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## PHYSICO-CHEMICAL STUDY OF SEA WATER AT DHARAMTAR CREEK NEAR DOLVI VILLAGE OF RAIGAD DISTRICT (M.S.) INDIA

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**Abstract:** The study of physicochemical properties of sea water of Dharamtar Creek near Dolvi village in the Raigad district was undertaken and water samples were collected on Full moon (FM) and New Moon (NM) during the period of October 2017-to September 2018 from the sampling site. Few parameters like pH, Temperature, Dissolved oxygen and Salinity were recorded in the laboratory. It was observed from the study that the pH values were maximum in summer season and minimum values were obtained in the monsoon season. From the present study it is showed that temperature and rainfall have great influence on pH and salinity of sea water at the Creek site.

**Keywords:** *Physicochemical, Dharamtar Creek, Salinity, Rainfall*

### INTRODUCTION

The study of physic-chemical properties of any aquatic ecosystem is necessary because the physicochemical parameters affect its biota to a great extent. Perceive of literature reveals that from the coast of India several workers have studied the hydrochemical aspects of the sea water. Narayanaswami and Vishwanath Sarma (1982), Eswari and Ramanibai (2004), Gopakumar and Jayaprakas(2004) and Ananthan et al.(2004) had studied the some parameters. But due to lack of literature giving detail information on hydrochemistry of sea water of Dharamtar Creek, the present study was undertaken. The latitude of Pen Taluka Dist-Raigad, Maharashtra, India is 18.7358°N, and longitude is 73.0947°E. For doing hydrological study, the physicochemical parameters of the sea water near Dharamtar Creek were measured fortnightly i.e. on every new moon and

full moon days of the months throughout the year.

### II MATERIAL AND METHODS:

Regular sampling of the seawater was made from the Dharamtar Creek near Dolvi village on every new moon and full moon days of the months from October 2017 to September 2018. The physico-chemical parameters like pH, temperature, dissolved oxygen (DO) and salinity were recorded. The pH was recorded with the help of pocket pH meter at the time of sampling. The temperature of the sea water was recorded with the help of standard centigrade thermometer in degree Celsius. Separate samples were collected for dissolved oxygen in 250 ml DO bottles and oxygen was fixed by adding alkali iodide for further analysis .The samples were analyzed by Winkler's method with azide modification(Trivedy and Goel 1984.).The salinity was determined using method given by Parson et al (1984). The replicates of these determinations were used in final result.

**III RESULTS:**

**Table :- Physico-chemical parameters of the seawater at Dharamtar Creek near Dolvi Village, Dist. Raigad during October 2017 to September 2018.**

Month	Season	pH	T (° C)	DO (ml/l)	Salinity %
Oct NM	Winter	7.3	27.3	3.7	10.82
Oct FM		7.4	28.2	3.5	10.81
Nov NM		7.4	29.6	3.7	18.52
Nov FM		7.3	29.2	3.8	26.10
Dec NM		7.4	29.2	3.4	24.20
Dec FM		7.3	29.4	3.7	23.10
Jan NM		7.4	26.7	3.9	24.42
Jan FM		7.5	25.3	3.5	23.22
Feb NM	Summer	7.5	25.5	4.5	28.71
Feb FM		7.4	26.5	5.2	26.20
Mar NM		7.6	27.0	4.4	28.60
Mar FM		7.7	27.5	4.8	28.70
Apr NM		7.6	28.2	3.7	28.75
Apr FM		7.8	29.2	4.2	30.78
May NM		7.9	30.3	4.6	32.52
May FM		7.8	29.4	3.5	32.54
Jun NM		7.6	27.2	4.0	30.45
Jun FM		7.7	30.8	3.2	31.72

July NM	Monsoon	7.3	30.2	3.3	26.18
July FM		7.2	28.3	3.0	22.32
Aug NM		6.9	28.6	3.2	21.25
Aug FM		7.0	27.9	4.4	19.14
Sep NM		6.9	29.2	4.5	18.20
Sep FM		7.2	28.0	4.0	16.35

**FM = Full Moon, NM = New Moon**

**Discussion:** The value shows in the table were environmental parameters viz. pH, dissolve oxygen, temperature and salinity at Dharamtar Creek near Dolvi Village, Dist. Raigad during October 2017 to September 2018. The environmental parameters at Dharamtar indicates seasonal as well as fortnightly variations in the study area. The pH at the Dharamtar Creek showed fortnightly and seasonal variations. In winter season i.e. from October to January the pH was ranged from 7.3 to 7.5. During the summer season i.e. from February to May it ranged from 7.4 to 7.9. During monsoon season i.e. from June to August the pH ranged between 6.9 and 7.7. The maximum value was observed as 7.9 in May NM and minimum was as 6.9 in August and September new moon. The temperature showed seasonal as well as fortnightly variations at Dharamtar Creek. In winter season it was ranged between 25.3 and 29.6°C. During summer season, i.e. from February to May, temperature was from 25.5 to 30.3°C. During monsoon season, i.e. from June to September, temperature was ranges between 27.2 and 30.8°C. Minimum temperature (25.3°C) was recorded in the month of January while maximum (30.8°C) was recorded in June.

At Dharamtar Creek site, the dissolved oxygen was ranged between 3.0 to 4.8 ml/l. The minimum value was recorded in July FM whereas maximum value was measured in March FM. Dissolved oxygen was ranged in winter season between 3.4 to 3.9 ml/l. During summer season i.e. from February to May it was ranged from 3.5 to 5.2 ml/l. In monsoon season i.e. from June to September the DO of the

sea water at Dharamtar creek ranged between 3.0 to 4.5 ml/l. The Salinity range was in between 10.81 to 32.54%, the minimum value was observed in October NM and FM while it was maximum in May FM and NM. During winter seasons it was ranges in between 10.81 to 26.10%, 26.20 to 32.54% during summer and 16.35 to 31.72% during monsoon season.

Ananthan *et al.* (2004) while studying environmental characteristics of Ariyankuppam estuary and Verampattiam coast of Pondicherry observed that salinity was high during summer season and low during monsoon season at both locations. In the present study, high salinity was observed during summer season, the probable reason for this is high degree of evaporation of surface water due to high temperature during summer season. The low values of salinities were recorded during monsoon and post monsoon seasons due to rainfall and fresh water input from the nearby Amba river. The pH was alkaline during most of the study period except in the months of peak monsoon viz. July and August due to influence of freshwater influx, dilution of saline water, reduction of salinity and temperature. Dissolved oxygen is one of the most important factors in any aquatic system. Its main sources are the atmosphere and photosynthetic process of green plants. It is removed from the natural waters by respiration of the biota, decomposition of organic matter, inflow of oxygen deficient waters and rise in temperature (Shaikh, 2003). These can be the probable reasons for variations in the dissolved oxygen content.

#### IV CONCLUSION:

The topography can be affecting the different parameters in the study area. From the present study it is clear that temperature and rainfall have great influence on pH and salinity of sea water.

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