

## DISTRIBUSI SPASIAL PENCEMARAN AIR DI WADUK DELINGAN KABUPATEN KARANGANYAR

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### INTISARI

Waduk Delingan terletak di Kabupaten Karanganyar yang berfungsi sebagai sumber irigasi. Waduk Delingan mengalami perubahan ketersediaan air karena penurunan daya tampung dan pasokan air. Masyarakat melakukan kegiatan pertanian musim pendek di tepian area genangan waduk yang kering dan terbuka. Aktivitas masyarakat di sekitar waduk juga berpotensi mencemari perairan. Adapun tujuan dari penelitian ini, yaitu mengetahui kondisi kualitas air di Waduk Delingan dan menganalisis distribusi pencemaran air di Waduk Delingan dan faktor-faktor yang mempengaruhi.

Kondisi kualitas air diuji menggunakan 10 parameter, yakni rasa dan bau, suhu, pH, TDS, DHL, DO, BOD, COD, nitrat, dan fosfat yang diambil di 15 titik sampel. Data kualitas air diperoleh dari pengukuran langsung di lapangan dan diuji di laboratorium. Data kualitas air dibandingkan dengan baku mutu Kelas II menurut Peraturan Pemerintah Nomor 22 Tahun 2021 dan diinterpolasi menggunakan metode *Inverse Distance Weighted* (IDW) untuk mengetahui persebarannya di seluruh perairan. Faktor-faktor yang mempengaruhi pencemaran diidentifikasi berdasarkan observasi lapangan. Hasil penelitian dianalisis dengan metode deskriptif kuantitatif dan spasial.

Parameter rasa dan bau, suhu, pH, TDS, DHL, DO, dan nitrat memiliki nilai yang memenuhi baku mutu. Parameter BOD, COD, dan fosfat memiliki sampel dengan nilai melampaui baku mutu, masing-masing berjumlah 4 titik, 12 titik, dan 15 titik. Persebaran suhu cenderung tinggi di bagian selatan. Persebaran pH cenderung tinggi di bagian barat dan semakin rendah di bagian timur. TDS dan DHL memiliki pola persebaran yang serupa. Persebaran DO cenderung tinggi di bagian barat. Persebaran BOD cenderung tinggi di bagian utara dan selatan. Persebaran COD cenderung tinggi di bagian timur. Persebaran nitrat cenderung tinggi di bagian selatan. Persebaran fosfat cenderung tinggi di bagian timur. Persebaran nilai kualitas air dipengaruhi oleh berbagai faktor. Nilai kualitas air di Waduk Delingan dipengaruhi oleh pertanian dan perikanan.

Kata Kunci: Waduk Delingan, Kualitas Air, Pencemaran Air, Distribusi, IDW

## SPATIAL DISTRIBUTION OF WATER POLLUTION IN DELINGAN RESERVOIR KARANGANYAR REGENCY

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### ABSTRACT

Delingan Reservoir is located in Karanganyar Regency and used for irrigation. Water availability changes are caused by the decrease of water capacity and water supply. Some of surrounding communities use Delingan Reservoir for short season agricultural activities on the edge of the flooded area. Human activity around the reservoir have the potential to water pollution. The study aims to determine the water quality of Delingan Reservoir and analyze the spatial distribution of water pollution in Delingan Reservoir and its influential factors.

Water quality was tested using 10 parameters, that is taste and odor, temperature, pH, TDS, electrical conductivity (EC), DO, BOD, COD, nitrate, and phosphate which carried out at 15 sample points. Water quality data obtained from direct measurement and tested in the laboratory. Water quality data compared with Class II water quality standard based on Government Regulation Number 22/2021 and interpolated using Inverse Distance Weighted (IDW) method to determine the distribution of water quality. The cause of water pollution were identified based on field observations. The result of this study were analyze by the quantitative descriptive and spatial methods.

Parameters such as taste and odor, temperature, pH, TDS, EC, DO, and nitrate did not exceed the water quality standard, while the parameters that exceed the water quality standard are BOD, COD, and phosphate each has 4 sample, 12 sample, and 15 sample. The distribution of temperature tends to be high in southern side. The distribution of pH tends to be high in west side. TDS and EC have the same distribution pattern. The distribution of DO tends to be high in west side. The distribution of BOD tends to be high in northern and southern side. The distribution of COD tends to be high in east side. The distribution of nitrate tends to be high in southern side. The distribution of phosphate tends to be high in west side. The distribution of water quality varies due to the intensify of different influencing factors. The water quality in Delingan Reservoir caused by agriculture and fisheries activity.

Keyword: Delingan Reservoir, Water Quality, Water Pollution, Distribution, IDW