Temporal variability of physicochemical parameters in the, Rangbai, Porbandar coast, India
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The parameters such as Temperature, pH, Dissolved Oxygen, Biological Oxygen Demand, Salinity, Total Dissolved Solids, Total Suspended Solid were studied seasonally during the period from August 2014 to February 2015 to know the quality status of the area. The overall results revealed that the less fluctuation variation in the physico-chemical parameters was observed. But during the January pH value was very low, may be due industrial effluent discharges to the seawater and other than that there were no much variation occurred.

[Key words: Physico-chemical parameters; Arabian Sea; Rangbai; pH.]

Introduction
People on globe are under tremendous threat due to undesired changes in the physical, chemical and biological characteristics of air, water and soil. These are related to animal and plants and finally affecting on it. It is necessary to know details study on physicochemical parameters such as colour, temperature, acidity, hardness, pH, sulphate, chloride, DO, BOD, COD, alkalinity used for testing of water quality were well studied by several researchers from national and internationally as per rough estimate prepared around, the rocky Saurashtra coastline along with the Gulf of Kachchh supports about 210 species of marine algae, over 150 species of mollusks. Studies of marine biodiversity in India have a long tradition and cover a wide range of faunal groups with support of biogeochemistry research. Temperature, pH, CO2 and calcium carbonate (CaCO3) saturation are among the most important environmental factors controlling the distribution, physiological performance, morphology and behaviour of marine invertebrates. Sea water consist of an average of 35 g/1000 ml of dissolved compounds called salts or practical salinity units (psu) which include Cl- (55.04%), Na+ (30.61%), SO4 2- (7.68%), Mg2+ (3.69%), Ca2+ (1.16%), K+ (1.10%) as major constituents and HCO3- (0.41%), Br (0.19%), H3B03 (0.07%) and St2+ (0.04%) pH is most important in determining the corrosive nature of water. Lower the pH value higher is the corrosive nature of water. pH was positively correlated with electrical conductance and total alkalinity. Dissolved oxygen content of the water is an important gauge of existing water quality and the ability of water body to support aquatic life. Dissolved oxygen exhibited a fluctuating pattern during the present study yet, annual averages showed that it was decreased from the head stream towards the tail Stream.

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Materials and Methods

Surface water samples were collected during period from August 2014 to February 2015 at the time of low tide for the estimation of various physical-chemical parameters. Seawater samples were directly collected by the High density clean plastic bottles. The seawater quality parameters were analyzed according to standard methods. *Insitu* parameters like temperature and pH were measured immediately after collection of the water sample with the help of the electronic thermometer and portable digital pH meter. Salinity was measured by Refractometer. The dissolved oxygen and biological oxygen demand, were measured by Winkler’s methods. Total solids and total dissolved solids were determined by the gravimetric method. Total solids represent a portion of a water sample that are not lost even after evaporation of the unfiltered known volume of sample water while total dissolved solids are residue left after evaporating the filtered sample through the standard filter.

Results and Discussion

Salinity was low in November while higher in February. Dissolve oxygen is higher in November month while low in august. Total suspended solids were higher in November and February both months. While low in January month. Total dissolved solids were higher in February month while low in august month. pH value was higher in November month but low in January month. During January month may be some of industrial effluent discharge the seawater pH was low. Monthly mean values of water parameters were given in the Fig. 2-3 and table-1. The monthly variations of the temperature in the study are ranged from 26.3°C to 30°C. The results clearly revealed that the observed temperature was chiefly.

Table 1. Monthly variations of water quality parameters.

<table>
<thead>
<tr>
<th>No</th>
<th>Parameter</th>
<th>Aug 14</th>
<th>Sep 14</th>
<th>Oct 14</th>
<th>Nov 14</th>
<th>Dec 14</th>
<th>Jan 15</th>
<th>Feb 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Temperature</td>
<td>29.4</td>
<td>29.1</td>
<td>28.9</td>
<td>28.3</td>
<td>28.3</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Salinity (ppt)</td>
<td>32</td>
<td>34</td>
<td>31</td>
<td>30</td>
<td>33</td>
<td>34</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>DO (mg/l)</td>
<td>6.5</td>
<td>7.2</td>
<td>6.7</td>
<td>7.2</td>
<td>7.1</td>
<td>7.2</td>
<td>7.2</td>
</tr>
<tr>
<td>4</td>
<td>BOD (mg/l)</td>
<td>1.0</td>
<td>1.2</td>
<td>1.3</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.3</td>
</tr>
<tr>
<td>5</td>
<td>TSS (g/m³)</td>
<td>2.5</td>
<td>2.6</td>
<td>2.6</td>
<td>2.5</td>
<td>2.5</td>
<td>2.4</td>
<td>2.6</td>
</tr>
<tr>
<td>6</td>
<td>TDS (g/m³)</td>
<td>18.6</td>
<td>18.8</td>
<td>19.2</td>
<td>20.8</td>
<td>20.8</td>
<td>22.3</td>
<td>23.8</td>
</tr>
<tr>
<td>7</td>
<td>pH</td>
<td>7.6</td>
<td>7.4</td>
<td>7.1</td>
<td>7.7</td>
<td>7.3</td>
<td>4.3</td>
<td>7.4</td>
</tr>
</tbody>
</table>

Equally not any major variations were found during the month of November temperature was observed low at 26.3°C and highest temperature was observed in the month of February (30°C). Higher temperature was increase then leads to increase the salinity. The analysis of do is a key test in water pollution and waste treatment process control. In February temperature and salinity are high. DO also were seems to be very high in November while low in August. BOD values are high in the month of November and low during the month of August. TDS were also high in February and low August. TSS values were high in October and February were very low in August (Fig. 2-3)

Fig. 2. Monthly variations of Temp, DO and BOD
Fig.3. Monthly variations of Salinity, pH, TDS, TSS

**Conclusion**

The present study shown that the study area on Rangbai coast, have a good water quality only in January month may be some of industrial effluent the sea water pH was very low 4.3, still over all marine flora and fauna was not very affected on Rangbai coast. This coast is providing a superior food and environment. for this reason, here all marine fauna and flora are existing. Also not major disturbance factors are observed. Over all Rangbai coast is suitable for marine fauna as well as flora.

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**References**

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