

## ABSTRAK

Intrusi air laut merupakan permasalahan yang mempengaruhi kualitas air di wilayah pesisir, termasuk Kabupaten Indramayu. Penelitian ini bertujuan untuk menganalisis tren kualitas air tanah, kualitas air permukaan, dan zona rentan intrusi air laut. Metode yang digunakan meliputi analisis spasial dengan interpolasi spline dan analisis temporal menggunakan data tahun 2008, 2018, dan 2025, serta survei lapangan pada 28–29 Juni 2025 dengan parameter TDS, EC, dan salinitas. Hasil penelitian menunjukkan bahwa nilai TDS dan EC meningkat pada periode 2008–2018, namun menurun pada periode 2018–2025. Analisis temporal menunjukkan tren penurunan pada seluruh titik untuk TDS dan pada 4 dari 5 titik untuk EC. Secara spasial, nilai parameter lebih tinggi di wilayah pesisir dan menurun ke arah selatan, sedangkan air irigasi cenderung tetap dalam kondisi tawar karena berasal dari sumber air permukaan. Penurunan nilai parameter pada periode 2018–2025 diduga dipengaruhi oleh pengelolaan sumber daya air yang lebih optimal, seperti pemanfaatan air permukaan, penggunaan layanan PDAM, serta keberadaan mangrove di wilayah pesisir. Zona rentan intrusi didominasi tingkat sedang, yang menunjukkan bahwa intrusi air laut telah terjadi namun masih dalam kondisi terkendali.

**Kata kunci** : intrusi air laut, TDS, EC, zona rentan intrusi, Indramayu, air tanah, air permukaan.

## **ABSTRACT**

*Seawater intrusion is one of the problems affecting water quality in coastal areas, including Indramayu Regency. This study aims to analyze the trend of groundwater quality changes, identify surface water quality, and determine the vulnerability zones of seawater intrusion. The methods used include spatial analysis using spline interpolation and temporal analysis based on groundwater quality data in 2008, 2018, and 2025. Field surveys were also conducted on June 28–29, 2025, to collect groundwater, river water, and irrigation water samples with parameters of TDS, EC, salinity, pH, and temperature. The vulnerability zones of seawater intrusion were mapped using a raster calculator with TDS and EC parameters. The results show that TDS and EC values increased during the period of 2008–2018, but decreased in the period of 2018–2025. In 2025, TDS values ranged from fresh to brackish water, while EC values ranged from fresh to saline water. Temporal analysis indicates a decreasing trend at all observation points for TDS and at 4 out of 5 points for EC. This decrease is likely influenced by improved water resource management, such as the utilization of surface water through irrigation systems, the use of PDAM services, and the presence of mangroves in coastal areas that help reduce seawater intrusion. Overall, groundwater quality shows that the impact of seawater intrusion is not significant, with vulnerability zones dominated by moderate levels, indicating that seawater intrusion conditions in Indramayu Regency are still relatively controlled.*

**Keywords** : *seawater intrusion, TDS, EC, vulnerability zone, Indramayu, groundwater, surface water.*