# Levels of Nitrate in Lake Pimpri at Udgir Maharashtra

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**ABSTRACT :**Nitrate is one of the important parameter for the growth of plants especially in agricultural practices. Due to stress on the soil additional fertilizers are added. These additional fertilizers in excess form cause serious problems in the water body. In the present study Pimpri Lake was assessed for the levels of Nitrate in the year January 2018 to December 2018.Spectrophotometric method is used for the analysis. It was observed that in the month of December the levels of Nitrate was 65 mg/L which is highest and in the month of May the levels were 30mg/L. It indicates that the levels of Nitrate are average high in the lake Pimpri and it can lead to cause a uncontrolled growth of some algae in the lake.

Key words: Nitrate, Algae, fertilizers, agricultural practice, stress.

**1. INTRODUCTION**: Water is an essencial part of our life on which depends life cycle and existence of entire bio-diversity. Human being can not make or generate either of these basic elements of life in a form in which those are needed. As such the human beings have no right to destroy, waste with any of these resources. Wherever and in whatever form those may be found, it is our basic responsibility to conserve such natural resources.Water quality has become a serious issue due to increasing industrialization, urbanization and man-made problems. The constituents present in the water systems depends on the nature where the water body is situated and the discharge quality from various sources in that water body . (Rathod K et.al 2014)

The first national survey of pollution that China released in 2010 was eye-opening. It revealed that, as of 2007, agricultural activities were the country's leading source of surface water pollution with respect to organic pollutants and nutrients

Agricultural intensification and growth have provided a solid footing for East Asia's development over the past three to five decades, but it is now time for the agricultural sector to address its expanding pollution footprint. Regional agriculture has largely succeeded—despite significant intraregional disparities—at feeding some of the world's fastest-developing societies . More than that, it has proven responsive to rapid changes in people's food preferences and budgets, especially to the surging demand for animal products. The breadth and severity of pollution problems to which agricultural development has given rise, however, may challenge the sector's ability to remain a positive force in the development of emerging East Asian economies.(World Bank Group 2016)

micro-organism, chemicals industrial or other wastes, or sewage dumped in water directly causes water pollution. These deteriorate the quality of water and make it unfit for its intended uses. Water pollution degrades the quality of the water and affects the organisms living in it. Although some kinds of water pollution occurs through natural processes but it is mostly a result of anthropogenic activities. (P.J.Puri et.al 2011). The observations of Garg et al.(2002) indicated that different species of phytoplankton could subsist up to a certain nutrient level, beyond which competition between cyanophytes and other algae enhanced and eliminated the sensitive plankton flora. primary production of phytoplanktonis increased due to Nutrient loading (Drupp et al., 2011),

**2. STUDY AREA :**Pimpri is the village with Gram panchayat in Udgir taluka. Pimpri lake is on the distance of 5 km from the city. It is the source of water to village Pimpri for domestic use also for agricultural. In the catchment area all the land is under agriculture.In the monsoon there is atmosphereic runoff which carries the residue of fertilizers and pesticides to it. So for the investigation purpose and what is the current position of lake in relation to Nitrate level the study has been undertaken.

**3. TABLES AND FIGURES**

| | Month | Sampling site No.01 | Sampling site No.02 | Sampling site No.03 | Sampling site No.04 |
|---|---|---|---|---|---|
| 01 | Jan | 29 | 21 | 24 | 23 |
| 02 | February | 27 | 28 | 19 | 26 |
| 03 | March | 39 | 27 | 20 | 27 |
| 04 | April | 52 | 30 | 23 | 30 |
| 05 | May | 40 | 42 | 24 | 46 |
| 06 | June | 55 | 36 | 26 | 43 |
| 07 | July | 51 | 47 | 29 | 40 |
| 08 | August | 60 | 35 | 27 | 25 |
| 09 | September | 32 | 26 | 24 | 26 |
| 10 | October | 62 | 24 | 26 | 25 |
| 11 | November | 45 | 27 | 24 | 23 |
| 12 | December | 65 | 30 | 27 | 22 |

Table: Levels of Nitrate in the lake Pimpri at Udgir in the year 2018

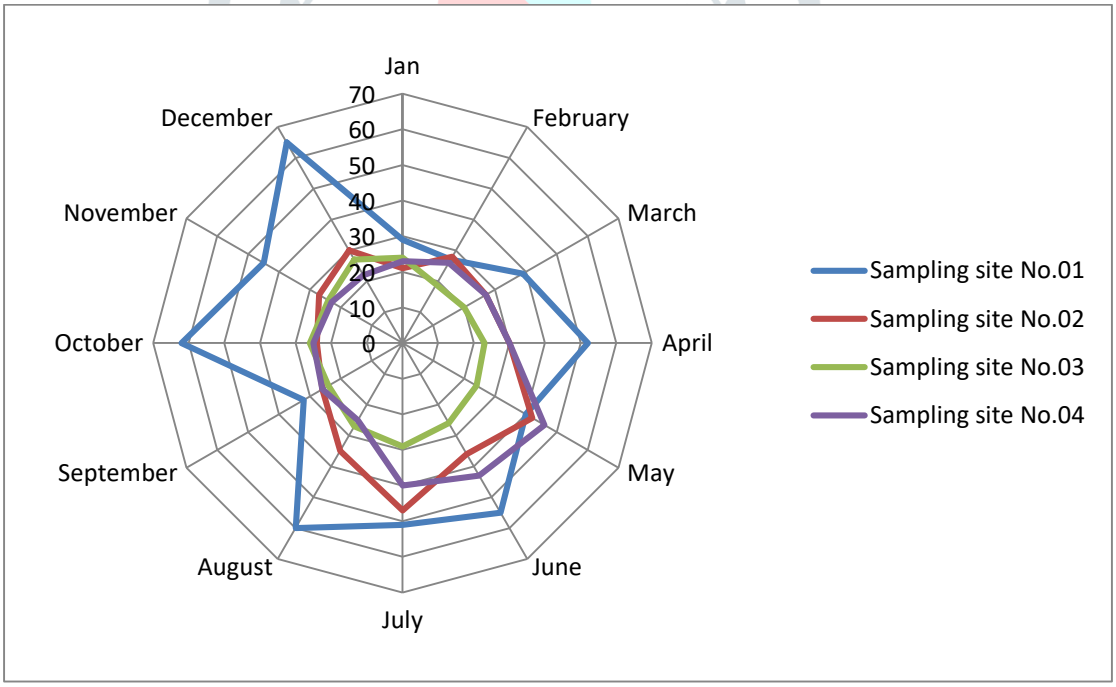


Figure 1 Levels of Nitrate in Pimpri lake at Udgir in 2018

**4. RESULTS AND DISCUSSION**: Nitrate levels were found Highest in the month of October as 62 mg/L at site no 1 and lowest in the month of February it is 19mg/L at site no 03. At site one the maximum amount of Nitrate was 62 mg/L and minimum was 27mg/L. At site no two it was highest 47mg/L and lowest was 21mg/L. at site third optimum level was 29 mg/L and lower level was 19 mg/L in February. At fourth site it was maximum 46 mg/l and minimum was 22mg/L. The levels of nitrate is showing high than that permissible levels

at certain sites. This will increase algal bloom in lake and it is dangerous to the lake health. The water bodies are facing a severe threat of pollution all over the world. To ensure fresh water availability from the local water sources has become a big challenge (Omkar singh et al 2008). For lake aquatic ecosystems, human activities in the watershed can lead to loss of dominant species and functional groups, high nutrient turnover, low resistance, high porosity of nutrients and sediments, and the loss of productivity (Liu and Qiu, 2007)

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