0.11
Cnidaria	Cnidaria			0.30				0.11
Cnidaria	Hydrozoa colony						1.52	0.11
Echinodermata	Ophiuroidea			0.30	0.82			0.44
Echiura	Echiura		14.29					0.22
Mollusca	Pelecypoda	11.76		0.30	11.41		69.70	9.92
Mollusca	Gastropoda			0.30	0.27		12.12	1.09
Mollusca	Polyplacophora			2.38				0.87
Nematoda	Nematoda			0.30				0.11
Nematomorpha	Nematomorpha	11.76		0.60				0.44
Nemertea	Nemertea			2.08	2.45	21.55	6.06	4.91
Phoronida	Phoronida		57.14					0.87
Platyhelminthes	Turbellaria					0.86		0.11

Table 4.20.20: Station-wise distribution of meiofauna parameters in Deogad

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon January 2016									
D1	346.24	755.88	551.06	556	1018	787	5	7	6
D2	171.4	200.7	188.65	1052	1081	1067	6	7	7
D3	1653.29	2121.11	1887.2	2154	3114	2634	6	9	8
D4	126.35	438.75	282.55	149	433	291	3	5	4
D5	292.31	376.97	334.64	412	653	532	4	5	5
D6	166.54	233.72	200.13	217	386	301	3	7	5
Premonsoon March 2016									
D1	56.24	286.38	171.4	28	150	89	2	4	3
D2	9.61	14.49	12.55	71	85	78	2	2	2
D3	412.58	602.28	507.43	120	279	200	5	6	6
D4	10.65	51.53	31.09	7	45	26	1	2	2
D5	814.62	1546.38	1180.5	1032	2594	1813	5	7	6
D6	235.29	417.13	326.21	294	798	546	5	6	6

Table 4.20.21: Percentage composition of meiofauna off Deogad during January 2016

Groups	D1	D2	D3	D4	D5	D6	Average
Bivalves	0.09	0.07	0.13	0.00	0.00	0.00	0.09
Foraminiferans	4.06	2.99	3.24	3.89	2.14	8.79	3.53
Halacaroids	0.00	0.00	0.00	0.00	0.00	1.19	0.06
Harpacticoids	10.38	1.40	1.75	7.79	16.29	1.19	4.56
Hydrozoans	0.09	0.00	0.00	0.00	0.00	0.00	0.01
Insects	0.00	0.00	0.00	1.22	0.00	0.00	0.06
Kinorhynchs	5.42	0.40	0.13	1.22	0.00	0.00	0.96
Nauplius	0.00	0.00	1.08	3.89	2.80	0.00	0.97
Nematodes	78.97	94.41	93.23	80.78	74.63	86.22	88.67
Nemerteans	0.00	0.00	0.13	0.00	0.00	0.24	0.08
Ostracods	0.00	0.07	0.00	0.00	0.00	1.19	0.08
Polychaetes	0.99	0.66	0.30	1.22	4.01	1.19	0.91
Tardigrades	0.00	0.00	0.00	0.00	0.13	0.00	0.01

Table 4.20.22: Percentage composition of meiofauna off Deogad during March 2016

Groups	D1	D2	D3	D4	D5	D6	Average
Foraminiferans	3.97	13.64	5.88	0.00	6.09	32.12	11.39
Harpacticoids	3.97	0.00	21.57	29.73	37.01	19.95	30.35
Kinorhynchs	0.00	0.00	3.92	0.00	0.00	0.00	0.26
Nauplius	0.00	0.00	1.96	0.00	4.56	6.09	4.37
Nematodes	87.30	86.36	50.98	70.27	49.43	36.14	49.36
Nemerteans	0.00	0.00	0.00	0.00	0.39	1.42	0.55
Polychaetes	4.76	0.00	15.69	0.00	2.51	4.27	3.72

Table 4.21.1: Water quality off Achara during January 2016

Parameter		ACH1	ACH2	ACH3			ACH4			ACH5		
		Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	24.0	24.0	24.0	28.5	26.3	25.0	28.5	27.2	24.0	28.5	26.3
	B	23.5	23.5	28.0	28.0	28.0	24.5	28.5	27.3	-	-	-
		(22.0)	(22.0)	(22.0)	(28.0)	(25.0)	(19.5)	(29.5)	(25.5)	(22.0)	(28.0)	(25.0)
SS(mg/l)	S	35	19	18	28	23	15	15	15	15	19	17
	B	17	22	12	12	12	19	19	19	-	-	-
Turbidity(NTU)	S	1.7	1.7	2.2	4.6	3.4	1.1	3.5	1.7	2.2	3.0	2.6
	B	2.3	1.7	3.2	3.2	3.2	1.3	3.3	2.4	-	-	-
pH	S	8.1	8.2	7.9	8.1	8.0	7.9	8.2	8.1	7.7	8.0	7.9
	B	8.2	8.2	8.1	8.1	8.1	8.2	8.2	8.2	-	-	-
Salinity(ppt)	S	34.0	35.4	31.5	35.4	33.4	30.5	35.4	34.1	29.8	34.7	32.3
	B	35.4	35.4	35.4	35.4	35.4	34.6	35.5	35.3	-	-	-
DO (mg/l)	S	7.0	6.4	6.1	6.4	6.2	5.1	7.4	6.1	5.1	7.4	6.2
	B	6.7	6.7	7.0	7.0	7.0	6.4	6.7	6.6	-	-	-
BOD (mg/l)	S	2.6	2.5	1.9	2.6	2.2	3.5	3.5	3.5	1.2	3.2	2.2
	B	2.9	1.9	1.9	1.9	1.9	3.6	3.6	3.6	-	-	-
PO ₄ ³⁻ -P (μmol/l)	S	0.5	0.1	0.2	0.7	0.5	0.3	0.6	0.4	0.2	0.4	0.3
	B	0.8	0.1	0.6	0.6	0.6	0.4	0.5	0.4	-	-	-
TP(μmol/l)	S	0.8	1.3	3.2	3.6	3.4	2.1	3.8	3.0	2.6	2.8	2.7
	B	0.8	1.7	1.8	1.8	1.8	1.3	1.8	1.6			
NO ₃ ⁻ -N (μmol/l)	S	2.0	1.6	3.2	3.9	3.6	1.1	3.4	2.1	2.6	3.0	2.8
	B	1.1	1.1	1.8	1.8	1.8	1.0	1.5	1.2			
NO ₂ ⁻ -N (μmol/l)	S	0.5	0.5	0.3	0.4	0.3	ND	0.2	0.1	0.2	0.3	0.2
	B	0.5	0.5	0.4	0.4	0.4	ND	0.1	0.1	-	-	-
NH ₄ ⁺ -N(μmol/l)	S	1.9	1.9	0.5	1.6	1.0	2.0	2.9	2.4	1.8	2.4	2.1
	B	1.1	1.1	2.1	2.1	2.1	2.3	2.9	2.5	-	-	-
TN(μmol/l)	S	12.2	11.3	11.8	12.6	12.2	11.0	12.4	11.7	9.3	11.8	10.6
	B	8.6	9.1	8.9	7.2	8.1	7.7	12.3	10.0	-	-	-
PHc(μg/l)	1m	6.0	5.3	3.3	6.0	4.7	8.4	13.0	10.7	2.2	6.5	4.4
Phenol (μg/l)	S	44.4	119.5	119.0	126.0	122.5	82.3	131.8	107.0	113.8	117.4	115.6

*Average of two readings

Air temperature given in parenthesis

Table 4.21.2: Water quality off Achara during March 2016

Parameter	Level	ACH1	ACH2	ACH3			ACH4			ACH5		
		Avg*	Avg*	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	29.5	29.0	29.0	29.5	29.3	27.0	31.5	29.6	29.0	29.5	29.3
	B	29.0	28.5	28.5	29.0	28.8	28.0	30.0	29.2	-	-	-
		(30.5)	(29.5)	(29.0)	(30.5)	(29.8)	(25.0)	(32.0)	(29.8)	(28.5)	(29.0)	(28.8)
SS(mg/l)	S	28	20	22	31	26	19	22	21	16	19	17
	B	25	19	17	25	21	17	17	17	-	-	-
Turbidity(NTU)	S	1.2	1.2	2.3	4.6	3.5	1.3	3.8	2.5	1.5	2.4	1.9
	B	2.0	1.6	3.8	5.9	4.9	1.4	2.1	2.6	-	-	-
pH	S	8.2	8.2	8.2	8.2	8.2	8.0	8.2	8.1	8.2	8.2	8.2
	B	8.2	8.2	8.1	8.1	8.1	7.9	8.2	8.1	-	-	-
Salinity(ppt)	S	35.4	35.7	35.7	35.8	35.8	33.6	35.7	35.1	33.5	35.2	34.3
	B	35.7	35.7	35.7	35.7	35.7	35.2	35.7	35.5	-	-	-
DO (mg/l)	S	6.0	5.8	5.0	5.6	5.3	4.2	6.7	5.8	4.8	5.4	5.1
	B	6.0	6.0	5.6	6.3	6.0	5.4	6.4	6.1	-	-	-
BOD (mg/l)	S	2.4	3.1	0.6	2.8	1.7	1.0	2.6	1.8	0.9	2.5	1.7
	B	2.8	2.5	2.5	3.1	2.8	2.6	2.6	2.6	-	-	-
PO ₄ ³⁻ -P (μmol/l)	S	0.4	0.1	0.4	0.7	0.6	ND	0.1	ND	ND	0.2	0.1
	B	0.4	0.1	0.6	0.7	0.7	ND	0.2	0.1	-	-	-
TP(μmol/l)	S	0.6	0.2	0.6	0.9	0.8	0.1	0.1	0.1	0.5	0.6	0.6
	B	0.6	0.3	0.8	0.9	0.9	0.1	0.1	0.1	-	-	-
NO ₃ ⁻ -N (μmol/l)	S	0.7	1.2	2.6	3.1	2.8	0.5	3.0	2.1	2.0	2.2	2.1
	B	0.9	1.2	2.3	2.4	2.4	1.3	2.4	2.0	-	-	-
NO ₂ ⁻ -N(μmol/l)	S	ND	0.1	0.2	0.2	0.2	ND	0.1	ND	0.2	0.2	0.2
	B	ND	ND	0.1	0.3	0.2	ND	0.1	ND	-	-	-
NH ₄ ⁺ -N(μmol/l)	S	0.5	0.7	0.8	1.0	0.9	0.2	1.6	0.6	0.4	0.9	0.7
	B	0.4	0.7	0.3	0.9	0.6	0.4	9.5	3.1	-	-	-
TN(μmol/l)	S	2.5	2.7	5.8	6.7	6.2	2.7	4.6	3.6	8.5	10.4	9.4
	B	2.3	2.4	3.1	4.6	3.8	3.7	3.7	3.7	-	-	-
PHc(μg/l)	1m	4.2	5.4	6.1	11.3	8.7	4.2	5.7	5.0	4.1	13.4	8.8
Phenol (μg/l)	S	57.6	68.9	48.7	69.1	58.9	53.3	72.5	62.9	61.0	86.4	73.7

*Average of two readings

Air temperature given in parenthesis

Table 4.21.3: Sediment quality off Achara during January 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
ACH1	83.8	7.0	9.2	5.8	140	447	6.0	41	67	74	62	0.17	0.11	18.5	2.9	2217	0.6
ACH2	6.2	80.1	13.7	8.5	195	832	9.8	64	76	117	108	0.18	0.14	14.7	2.0	1118	0.5
ACH3	92.0	5.8	2.2	4.8	103	369	4.2	30	35	41	34	0.16	0.05	11.0	0.0	428	1.8
ACH4	10.7	78.1	11.2	1.9	60	213	1.7	28	28	30	12	0.16	0.06	6.8	2.2	348	0.7
ACH5	91.4	5.4	3.2	5.6	367	451	12.8	45	52	82	56	0.19	0.07	9.5	1.5	2126	1.0

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.21.4: Sediment quality off Achara during March 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
ACH1	94.6	3.8	1.6	6.6	227	540	7.2	45	95	78	85	0.14	0.10	16.1	1.6	2073	0.9
ACH2	9.1	67.2	23.7	3.9	196	1098	10.3	90	65	116	113	0.16	0.07	15.2	2.6	670	1.0
ACH3	76.3	20.8	2.9	3.5	160	861	8.2	77	57	88	82	0.18	0.03	11.3	0.8	801	1.1
ACH4	6.7	82.1	11.2	1.7	58	203	1.9	23	25	28	11	0.13	0.06	7.6	2.6	352	0.8
ACH5	88.4	8.0	3.6	2.3	133	381	5.4	60	43	64	42	0.18	0.07	8.9	1.7	2000	0.9

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.21.5: Microbial counts (CFU/ml) in water off Achara during 2016

Type of Bacteria	Population in surface water (CFU/ml)															
	Postmonsoon (January 2016)								Premonsoon (March 2016)							
	ACH1	ACH2	ACH3		ACH4		ACH5		ACH1	ACH2	ACH3		ACH4		ACH5	
			Eb	Fl	Eb	Fl	Eb	Fl			Eb	Fl	Eb	Fl	Eb	Fl
TVC x10 ³	0.02	1	2	1.4	35	3	9.7	0.6	8	16	12	15	20	70	12	10
TC	ND	ND	20	ND	300	150	230	30	10	20	80	40	60	300	20	400
FC	ND	ND	10	ND	250	120	170	20	10	20	60	40	60	300	10	400
ECLO	ND	ND	10	ND	ND	ND	50	ND	10	20	40	10	50	270	10	400
SHLO	10	ND	ND	10	ND	10	190	10	NG	NG	NG	NG	NG	NG	NG	NG
SLO	ND	ND	10	ND	ND	ND	ND	ND	NG	NG	NG	NG	NG	NG	NG	NG
PKLO	ND	ND	10	ND	70	ND	120	ND	NG	NG	10	NG	20	20	60	NG
VLO	10	ND	150	210	670	500	2050	10	50	700	150	800	590	430	900	300
VPLO	10	ND	60	50	ND	ND	20	ND	NG	300	50	NG	NG	NG	NG	NG
VCLO	ND	ND	90	160	670	500	2030	10	50	400	100	800	590	430	900	300
PALO	ND	ND	ND	ND	ND	ND	460	ND	NG	NG	NG	NG	NG	180	NG	NG
SFLO	ND	ND	ND	ND	10	ND	70	ND	NG	NG	NG	NG	NG	NG	NG	NG

ND- Below Detectable Level

Table 4.21.6: Microbial counts (CFU/g) in sediment off Achara during 2016

Type of Bacteria	Population in sediment (CFU/g; dry wt)									
	Postmonsoon (January 2016)					Premonsoon (March 2016)				
	ACH1	ACH2	ACH3	ACH4	ACH5	ACH1	ACH2	ACH3	ACH4	ACH5
TVC	60x10 ³	180 x10 ³	30x10 ³	40x10 ³	300 x10 ³	1000x10 ³	800x10 ³	300x10 ³	1700x10 ³	800x10 ³
TC	ND	ND	ND	40	50	ND	4000	1000	6000	1000
FC	ND	ND	ND	30	10	ND	2000	1000	6000	1000
ECLO	ND	ND	ND	ND	ND	ND	2000	1000	4000	1000
SHLO	10	ND	ND	ND	150	ND	ND	ND	ND	3000
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	ND	ND	ND	ND	ND	ND	5000	5000
VLO	ND	270	20	ND	300	50	3000	ND	4000	10000
VPLO	30	240	ND	ND	20	ND	ND	ND	1000	5000
VCLO	30	30	20	ND	280	50	3000	ND	3000	ND
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	20	ND	ND	ND	ND

ND- Below Detectable Level

Table 4.21.7: Range and average of phytopigments at different stations off Achara during January 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
ACH1	15/01/2016	1.3	1.7	1.1	1.2	0.7	0.9	0.9	0.9	1.9	1.9	1.2	1.2
		1.5		1.1		0.8		0.9		1.9		1.2	
ACH2	15/01/2016	1.9	1.9	1.6	2.2	1.0	1.1	1.1	1.5	1.8	1.9	1.4	1.4
		1.9		1.9		1.0		1.3		1.8		1.4	
ACH3	15/01/2016	1.0	2.3	2.1	2.1	0.5	0.7	0.6	0.6	1.4	4.8	0.0	3.6
		1.7		2.1		0.6		0.6		3.1		1.8	
ACH4	16/01/2016	1.2	2.8	2.2	4.1	0.7	1.1	0.6	1.0	1.6	3.5	0.0	4.1
		2.0		2.7		0.8		0.8		2.4		1.2	
ACH5	15/01/2016	1.4	2.1	0.0	0.0	0.4	0.9	0.0	0.0	2.4	3.9	0.0	0.0
		1.7		0.0		0.6		0.0		3.1		0.0	

Table 4.21.8: Range and average of phytopigments at different stations off Achara during March 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg		Avg		Avg		Avg		Avg		Avg	
ACH1	07/03/2016	2.57	2.75	2.32	2.79	0.67	1.37	0.23	0.62	1.88	4.10	3.74	12.13
		2.66		2.56		1.02		0.43		2.99		7.94	
ACH2	07/03/2016	1.32	1.36	1.54	1.79	0.22	0.29	0.63	0.67	4.55	6.18	2.44	2.67
		1.34		1.67		0.26		0.65		5.37		2.56	
ACH3	07/03/2016	0.95	1.49	0.77	1.53	0.25	0.40	0.33	0.35	3.73	3.80	2.20	4.64
		1.22		1.15		0.33		0.34		3.76		3.42	
ACH4	06/03/2016	0.64	3.37	0.64	1.18	0.23	1.00	0.20	0.77	1.88	3.96	1.53	5.80
		1.39		0.94		0.50		0.37		2.82		2.90	
ACH5	06/03/2016	0.71	4.58	0.00	0.00	0.23	1.52	0.00	0.00	3.01	3.09	0.00	0.00
		2.65		0.00		0.88		0.00		3.05		0.00	

Table 4.21.9: Range and average of phytoplankton at different stations off Achara during January 2016

Station	Date	Cell count (no x 10 ³ Cells/l)				Total genera (nos.)				Major genera				
		S		B		S		B						
		Min	Max	Min	Max	Min	Max	Min	Max	S	B			
		Avg		Avg		Avg		Avg						
ACH1	15/01/2016	158.2		188.4		12.0		20.0		<i>Pseudo-nitzschia</i>	<i>Pseudo-nitzschia</i>			
ACH2	15/01/2016	116.6		134.8		15.0		13.0		<i>Cylindrotheca</i>	<i>Navicula</i>			
ACH3	15/01/2016	66.2	264.2	562.8	15.0	17.0	16.0	17.0		<i>Navicula</i>	<i>Gyrodinium</i>			
		165.2			16.0					<i>Gyrodinium</i>	<i>Skeletonema</i>			
ACH4	07/05/2016	134.2	232.6	590.6	10.0	15.0	17.0			<i>Pseudo-nitzschia</i>	<i>Plagioselmis</i>			
		183.4			12.5					<i>Cylindrotheca</i>	<i>Gymnodinium</i>			
ACH5	15/01/2016	276.8	572.4		14.0	14.0				<i>Pyramimonas</i>	<i>Plagioselmis</i>			
		424.6			14.0					<i>Alexandrium</i>	<i>Pyramimonas</i>			
										<i>Pseudo-nitzschia</i>	<i>Alexandrium</i>			
										<i>Peridinium</i>	<i>Pseudo-nitzschia</i>			
										<i>Alexandrium</i>	-			
										<i>Plagioselmis</i>	-			
										<i>Tetraselmis</i>	-			
										<i>Peridinium</i>	-			

Table 4.21.10: Range and average of phytoplankton at different stations off Achara during March 2016

Station	Date	Cell count				Total genera				Major genera					
		(no x 10 ³ Cells/ l)				(nos.)									
		S		B		S		B							
		Min	Max	Min	Max	Min	Max	Min	Max						
Avg		Avg		Avg		Avg		Avg							
ACH1	7/3/2016	61.0		43.0		12		10		<i>Pleurosigma</i>	<i>Pleurosigma</i>				
										<i>Fragillaria</i>	<i>Gyrosigma</i>				
										<i>Thalassiosira</i>	<i>Thalassionema</i>				
										<i>Gyrosigma</i>	<i>Gyrodinium</i>				
ACH2	7/3/2016	99.0		69.2		17		15		<i>Coscinodiscus</i>	<i>Pleurosigma</i>				
										<i>Pleurosigma</i>	<i>Gyrosigma</i>				
										<i>Navicula</i>	<i>Prorocentrum</i>				
										<i>Amphiprora</i>	<i>Navicula</i>				
ACH3	7/3/2016	20.4	47.8	20.4	43.2	9	13	6	12	<i>Cylindrotheca</i>	<i>Cylindrotheca</i>				
		34.1		31.8		11		9		<i>Pseudo-nitzschia</i>	<i>Rhizosolenia</i>				
										<i>Guinardia</i>	<i>Pleurosigma</i>				
										<i>Prorocentrum</i>	<i>Guinardia</i>				
ACH4	6/3/2016	16.8	32.2	34.6		9	15	10		<i>Leptocylindrus</i>	<i>Navicula</i>				
		24.5				12				<i>Navicula</i>	<i>Coscinodiscus</i>				
										<i>Cyclotella</i>	<i>Pleurosigma</i>				
ACH5	6/3/2016	21.4	43.8	-		11	14	-		<i>Skeletonema</i>	<i>Gyrodinium</i>				
		32.6				13				<i>Trichodesmum</i>	-				
										<i>Gymnodinium</i>	-				
										<i>Cylindrotheca</i>	-				
										<i>Surirella</i>	-				

Table 4.21.11: Percentage composition of phytoplankton population at different station off Achara during January 2016

Table 4.21.12: Percentage composition of phytoplankton population at different station off Achara during March 2016

Table 4.21.13: Range and average (parenthesis) of zooplankton at different stations off Achara during January 2016

Station (Date)	Biomass (ml/100m ³)	Population (nox10 ³ /100m ³)	Total Groups (no)	Major group (%)
ACH1 (15-01-16)	0.3-5.7 (3.0)	11.2-84.2 (47.7)	4-9 (7)	copepods (96.4), chaetognaths (1.6), siphonophores (1.2), lamellibranchs (0.3), gastropods (0.2), decapod larvae (0.1), others (0.1).
ACH2 (15-01-16)	0.9-3.2 (2.1)	(5.1-9.0) (70.9)	8-9 (9)	copepods (98.54), lamellibranchs (0.87), gastropods (0.58), foraminifera (0.01), others (0.1).
ACH3 (15-01-16)	0.6 (0.6)	11.62 (11.62)	10 (10)	copepods (91.8), chaetognaths (4.5), fish eggs (1.2), siphonophores (1.0), lamellibranchs (0.8), decapod larvae (0.2), gastropods (0.2), cumaceans (0.1), others (0.1).
ACH4 (16-01-16)	1.2-2.6 (2.0)	32.27-87.89 (66.19)	11-12 (12)	copepods (86.8), chaetognaths (5.2), decapod larvae (4.5), lamellibranchs (1.7), foraminifera (1.0), gastropods (0.3), siphonophores (0.2), fish eggs (0.2), others (0.1).

Table 4.21.14: Range and average (parenthesis) of zooplankton at different stations off Achara during March 2016

Station (Date)	Biomass (ml/100m ³)	Population (no x 10 ³ /100m ³)	Total Groups (no)	Major group (%)
ACH1 (07/03/2016)	3.2 (3.2)	10.04-27.89 (18.96)	15 (15)	copepods (67.3), cladocerans (18.8), chaetognaths (7.1), lamellibranchs (2.9), siphonophores (2.5), gastropods (0.6), fish eggs (0.1), decapod larvae (0.1), foraminifera (0.1), ctenophores (0.1), medusae (0.1), pteropods (0.1), appendicularians (0.1), others (0.1).
ACH2 (07/03/2016)	2.6-4.6 (3.6)	32.05-49.31 (48.68)	13-14 (14)	copepods (53.4), cladocerans (38.4), <i>Lucifer sp.</i> (2.3), lamellibranchs (1.7), chaetognaths (1.2), pteropods (1.2), decapod larvae (0.8), gastropods (0.3), foraminifera (0.2), siphonophores (0.2), fish eggs (0.1), polychaetes (0.1), others (0.1)
ACH3 (07/03/2016)	4.4-6.0 (5.2)	74.82-82.38 (78.59)	13 (13)	copepods (78.2), lamellibranchs (11.1), cladocerans (3.8), decapod larvae (3.8), <i>Lucifer sp.</i> (1.4), siphonophores (0.7), chaetognaths (0.4), fish eggs (0.2), gastropods (0.1), polychaetes (0.1), appendicularians (0.1), others (0.1).
ACH4 (06/03/2016)	1.0-5.1 (3.0)	19.49-88.23 (47.59)	12-15 (13)	copepods (83.8), lamellibranchs (7.3), cladocerans (3.3), chaetognaths (1.3), siphonophores (1.3), appendicularians (0.8), decapod larvae (0.7), <i>Lucifer sp.</i> (0.5), foraminifera (0.3), gastropods (0.3), polychaetes (0.2), fish eggs (0.1), medusae (0.1), others (0.1).

Table 4.21.15: Abundance of zooplanktons off Achara during January 2016

Faunal Groups	ACH1	ACH2	ACH3	ACH4
Foraminiferans	+	-	-	+
Siphonophores	+	+	+	+
Medusae	-	-	-	+
Chaetognaths	+	+	+	+
Polychaetes	-	-	+	+
Copepods	+	+	+	+
Cumaceans	-	+	+	-
Lucifer sp.	+	+	-	+
Decapod larvae	+	+	+	+
Gastropods	+	+	+	+
Lamellibranchs	+	+	+	+
Doliolids	-	-	-	+
Fish Eggs	+	+	+	+
Fish Larvae	+	+	+	+
Isopods	-	-	-	+

Table 4.21.16: Abundance of zooplanktons off Achara during March 2016

Faunal groups	ACH1	ACH2	ACH3	ACH4
Foraminiferans	+	+	+	+
Siphonophores	+	+	+	+
Medusae	+	+	+	+
Ctenophores	+	+	+	+
Chaetognaths	+	+	+	+
Polychaetes	-	+	+	+
Cladocerans	+	+	+	+
Ostracods	-	-	+	-
Copepods	+	+	+	+
Lucifer sp.	+	+	+	+
Decapod larvae	+	+	+	+
Pteropods	+	+	-	+
Gastropods	+	+	+	+
Lamellibranchs	+	+	+	+
Appendicularians	+	+	+	+
Doliolids	+	-	-	+
Salpids	-	-	-	+
Fish Eggs	+	+	+	+
Fish Larvae	+	+	+	+

Table 4.21.17: Range and average of sub tidal macro benthos off Achara during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon January 2016									
ACH1	0.24	95.43	24.45	700	2150	1194	4	10	7
ACH2	0.32	1.47	0.90	975	1050	1000	4	8	6
ACH3	1.15	3.55	2.02	850	2325	1594	3	6	5
ACH4	0.07	1.50	0.64	50	225	131	2	4	3
ACH5	2.29	33.07	12.06	2400	2850	2606	7	12	10
Overall	0.07	95.43	8.02	50	2850	1305	2	12	6
Premonsoon March 2016									
ACH1	1.50	7.06	4.24	275	700	406	4	5	4
ACH2	2.61	6.01	3.97	1250	2450	1863	8	11	10
ACH3	0.08	2.41	1.48	200	1425	806	3	11	7
ACH4	0.79	1.46	1.11	350	575	469	5	8	6
ACH5	4.43	30.93	16.50	425	3550	2394	2	9	7
Overall	0.08	30.93	5.46	200	3550	1188	2	11	7

Table 4.21.18: Percentage composition of macrofauna off Achara during January 2016

Phylum	Groups	Stations					Average
		ACH1	ACH2	ACH3	ACH4	ACH5	
Annelida	Polychaeta	60.21	67.50	49.61	38.10	61.06	58.64
Annelida	Oligochaeta	14.66	-	-	-	7.69	5.76
Arthropoda	Amphipoda	0.52	0.63	1.57	-	7.69	3.65
Arthropoda	Tanaidacea	-	-	-	-	3.85	1.54
Arthropoda	Copepoda	3.14	3.75	0.39	-	-	1.25
Arthropoda	Anomura	-	-	1.18	9.52	1.20	0.96
Arthropoda	Cumacea	0.52	-	-	-	1.20	0.58
Arthropoda	Isopoda	-	-	-	-	1.20	0.48
Arthropoda	Brachyura	-	-	-	-	0.24	0.10
Brachiopoda	Brachiopoda	-	-	-	-	0.72	0.29
Chaetognatha	Chaetognatha	5.24	1.88	-	-	-	1.25
Cnidaria	Hydrozoa colony	1.05	-	-	-	-	0.19
Echinodermata	Ophiuroidea	0.52	0.63	-	-	-	0.19
Mollusca	Pelecypoda	3.14	4.38	41.73	9.52	10.58	15.83
Mollusca	Gastropoda	0.52	1.88	5.12	-	0.48	1.82
Nematoda	Nematoda	1.05	-	-	-	0.48	0.38
Nemertea	Nemertea	2.62	1.25	-	23.81	2.16	2.02
Platyhelminthes	Turbellaria	-	3.13	-	19.05	0.96	1.25
Protozoa	Foraminifera	-	3.75	-	-	-	0.58
Sipuncula	Sipuncula	6.81	11.25	0.39	-	0.48	3.26

Table 4.21.19: Percentage composition of macrofauna off Achara during March 2016

Phylum	Groups	Stations					Average
		ACH1	ACH2	ACH3	ACH4	ACH5	
Annelida	Polychaeta	43.08	60.00	44.53	20.00	42.30	46.33
Annelida	Oligochaeta					12.53	5.10
Arthropoda	Amphipoda		7.59	4.69	18.67	0.78	4.78
Arthropoda	Isopoda		6.90	8.59		0.78	3.61
Arthropoda	Anomura			0.78	10.67	2.35	1.91
Arthropoda	Brachyura				22.67		1.81
Arthropoda	Copepoda		2.41	1.56		0.52	1.17
Arthropoda	Cumacea		2.41				0.74
Arthropoda	Mysida		0.34		5.33		0.53
Arthropoda	Decapoda Larvae		0.34	0.78			0.21
Arthropoda	Ostracoda				2.67		0.21
Brachiopoda	Brachiopoda			1.56	1.33	9.40	4.14
Chaetognatha	Chaetognatha		0.69	0.78			0.32
Chordata	Fish larvae		0.34				0.11
Cnidaria	Anthozoa				1.33		0.11
Echinodermata	Ophiuroidea	1.54					0.11
Echiura	Echiura		2.07				0.64
Mollusca	Pelecypoda	35.38	4.48	22.66	1.33	18.54	14.56
Mollusca	Gastropoda	13.85	5.17	6.25	6.67	7.57	7.01
Mollusca	Scaphopoda	4.62	0.34	0.78		1.31	1.06
Nemertea	Nemertea	1.54	5.52	7.03	9.33	3.92	5.10
Phoronida	Phoronida		0.69				0.21
Platyhelminthes	Turbellaria		0.69				0.21

Table 4.21.20: Station-wise distribution of meiofauna parameters in Achara

Stations	Biomass			Population			Total groups		
	($\mu\text{g}/10\text{cm}^2$)			(Ind./ 10cm^2)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon January 2016									
ACH1	103.26	119.96	111.61	268	335	302	2	5	4
ACH2	213.92	316.62	265.27	137	253	195	4	5	5
ACH3	108.74	152.76	130.75	58	89	74	2	3	3
ACH4	12.16	15.32	13.74	75	81	53	5	6	5
ACH5	915.24	945.34	930.29	807	876	841	9	14	10
Premonsoon March 2016									
ACH1	8.4	9.8	9.1	17	18	18	1	2	2
ACH2	24.15	143.25	83.7	13	211	112	2	5	4
ACH3	936.5	1143.86	1040.18	333	418	376	8	8	8
ACH4	606.35	983.01	794.68	473	614	543	8	9	8
ACH5	2766.31	4097.67	3431.99	577	986	782	9	10	9

Table 4.21.21: Percentage composition of meiofauna off Achara during January 2016

Groups	ACH1	ACH2	ACH3	ACH4	ACH5	Average
Amphipods	0.00	0.00	0.00	0.00	0.13	0.06
Bivalves	0.47	0.72	3.85	3.70	0.27	0.70
Cumaceans	0.00	0.00	0.00	0.00	0.27	0.13
Foraminiferans	10.09	12.68	0.00	18.52	0.00	5.26
Halacaroids	0.00	0.00	0.00	0.00	0.13	0.06
Harpacticoids	0.47	0.36	0.00	48.15	6.17	3.93
Insects	0.00	0.00	0.00	0.00	0.40	0.19
Isopods	0.00	0.00	0.00	0.00	0.27	0.13
Kinorhynchs	0.00	0.00	0.00	0.00	6.57	3.10
Nauplius	0.00	0.00	0.00	0.00	2.01	0.95
Nematodes	88.03	84.42	95.19	25.93	81.50	83.72
Nemerteans	0.00	0.00	0.00	0.00	0.13	0.06
Oligochaetes	0.00	0.72	0.96	0.00	0.00	0.19
Ostracods	0.00	0.00	0.00	0.00	0.94	0.44
Polychaetes	0.94	1.09	0.00	3.70	1.07	1.01
Turbellarians	0.00	0.00	0.00	0.00	0.13	0.06

Table 4.21.22: Percentage composition of meiofauna off Achara during March 2016

Groups	ACH1	ACH2	ACH3	ACH4	ACH5	Average
Bivalves	0.00	4.43	0.57	0.40	0.46	0.71
Cladocerans	0.00	0.00	0.00	0.00	0.09	0.04
Foraminiferans	0.00	5.70	16.6	11.6	16.7	14.3
Gastropods	0.00	0.00	0.00	0.40	0.00	0.12
Halacaroids	0.00	0.00	0.57	0.13	0.00	0.16
Harpacticoids	8.00	1.90	2.26	42.3	2.69	14.4
Isopods	0.00	0.00	0.00	0.00	0.09	0.04
Kinorhynchs	0.00	0.00	0.00	0.00	0.19	0.08
Nauplius	0.00	0.00	0.75	1.19	0.28	0.63
Nematodes	92.0	86.7	73.96	33.6	69.4	60.9
Oligochaetes	0.00	0.00	0.00	0.00	3.52	1.49
Ostracods	0.00	1.27	2.26	0.40	0.00	0.67
Polychaetes	0.00	0.00	3.02	10.01	6.67	6.43

Table 4.22.1: Water quality off Malvan during January 2016

Parameter	Level	M1	M2	M3			M4		
		Avg*	Avg*	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	27.0	26.0	27.0	27.0	27.0	27.5	27.5	27.5
	B	26.0	25.0	26.5	26.5	26.5	27.8	27.8	27.8
		(27.5)	(27.0)	(27.5)	(28.5)	(28.0)	(22.0)	(27.0)	(26.0)
SS(mg/l)	S	10	15	10	19	14	17	34	25
	B	9	14	11	15	13	30	33	31
Turbidity(NTU)	S	2.0	2.2	1.3	1.5	1.4	1.2	2.0	1.6
	B	1.4	2.3	1.2	2.0	1.6	1.1	2.5	1.8
pH	S	8.2	8.2	8.2	8.2	8.2	8.0	8.2	8.1
	B	8.2	8.2	8.2	8.2	8.2	8.0	8.2	8.1
Salinity(ppt)	S	35.3	35.4	35.3	35.4	35.3	35.4	35.5	35.4
	B	35.3	35.4	35.3	35.4	35.4	35.4	35.4	35.4
DO (mg/l)	S	7.7	6.9	6.4	7.0	6.7	5.4	7.7	6.6
	B	6.9	7.7	6.7	7.0	6.9	5.4	7.7	6.8
BOD (mg/l)	S	4.1	2.5	2.6	3.8	3.2	2.6	2.9	2.8
	B	2.8	3.5	3.5	3.8	3.7	3.2	3.6	3.4
PO ₄ ³⁻ -P (μmol/l)	S	0.1	0.1	0.4	0.4	0.4	0.2	0.8	0.5
	B	0.1	0.1	0.4	0.4	0.4	0.3	0.8	0.5
TP(μmol/l)	S	0.4	0.5	1.1	1.3	1.2	1.0	1.3	1.2
	B	0.5	0.4	0.9	1.3	1.1	0.9	1.4	1.2
NO ₃ ⁻ -N (μmol/l)	S	3.2	2.0	0.2	0.3	0.3	0.5	6.1	2.1
	B	1.7	1.5	ND	0.1	0.1	0.2	2.9	1.3
NO ₂ ⁻ -N(μmol/l)	S	0.3	0.1	ND	ND	ND	ND	ND	ND
	B	0.4	0.1	ND	ND	ND	ND	ND	ND
NH ₄ ⁺ -N(μmol/l)	S	1.3	1.6	1.2	1.5	1.3	0.8	3.0	1.4
	B	1.8	1.9	1.4	1.6	1.5	0.9	1.5	1.2
TN(μmol/l)	S	9.7	9.8	8.5	7.6	8.0	6.3	7.2	6.8
	B	10.5	11.2	9.3	7.2	8.3	7.1	4.2	5.7
PHc(μg/l)	1m	5.7	6.3	2.8	3.5	3.2	4.9	15.9	10.4
Phenol (μg/l)	S	124.3	56.6	42.0	44.4	43.2	37.4	85.4	61.4

*Average of two readings

Air temperature given in parenthesis

Table 4.22.2: Water quality off Malvan during March 2016

Parameter	Level	M1	M2	M3			M4		
		Avg*	Avg*	Min	Max	Avg	Min	Max	Avg
Temperature(°C)	S	28.3	29.2	29.5	30.5	30.0	28.0	31.0	30.0
	B	28.0	29.0	29.0	30.0	29.5	28.0	30.5	29.6
		(28.3)	(30.0)	(29.5)	(32.5)	(30.8)	(28.5)	(33.0)	(30.6)
SS(mg/l)	S	17	19	17	19	18	27	30	29
	B	15	23	14	15	15	25	31	28
Turbidity(NTU)	S	1.7	2.1	1.2	1.7	1.5	1.2	1.8	1.5
	B	1.7	2.4	1.5	1.7	1.6	1.1	2.1	2.6
pH	S	8.2	8.2	8.1	8.1	8.1	8.0	8.2	8.2
	B	8.2	8.1	8.2	8.2	8.2	8.1	8.2	8.2
Salinity(ppt)	S	35.6	35.6	35.6	35.7	35.7	35.7	35.8	35.7
	B	35.6	35.6	35.6	35.6	35.6	35.7	35.8	35.7
DO (mg/l)	S	6.6	6.3	6.7	7.0	6.9	5.4	7.4	6.6
	B	6.6	6.9	6.4	7.0	6.7	5.8	7.0	6.6
BOD (mg/l)	S	3.2	1.4	1.0	3.2	2.1	2.3	2.9	2.6
	B	2.8	2.7	1.0	2.6	1.8	3.6	3.6	3.6
PO ₄ ³⁻ -P (μmol/l)	S	0.1	0.1	0.4	0.8	0.6	0.1	0.7	0.3
	B	0.1	0.1	0.5	0.6	0.5	0.2	1.0	0.5
TP(μmol/l)	S	0.7	0.7	0.5	1.1	0.8	0.9	0.9	0.9
	B	0.8	0.7	0.2	1.0	0.6	1.0	1.0	1.0
NO ₃ ⁻ -N (μmol/l)	S	2.0	1.5	1.8	2.3	2.0	0.5	6.1	2.3
	B	1.9	1.2	2.0	3.0	2.5	0.2	3.0	1.5
NO ₂ ⁻ -N(μmol/l)	S	0.1	0.1	0.1	0.1	0.1	ND	0.2	0.1
	B	0.2	0.1	0.1	0.1	0.1	ND	0.2	0.1
NH ₄ ⁺ -N(μmol/l)	S	1.3	0.5	0.6	0.6	0.6	0.3	2.9	1.4
	B	0.7	0.2	0.6	0.9	0.7	0.3	2.0	1.3
TN(μmol/l)	S	4.9	6.4	4.9	10.7	7.8	9.5	9.5	9.5
	B	9.2	9.2	9.8	14.3	12.1	11.0	11.0	11.0
PHc(μg/l)	1m	4.4	4.4	7.9	14.5	11.2	2.5	8.5	2.5
Phenol (μg/l)	S	145.2	187.7	95.3	170.9	133.1	24.0	61.4	42.7

*Average of two readings

Air temperature given in parenthesis

Table 4.22.3: Sediment quality off Malvan during January 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
M1	1.5	87.7	10.8	7.7	159	396	6.3	36	69	68	69	0.20	0.13	15.5	2.8	420	0.4
M2	0.0	89.4	10.6	8.7	173	560	7.4	42	75	85	84	0.14	0.15	16.6	2.4	430	0.6
M4	96.2	1.8	2.0	5.5	88	472	4.3	32	35	41	49	0.10	0.10	15.0	2.1	330	0.5

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.22.4: Sediment quality off Malvan during March 2016

Station Code	Sand (%)	Silt (%)	Clay (%)	AI (%)	Cr ($\mu\text{g/g}$)	Mn ($\mu\text{g/g}$)	Fe (%)	Co ($\mu\text{g/g}$)	Ni ($\mu\text{g/g}$)	Cu ($\mu\text{g/g}$)	Zn ($\mu\text{g/g}$)	Cd ($\mu\text{g/g}$)	Hg ($\mu\text{g/g}$)	Pb ($\mu\text{g/g}$)	$\text{C}_{\text{org}}\text{ (%)}$	P ($\mu\text{g/g}$)	PHc ($\mu\text{g/g}$)
M1	1.1	89.3	9.6	6.8	233	664	7.2	46	97	76	85	0.13	0.18	13.8	3.1	435	0.5
M2	2.2	84.8	13.0	6.8	229	590	7.5	49	97	86	89	0.18	0.17	13.0	3.3	368	0.9
M4	1.0	85.6	13.4	4.7	134	785	6.0	48	53	73	71	0.08	0.06	12.9	1.3	242	0.8

Remark:-

*On dry weight basis except PHc which is in wet wt.

Table 4.22.5: Microbial counts (CFU/ml) in water off Malvan during 2016

Type of Bacteria	Population in surface water (CFU/ml)											
	Postmonsoon (January 2016)						Premonsoon (March 2016)					
	M1	M2	M3		M4		M1	M2	M3		M4	
			Eb	Fl	Eb	Fl			Eb	Fl	Eb	Fl
TVC	3.8x10 ³	1.0 x10 ³	2.3x10 ³	1.6x10 ³	7.3 x10 ³	2.0x10 ³	12 x10 ³	220 x10 ³	320x10 ³	260x10 ³	220x10 ³	180x10 ³
TC	ND	ND	ND	ND	ND	ND	50	300	1300	2000	1200	400
FC	ND	ND	ND	ND	ND	ND	40	300	1200	1800	900	300
ECLO	ND	ND	ND	ND	ND	ND	40	150	700	1600	800	200
SHLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	10	ND	ND	10	ND	20	100	600	480	600	800
VLO	10	10	10	ND	ND	ND	150	200	3500	2000	900	600
VPLO	10	10	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
VCLO	ND	ND	ND	ND	240	ND	150	200	3500	2000	900	600
PALO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.22.6: Microbial counts (CFU/g) in sediments off Malvan during 2016

Type of Bacteria	Population in sediment (CFU/g)							
	Postmonsoon (January 2016)				Premonsoon (March 2016)			
	M1	M2	M3	M4	M1	M2	M3	M4
TVC	110x10 ³	80x10 ³	110x10 ³	70x10 ³	1400x10 ³	1500x10 ³	1500x10 ³	1400x10 ³
TC	ND	ND	ND	ND	1200	2000	8000	ND
FC	ND	ND	ND	ND	1000	2000	5000	ND
ECLO	ND	ND	ND	ND	1000	1000	3000	ND
SHLO	ND	ND	ND	ND	ND	ND	ND	ND
SLO	ND	ND	ND	ND	ND	ND	ND	ND
PKLO	ND	ND	10	ND	ND	ND	500	ND
VLO	180	260	410	270	ND	8000	1600	ND
VPLO	150	250	30	260	ND	ND	ND	ND
VCLO	30	10	380	10	ND	ND	ND	ND
PALO	ND	ND	ND	ND	ND	ND	ND	ND
SFLO	ND	ND	ND	ND	ND	ND	ND	ND

ND – Below Detectable Level

Table 4.22.7: Range and average of phytopigments at different stations off Malvan during January 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg
M1	18/01/2016	1.7	1.9	1.5	1.8	0.5	0.9	0.6	0.7	2.0	3.2	2.8	2.8
		1.8		1.7		0.7		0.6		2.6		2.8	
M2	18/01/2016	1.2	1.4	1.6	1.6	0.2	0.3	0.6	0.7	5.5	6.2	2.3	2.6
		1.3		1.6		0.2		0.7		5.8		2.5	
M3	17/01/2016	2.7	5.3	3.7	6.2	0.4	1.0	0.4	1.3	4.0	8.5	3.4	9.2
		3.9		4.8		0.7		0.9		5.6		5.6	
M4	19/01/2016	1.5	2.0	1.8	2.0	0.3	0.5	0.6	0.7	3.9	5.2	2.9	3.3
		1.7		1.9		0.4		0.6		4.6		3.1	

Table 4.22.8: Range and average of phytopigments at different stations off Malvan during March 2016

Station	Date	Chlorophyll a (mg/m ³)				Phaeophytin (mg/m ³)				Ratio of Chl a to Phaeo			
		S		B		S		B		S		B	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg
M1	04/03/2016	0.5	0.5	4.5	5.3	0.0	0.0	0.1	0.2	25.5	49.0	20.5	40.7
		0.5		4.9		0.0		0.2		37.3		30.6	
M2	04/03/2016	0.7	1.0	1.8	2.5	0.1	0.1	0.1	0.2	5.1	7.4	15.3	16.2
		0.8		2.1		0.1		0.1		6.3		15.7	
M3	02/03/2016	1.2	2.5	0.8	2.7	0.6	1.5	0.5	1.6	1.1	3.6	1.0	3.5
		2.1		2.0		1.0		1.0		2.2		2.1	
M4	03/03/2016	1.1	1.2	0.9	1.3	0.1	0.5	0.2	0.2	2.3	10.5	4.2	6.0
		1.1		1.1		0.3		0.2		6.4		5.1	

Table 4.22.9: Range and average of phytoplankton at different stations off Malvan during January 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
M1	18/01/2016	259		141		16		13		<i>Chaetoceros</i>	<i>Pseudo-nitzschia</i>
										<i>Pseudo-nitzschia</i>	<i>Chaetoceros</i>
										<i>Cylindrotheca</i>	<i>Cylindrotheca</i>
										<i>Gyrodinium</i>	<i>Thalassiosira</i>
M2	18/01/2016	134		102		19		24		<i>Chaetoceros</i>	<i>Pseudo-nitzschia</i>
										<i>Pseudo-nitzschia</i>	<i>Cylindrotheca</i>
										<i>Prorocentrum</i>	<i>Chaetoceros</i>
										<i>Navicula</i>	<i>Prorocentrum</i>
M3	17/01/2016	3385	3747	2539	3619	21	24	20	21	<i>Chaetoceros</i>	<i>Chaetoceros</i>
		3566		3079		23		21		<i>Plagioselmis</i>	<i>Pseudo-nitzschia</i>
										<i>Gymnodinium</i>	<i>Navicula</i>
M4	19/01/2016	177	293	197	222	15	26	17	21	<i>Chaetoceros</i>	<i>Chaetoceros</i>
		235		210		21		19		<i>Plagioselmis</i>	<i>Plagioselmis</i>
										<i>Pseudo-nitzschia</i>	<i>Pseudo-nitzschia</i>
										<i>Gymnodinium</i>	<i>Cylindrotheca</i>

Table 4.22.10: Range and average of phytoplankton at different stations off Malvan during March 2016

Station	Date	Cell count (no x 10 ³ Cells/ l)				Total genera (nos.)				Major genera	
		S		B		S		B			
		Min	Max	Min	Max	Min	Max	Min	Max	S	B
		Avg		Avg		Avg		Avg			
M1	4/3/2016	50.8		192.0		11.0		23.0		<i>Chaetoceros</i>	<i>Pleurosigma</i>
										<i>Gyrodinium</i>	<i>Navicula</i>
										<i>Anabaena</i>	<i>Nitzschia</i>
										<i>Bacteriastrum</i>	<i>Cylindrotheca</i>
M2	4/3/2016	46.6		109.6		12.0		16.0		<i>Bacteriastrum</i>	<i>Pleurosigma</i>
										<i>Pseudo-nitzschia</i>	<i>Navicula</i>
										<i>Peridinium</i>	<i>Bacteriastrum</i>
										<i>Guinardia</i>	<i>Nitzschia</i>
M3	2/3/2016	470.8	1088.2	126.6	696.0	14.0	21.0	9.0	21.0	<i>Bacteriastrum</i>	<i>Bacteriastrum</i>
		779.5		411.3		17.5		15.0		<i>Chaetoceros</i>	<i>Pseudo-nitzschia</i>
										<i>Pseudo-nitzschia</i>	<i>Thalassiosira</i>
										<i>Cylindrotheca</i>	<i>Plagioselmis</i>
M4	3/3/2016	125.0	290.0	64.2	142.4	16.0	16.0	13.0	13.0	<i>Bacteriastrum</i>	<i>Bacteriastrum</i>
		207.5		103.3		16.0		13.0		<i>Pseudo-nitzschia</i>	<i>Pseudo-nitzschia</i>
										<i>Cylindrotheca</i>	<i>Cylindrotheca</i>
										<i>Peridinium</i>	<i>Prorocentrum</i>

Table 4.22.11: Percentage composition of phytoplankton population at different station off Malvan during January 2016

Name of the genera	M1	M2	M3	M4	Total Avg.
<i>Chaetoceros</i>	40.0	17.8	86.7	27.4	43.0
<i>Pseudo-nitzschia</i>	20.5	14.8	3.3	12.6	12.8
<i>Cylindrotheca</i>	13.0	7.1	1.1	7.2	7.1
<i>Plagioselmis</i>	2.0		3.8	15.7	5.4
<i>Gyrodinium</i>	8.1	4.7	0.4	6.7	5.0
<i>Gymnodinium</i>	1.0	5.9	0.9	9.0	4.2
<i>Pleurosigma</i>	3.0	8.3	<0.1	4.1	3.9
<i>Navicula</i>	3.0	5.9	1.0	4.9	3.7
<i>Procentrum</i>	<0.1	9.5	0.3	0.5	2.6
<i>Thalassiosira</i>	4.0	2.4	0.4	0.9	1.9
<i>Guinardia</i>	1.1	2.4	0.2	2.2	1.5
<i>Thalassionema</i>		3.6	0.1	1.4	1.3
<i>Peridinium</i>		4.7	0.1		1.2
<i>Rhizosolenia</i>	0.6	2.6	0.1	0.2	0.9
<i>Skeletonema</i>			0.2	2.9	0.8
<i>Bacteriadrum</i>		2.4	<0.1	0.5	0.7
<i>Synedra</i>		2.4		<0.1	0.6
<i>Lauderia</i>		2.4	<0.1		0.6
<i>Nitzschia</i>	1.0	0.2	0.1	0.2	0.4
<i>Cyclotella</i>	1.5				0.4
<i>Alexandrium</i>		1.2	0.2	<0.1	0.4
<i>Pyramimonas</i>			0.5	0.9	0.3
<i>Diploneis</i>	1.0				0.3
<i>Scrippseilla</i>				0.9	0.2
<i>Protoperidinium</i>		0.2	<0.1	0.5	0.2
<i>Torodinium</i>		0.2	<0.1	0.5	0.2
<i>Ornithocercus</i>	<0.1	0.4	<0.1	0.3	0.2
<i>Ceratium</i>		0.4	<0.1		<0.1
<i>Surirella</i>	<0.1	0.1		<0.1	<0.1
<i>Odontella</i>	0.1	<0.1		<0.1	<0.1
<i>Warnowia</i>	<0.1	0.1	<0.1		<0.1
<i>Hemiaulus</i>		0.1			<0.1
<i>Amphiprora</i>			<0.1	<0.1	<0.1
<i>Scenedesmus</i>			<0.1		<0.1
<i>Fragillaria</i>				<0.1	<0.1
<i>Bellorachea</i>			<0.1		<0.1
<i>Ditylum</i>		<0.1			<0.1
<i>Tropidoneis</i>			<0.1	<0.1	<0.1
<i>Amphora</i>			<0.1	<0.1	<0.1
<i>Akashiwo</i>				<0.1	<0.1
<i>Astromaphalus</i>				<0.1	<0.1
<i>Corythodineum</i>				<0.1	<0.1
<i>Dinophysis</i>				<0.1	<0.1
Total	100	100	100	100	100

Table 4.22.12: Percentage composition of phytoplankton population at different station off Malvan during March 2016

Genera name	M1	M2	M3	M4	Total%
<i>Akashiwo</i>				<0.1	<0.1
<i>Alexandrium</i>			0.89	1.29	0.54
<i>Amphiprora</i>	0.25	0.30		0.32	0.22
<i>Amphora</i>	<0.1				<0.1
<i>Anabaena</i>	2.80				0.70
<i>Asterionella</i>			<0.1		<0.1
<i>Astromaphalus</i>		3.09			0.77
<i>Bacteriastrum</i>	4.12	15.80	73.95	33.78	31.91
<i>Bellorachea</i>			<0.1		<0.1
<i>Cerataulina</i>				<0.1	<0.1
<i>Ceratium</i>		<0.1	<0.1		<0.1
<i>Chaetoceros</i>	3.38	1.50	4.30	0.97	2.54
<i>Cochlodinium</i>	0.16		<0.1		<0.1
<i>Coscinodiscus</i>	<0.1			<0.1	<0.1
<i>Cylindrotheca</i>	4.94	3.01	2.66	11.90	5.63
<i>Diploneis</i>	0.82		0.13	0.97	0.48
<i>Ditylum</i>	<0.1				<0.1
<i>Dityocha</i>			<0.1		<0.1
<i>Gonyaulax</i>			<0.1		<0.1
<i>Guinardia</i>	0.82	3.01	1.56	2.96	2.09
<i>Gymnodinium</i>	4.94	0.75	1.73	0.32	1.94
<i>Gyrodinium</i>	6.59	2.26	0.64	1.61	2.77
<i>Hemiaulus</i>	0.82				0.21
<i>Leptocylindrus</i>			<0.1		<0.1
<i>Navicula</i>	13.18	14.30	0.72	5.15	8.34
<i>Nitzschia</i>	7.41	4.51		0.32	3.06
<i>Odontella</i>				<0.1	<0.1
<i>Peridinium</i>	3.29	2.26	0.38	4.83	2.69
<i>Plagioselmis</i>	0.82	1.50	2.82	1.93	1.77
<i>Pleurosigma</i>	36.24	36.19	<0.1	1.93	18.61
<i>Prorocentrum</i>		3.01	0.89	2.90	1.70
<i>Protoperidinium</i>	<0.1		0.39	0.32	0.20
<i>Pseudo-nitzschia</i>	4.12	6.77	4.47	20.91	9.07
<i>Pyramimonas</i>			0.42	0.32	0.19
<i>Rhizosolenia</i>	0.82			<0.1	0.22
<i>Skeletonema</i>			0.27		<0.1
<i>Surirella</i>	0.82	1.35		0.64	0.71
<i>Synedra</i>		0.15			<0.1
<i>Thalassionema</i>			0.13	2.90	0.76
<i>Thalassiosira</i>	2.47		2.99	3.54	2.25
<i>Thalassiothrix</i>	0.82		<0.1		0.23
<i>Torodinium</i>		0.15	<0.1		<0.1
Total	100	100	100	100	100

Table 4.22.13: Range and average (parenthesis) of zooplankton at different stations off Malvan during January 2016

Station (Date)	Biomass (ml/100m3)	Population (nox103/100m3)	Total Groups (no)	Major group (%)
M1 (18/01/2016)	1.5-2.6 (2.1)	8.4-13.0 (10.7)	12-16 (14)	Copepods (87.2), appendicularians (7.0), chaetognaths (2.8), foraminifera (0.4), siphonophores (0.3), lamellibranchs (0.2), decapod larvae (1.0), Lucifer sp. (0.7), fish eggs (0.1), gastropods (0.1), pteropods (0.1), others (0.1).
M2 (18/01/2016)	3.7-4.2 (4.0)	36.6-18.3 (27.4)	11-9 (10)	Copepods (91.2), chaetognaths (3.9), appendicularians (2.5), Lucifer sp. (1.9), decapod larvae (0.4), others (0.1)
M3 (17/01/2016)	1.5-1.9 (1.7)	6.1-17.9 (12.0)	14*	Copepods (93.1), appendicularians (2.2), decapod larvae (2.1), chaetognaths (1.1), siphonophores (0.7), lamellibranchs (0.5), foraminifera (0.1), pteropods (0.1), Lucifer sp. (0.1), others (0.1).
M4 (17/01/2016)	1.3-0.9 (1.1)	8.9-6.2 (7.5)	11-18 (14)	Copepods (89.1), decapod larvae (4.8), Lucifer sp. (3.0), lamellibranchs (0.9), gastropods (0.7), chaetognaths (0.6), siphonophores (0.2), fish eggs (0.2), polychaetes (0.1), heteropods (0.1), appendicularians (0.1), fish larvae(0.1), others (0.1).

Table 4.22.14: Range and average (parenthesis) of zooplankton at different stations off Malvan March 2016

Station (Date)	Biomass (ml/100m3)	Population (nox103/100m3)	Total Groups (no)	Major group (%)
M1 (04/03/2016)	1.8-10.6 (6.2)	10.5-18.2 (10.7)	12-19 (16)	Copepods (88.3), chaetognaths (5.8), cladocerans (3.2), siphonophores (1.0), doliolids (0.5), ctenophores (0.2), decapod larvae (0.2), pteropods (0.2), medusae (0.1), heteropods (0.1), gastropods (0.1), lamellibranchs (0.1), appendicularians (0.1), others (0.1).
M2 (04/03/2016)	5.2-32.7 (19.0)	31.5-154.9 (93.2)	12-13 (13)	Cladocerans (52.5), copepods (32.2), siphonophores (15.1), chaetognaths (0.1), decapod larvae (0.1), others (0.1).
M3 (02/03/2016)	1.4-3.6 (2.5)	28.3-40.2 (34.2)	8-12 (10)	Copepods (89.4), lamellibranchs (4.1), cladocerans (4.0), appendicularians (1.3), decapod larvae (0.5), Lucifer sp (0.3), polychaetes (0.3), siphonophores (0.1), others (0.1).
M4 (03/03/2016)	1.0-2.4 (1.7)	12.5-87.5 (45.8)	9-13 (11)	Copepods (97.3), Lucifer sp (3.2), decapod larvae (0.9), fish eggs (0.5), stomatopods (0.4), appendicularians (0.2), lamellibranchs (0.1), others (0.2).

Table 4.22.15: Abundance of zooplanktons off Malvan during January 2016

Faunal Groups	M1	M2	M3	M4
Foraminiferans	+	-	+	+
Siphonophores	+	+	+	+
Medusae	+	+	-	+
Ctenophores	-	-	+	-
Chaetognaths	+	+	+	+
Polychaetes	-	-	-	+
Cladocerans	+	-	+	+
Copepods	+	+	+	+
Cumaceans	+	-	-	-
Amphipods	+	+	+	+
Lucifer sp.	+	+	+	+
Decapod larvae	+	+	+	+
Stomatopods	+	-	+	+
Heteropods	-	-	-	+
Pteropods	+	+	+	+
Cephalopods	-	-	-	+
Gastropods	+	-	+	+
Lamellibranchs	+	+	+	+
Appendicularians	+	+	+	+
Salpids	-	-	-	+
Fish Eggs	+	+	+	+
Fish Larvae	+	+	+	+
Isopods	-	-	-	+

Table 4.22.16: Abundance of zooplankton off Malvan during March 2016

Faunal groups	M1	M2	M3	M4
Foraminiferans	+	+	+	+
Siphonophores	+	+	+	+
Medusae	+	-	-	+
Ctenophores	+	+	-	-
Chaetognaths	+	+	+	+
Polychaetes	-	-	+	+
Cladocerans	+	+	+	+
Ostracods	+	-	-	+
Copepods	+	+	+	+
Cumaceans	-	-	-	+
Amphipods	+	+	-	+
Mysids	-	-	-	+
Lucifer sp.	+	+	+	+
Decapod larvae	+	+	+	+
Stomatopods	+	-	-	+
Heteropods	+	-	-	+
Pteropods	+	+	-	-
Cephalopods	-	+	-	-
Gastropods	+	+	+	+
Lamellibranchs	+	+	+	+
Appendicularians	+	+	+	+
Doliolids	+	-	-	-
Salpids	-	+	-	-
Fish Eggs	+	+	+	+
Fish Larvae	+	-	+	+

Table 4.22.17: Range and average (parenthesis) of subtidal macrobenthos off Malvan during Postmonsoon and Premonsoon 2015-2016

Stations	Biomass			Population			Total groups		
	(g/m ² ; wet weight)			(Ind./m ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon January 2016									
M1	1.26	9.80	4.74	675	1200	906	3	6	5
M2	4.65	10.43	7.30	1025	2475	1856	2	10	6
M3	No collection (Rocky bottom)								
M4	0.70	4.90	2.40	625	1900	1332	3	5	4
Overall	0.70	10.43	4.81	625	2475	1365	2	10	5
Premonsoon March 2016									
M1	1.50	20.27	6.37	575	1100	838	4	9	6
M2	0.02	3.92	1.42	50	450	181	1	5	3
M3	No collection (Rocky bottom)								
M4	4.40	22.90	10.80	2075	5375	3081	4	6	5
Overall	0.02	22.90	6.20	50	5375	1367	1	9	5

Table 4.22.18: Percentage composition of macrofauna off Malvan during January 2016

Phylum	Groups	Stations				Average
		M1	M2	M3	M4	
Annelida	Polychaeta	86.81	89.19	No collection (Rocky bottom)	81.50	86.17
Arthropoda	Amphipoda	0.00	2.03		10.46	4.31
Arthropoda	Brachyura	2.78	0.68		0.45	1.07
Arthropoda	Copepoda	0.00	0.34		0.00	0.15
Arthropoda	Mysida	0.69	0.00		0.45	0.30
Arthropoda	Penaeid shrimp	0.00	0.34		0.00	0.15
Arthropoda	Cumacea	0.00	0.00		0.99	0.32
Arthropoda	Isopoda	0.00	0.00		6.14	1.99
Chordata	Fish larvae	2.08	0.00		0.00	0.46
Echinodermata	Ophiuroidea	0.00	2.70		0.00	1.23
Echinodermata	Holothuroidea	0.69	0.00		0.00	0.15
Mollusca	Pelecypoda	4.17	1.69		0.00	1.69
Mollusca	Gastropoda	1.39	0.68		0.00	0.61
Nemertea	Nemertea	0.00	0.34		0.00	0.15
Platyhelminthes	Turbellaria	0.69	0.00		0.00	0.15
Sipuncula	Sipuncula	0.69	2.03		0.00	1.08

Table 4.22.19: Percentage composition of macrofauna off Malvan during March 2016

Phylum	Groups	Stations				Average
		M1	M2	M3	M4	
Annelida	Polychaeta	53.73	58.62	No collection (Rocky bottom)	62.67	60.67
Annelida	Oligochaeta	0.75	0.00		0.00	0.15
Arthropoda	Amphipoda	1.49	0.00		9.35	7.33
Arthropoda	Copepoda	1.49	0.00		0.00	0.30
Arthropoda	Mysida	1.49	0.00		0.00	0.30
Arthropoda	Brachyura	0.75	0.00		0.00	0.15
Arthropoda	Cladocera	0.75	0.00		0.00	0.15
Arthropoda	Isopoda	0.00	3.45		0.00	0.15
Arthropoda	Cumacea	0.00	0.00		0.19	0.15
Arthropoda	Anomura	0.00	0.00		0.19	0.15
Arthropoda	Tanaidacea	0.00	0.00		24.15	18.15
Chordata	Fish larvae	0.75	0.00		0.00	0.15
Cnidaria	Hydrozoa colony	0.75	3.45		0.00	0.30
Echinodermata	Ophiuroidea	0.00	6.90		0.19	0.45
Echinodermata	Holothuroidea	0.00	3.45		0.00	0.15
Mollusca	Pelecypoda	26.12	17.24		1.01	6.85
Mollusca	Gastropoda	7.46	3.45		0.00	1.68
Mollusca	Scaphopoda	0.75	0.00		0.00	0.15
Nemertea	Nemertea	2.24	0.00		0.00	0.46
Phoronida	Phoronida	1.49	3.45		0.00	0.46
Sipuncula	Sipuncula	0.00	0.00		2.24	1.68

Table 4.22.20: Station-wise distribution of meiofauna parameters in Malvan

Stations	Biomass			Population			Total groups		
	(µg/10cm ²)			(Ind./ 10cm ²)			(No.)		
	Min	Max	Average	Min	Max	Average	Min	Max	Average
Postmonsoon January 2016									
M1	473.26	649.5	561.38	870	1022	946	4	5	5
M2	94.42	121.2	107.81	597	638	618	5	5	5
M3	Rocky Bottom								
M4	734.25	834.93	784.59	1169	1190	1180	5	5	5
Premonsoon March 2016									
M1	165.86	190.02	177.94	185	191	188	4	4	4
M2	9.69	11.77	10.73	122	134	128	3	4	4
M3	Rocky Bottom								
M4	187.56	251.36	219.46	299	351	325	4	6	5

Table 4.22.21: Percentage composition of meiofauna off Malvan during January 2016

Groups	M1	M2	M3	M4	Average
Amphipods	0.37	1.72	Rocky Bottom	0.00	0.52
Bivalves	0.00	0.11		0.00	0.03
Ciliophores	0.00	0.11		0.00	0.03
Copepods	0.37	0.00		0.60	0.39
Foraminiferans	1.87	5.73		9.50	6.02
Insects	0.07	0.00		0.00	0.03
Nauplius	0.00	0.00		0.30	0.13
Nematodes	96.48	91.17		79.13	87.84
Nemerteans	0.07	0.00		0.00	0.03
Polychaetes	0.75	1.15		10.46	5.01

Table 4.22.22: Percentage composition of meiofauna off Malvan during March 2016

Groups	M1	M2	M3	M4	Average
Copepods	0	0	Rocky Bottom	11.60	6.11
Foraminiferans	10.64	28.41		3.50	10.48
Nauplius	0	0		3.94	2.07
Nematodes	82.98	68.18		80.74	78.80
Nemerteans	0	0		0.22	0.12
Polychaetes	6.38	3.41		0	2.42