

INTISARI

Di wilayah pesisir Kabupaten Bulukumba, khususnya Kelurahan Bentengnge dan Terang-terang, Kecamatan Ujung Bulu masyarakat melaporkan permasalahan air tanah yang cenderung payau. Kondisi geografis yang berbatasan langsung dengan laut serta tingginya intensitas pemanfaatan air tanah kemungkinan menyebabkan masuknya air laut ke dalam air tanah atau dikenal sebagai peristiwa intrusi air laut ke dalam akuifer di pinggir pantai. Sehingga, penting untuk mengidentifikasi ada tidaknya intrusi air laut yang terjadi di daerah tersebut.

Tujuan dari penelitian ini adalah mengetahui kondisi geologi dan hidrogeologi termasuk di dalamnya karakteristik hidrokimia air tanah, kerentanan air tanah terhadap intrusi air laut dengan metode GALDIT, dan melihat keterkaitan antara kerentanan air tanah terhadap intrusi air laut dengan sebaran kejadian intrusi air laut pada akuifer pantai di cekungan air tanah Bantaeng, Kabupaten Bulukumba. Identifikasi sebaran kejadian intrusi air laut dilakukan melalui observasi nilai *total dissolved solid* (TDS), daya hantar listrik (DHL) dan analisis hidrokimia dengan geoindikator intrusi air laut pada sampel air tanah. Pengumpulan data TDS dan DHL dilakukan pada 73 titik sumur gali dan 15 sumur bor, sedangkan untuk analisis hidrokimia dilakukan pengambilan sampel sebanyak 11 sumur gali dan 4 sumur bor.

Hasil penelitian menunjukkan bahwa dari seluruh titik pengambilan sampel hidrokimia, sebanyak lima lokasi terkonfirmasi mengalami intrusi air laut, delapan lokasi masih tergolong dalam klasifikasi air tawar, satu lokasi terindikasi mengalami pencemaran antropogenik, serta satu lokasi lainnya menunjukkan salinitas tinggi yang berasal dari air formasi (*connate water*) yang terperangkap dalam lapisan batuan sedimen sejak proses pengendapan di lingkungan laut pada masa geologi lampau. Sementara dengan metode GALDIT, diperoleh zona kerentanan tinggi didominasi pada litologi endapan pantai dan berada di daerah pesisir, sedangkan pada litologi breksi-konglomerat dan endapan aluvial masuk dalam kategori zona kerentanan sedang dimana berada lebih ke daratan. Sehingga, dapat disimpulkan bahwa area penelitian sisi pesisir pantai bagian barat telah mengalami intrusi air laut, yaitu di Kelurahan Kasimpureng, Bentengnge, Terang-terang, dan Ela-ela.

Kata kunci: intrusi air laut, air tanah, hidrokimia, GALDIT

ABSTRACT

In the coastal area of Bulukumba Regency, particularly in Bentengnge and Terang-terang Sub-districts, Ujung Bulu District, local communities have reported groundwater problems characterized by brackish water conditions. The geographical setting, which is directly adjacent to the sea, combined with the high intensity of groundwater utilization, is suspected to promote seawater intrusion into the groundwater system, commonly referred to as seawater intrusion in coastal aquifers. Therefore, it is important to identify the occurrence and spatial distribution of seawater intrusion in this area.

This study aims to evaluate the geological and hydrogeological conditions, including groundwater hydrochemical characteristics, assess groundwater vulnerability to seawater intrusion using the GALDIT method, and examine the relationship between groundwater vulnerability and the actual occurrence of seawater intrusion within the coastal aquifer of the Bantaeng groundwater basin, Bulukumba Regency. Identification of seawater intrusion was carried out through observations of total dissolved solids (TDS), electrical conductivity (EC), and hydrochemical analysis using seawater intrusion geoindicators in groundwater samples. TDS and EC data were collected from 73 dug wells and 15 drilled wells, while hydrochemical analyses were conducted on groundwater samples from 11 dug wells and 4 drilled wells.

The results indicate that, among all hydrochemical sampling points, five locations were confirmed to be affected by seawater intrusion, eight locations remained classified as freshwater, one location showed indications of anthropogenic contamination, and one other location exhibited high salinity derived from formation water (connate water) trapped within sedimentary rock layers since deposition in a marine environment during past geological periods. Meanwhile, the GALDIT analysis shows that zones of high vulnerability are predominantly associated with coastal deposits and are located in the coastal area, whereas breccia–conglomerate lithology and alluvial deposits are generally classified as having moderate vulnerability and are situated further inland. Accordingly, it can be concluded that the western coastal part of the study area has experienced seawater intrusion, particularly in Kasimpureng, Bentengnge, Terang-terang, and Ela-ela Sub-districts.

Keywords: seawater intrusion, groundwater, hydrochemistry, GALDIT