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**EFFECT OF DIFFERENT INDUSTRIAL EFFLUENTS ON THE  
WATER QUALITY OF VALAICHCHENAI LAGOON**

**A PROJECT REPORT PRESENTED BY**

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to the Board of Study in Environmental Science of the  
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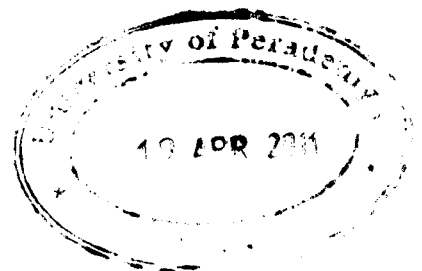
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# EFFECT OF DIFFERENT INDUSTRIAL EFFLUENTS ON THE WATER QUALITY OF VALAICHCHENAI LAGOON

## Abstract

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The Valaichchenai Lagoon, located in Batticaloa District, is surrounded by several industries such as fishing harbour, paper mill, rice mills, and shrimp farms. Although, it acts as a sink for pollutants, extensive studies on the pollution and preventive measures to free the lagoon from further pollution to be adopted have not been carried out.

The present study had been undertaken with the aim of identifying the potential industrial effluents by studying the spatiotemporal variation of some surface water chemical parameters (such as pH, Nitrates, Nitrites, Phosphates, Dissolved Oxygen, Turbidity, Salinity and Electrical Conductivity) of selected points of Valaichchenai lagoon. High levels of nitrates ( $p=0.00$ ) and nitrites ( $p=0.003$ ) were observed in paper mill discharging area. Further, contribution to total nitrogen was also higher than the level of acceptance (1 mg/L) in all the locations of lagoon. Phosphates do not show significant difference ( $p=0.06$ ) among the locations but comparatively higher level was observed at fishing harbour. Contribution to total phosphorous was also higher than the level of acceptance (0.03 mg/L) in all places. Dissolved Oxygen do not show significant difference ( $p=0.078$ ) among locations but it fluctuated with the time as low as 3 mg/L in some points. pH also did not show significant difference ( $p=0.875$ ) among locations, however, in paper mill discharging area pH level reached 4.5, which is detrimental to aquatic organisms. Significant difference in turbidity ( $p=0.00$ ) was observed among locations and it was highest at paper mill discharging area. High level of Electrical conductivity ( $p=0.00$ ) was observed at fishing harbour and very low salinity was observed at paper mill discharging area.

According to the above findings, though the paper mill discharge effluents at low frequently due to its reduced operation it is obvious that paper mill discharges high level of pollutants into the lagoon. Secondly, small fishing harbor and rice mills can be considered as potentially polluting industry as they are discharging their effluents daily.

