

**KAJIAN KUALITAS AIR TANAH DAN PERILAKU INDIVIDU DALAM PEMANFAATANNYA PADA WILAYAH PESISIR BERPOTENSI INTRUSI DI KECAMATAN GRINGSING, BATANG**

**Merisa Rahma Mawaddah**

**21/485867/PMU/10873**

[rahmarisa.mrm@gmail.com](mailto:rahmarisa.mrm@gmail.com)

**ABSTRAK**

Perubahan kualitas air tanah akibat intrusi air laut mempengaruhi kerentanan air tanah. Hal ini merubah daya guna air tanah dan perilaku pemanfaatannya. Tujuan penelitian ini diantaranya evaluasi kualitas air tanah, identifikasi sebaran intrusi dan tipe hidrokimia, serta mengkaji perilaku pemanfaatan air oleh individu di Pesisir Kecamatan Gringsing. Kualitas air tanah dievaluasi menggunakan Permenkes 32/2017; sebaran intrusi dikelaskan berdasar nilai DHL Santosa (2010) dilengkapi dengan nilai konduktivitas dan nisbah air tanah, serta tipe hidrokimia air berdasar Stuyfzand (1991) dan diagram trilinier/piper (1944); kajian perilaku dilakukan dengan *quota sampling* melalui wawancara terstruktur dan dianalisis secara deskriptif. Hasil identifikasi kualitas air tanah secara umum berkualitas baik dapat dimanfaatkan setara air bersih maupun bahan baku air minum, kecuali titik sampel 37 dan 29. Hasil analisis sebaran intrusi didapatkan bahwa Desa Yosorejo dan Sidorejo radius 1 km dari garis pantai teridentifikasi terintrusi air laut dengan DHL 1555  $\mu\text{S}/\text{cm}$  dan TDS 1091 ppm, berasal dari air konat (air laut purba) yang terjebak di daratan akibat proses transgresi dan inggresi pada peralihan zaman Kuartar dan Pliosen. Hasil parsial jarak pantai menunjukkan perubahan dari tawar payau agak sadah  $\rightarrow$  tawar agak sadah  $\rightarrow$  tawar sadah lunak seiring pertambahan jarak. Persepsi dan kepuasan pemanfaatan air tanah secara signifikan dipengaruhi oleh rasa, kejernihan, dan aroma air tanah. Perilaku pemanfaatan air tanah: perilaku ekstraksi 100% menggunakan teknologi pompa; perilaku konsumsi  $>120$  liter/(orang/hari) 90% dengan 43,3% diantaranya mengonsumsi 366,62 liter/(orang/hari); perilaku pemanfaatan setara air bersih 65% serta setara air bersih dan air minum 35%; perilaku pengelolaan sumber air tanah 81,7% melapisi sumur dengan dinding dan hanya 21,7% yang melindungi sumur dari cemaran buruknya sanitasi. Tiga faktor perilaku mempengaruhi pemanfaatan air tanah: pendapatan bulanan 31,6%; jumlah anggota keluarga 40,5%; dan pekerjaan utama masyarakat 69,2%. Ketiga faktor perilaku dan kualitas air tanah secara sinergis membentuk karakter pemanfaatan dan memunculkan pola pemanfaatan yang identik.

**Kata kunci:** intrusi air laut, kualitas air tanah, tipe hidrokimia, spasial jarak garis pantai, perilaku pemanfaatan air tanah

***STUDY OF GROUNDWATER QUALITY AND INDIVIDUAL BEHAVIOR IN ITS USE IN COASTAL AREAS WITH THE POTENTIAL FOR INTRUSION IN GRINGSING DISTRICT, BATANG***

**Merisa Rahma Mawaddah**

**21/485867/PMU/10873**

**[rahmarisa.mrm@gmail.com](mailto:rahmarisa.mrm@gmail.com)**

***ABSTRACT***

*Seawater intrusion affects groundwater quality, which in turn affects the vulnerability of groundwater. As a result, the usability of the groundwater and its utilization behavior is changed. This study aims to assess groundwater quality, determine the distribution of intrusions and hydrochemical types, and investigate the water consumption habits of individuals in the coastal area of Gringsing District. The evaluation of groundwater quality follows regulation 32/2017 of the Minister of Health. Intrusion distribution has been classified based on Santosa's DHL value (2010) in conjunction with conductivity and groundwater ratio values. Hydrochemical water types have also been considered, using Stuyfzand's (1991) classification and trilinear/piper diagrams from 1944. Structured interviews were conducted using quota sampling and data analyzed descriptively to analyze behavioral patterns. Groundwater quality determinations were mostly satisfactory for clean or drinking water uses, except for wells 37 and 29. The results of the intrusion distribution analysis indicate that the villages of Yosorejo and Sidorejo, located within 1 km of the coast, experience seawater intrusion with EC 1555  $\mu\text{S}/\text{cm}$  and TDS 1091 ppm, derived from connate water (ancient seawater) trapped on land by transgression and intrusion processes during the Quaternary-Pliocene transition. Partial results show a transition from slightly brackish to slightly hard freshwater and finally soft hard freshwater with increasing coastline distance. Perceptions and satisfaction with the use of groundwater are largely influenced by its taste, clarity, and odor. Groundwater utilization behavior: 100% abstraction is achieved by using pumping technology; utilization behavior exceeds 120 liter/(person/day) for 90% of users, with 43.3% using 366.62 liters per person per day; the usage behavior is 65% for clean water and 35% for drinking water; regarding the management of groundwater resources, 81.7% of the wells are walled, while only 21.7% are protected from contamination due to poor sanitation. Groundwater use is influenced by three factors: monthly income (31.6 %), number of family members (40.5 %), and main occupation (69.2 %). These, in combination with water quality, influence utilization behavior.*

**Keywords:** *seawater intrusion, groundwater quality, hydrochemical type, spatial distance of coastline, groundwater utilization behavior*