

The Influence of Seawater on a Coastal Aquifer in an International Protected Area, Göksu Delta Turkey

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ABSTRACT

Göksu Delta is an important wetland where the Göksu River reaches the sea in the eastern part of the town of Tasucu-Ice1. The delta is classified as a Wetland of International Importance according to the Ramsar Convention. In the Göksu Delta area, urban and agricultural expansions have caused an ever-growing need for fresh water. High groundwater pumping rates and overexploitation of the aquifers, leading to seawater mixing in the Göksu coastal aquifers. The chemical types of groundwater from alluvial aquifer are Ca-Mg-HCO₃, but in the region where sea water mixing is occurred it changes and the Na and Cl ions are added to groundwater. The similar occurrence can be observed in the groundwater from the limestone aquifer. The chemical types of groundwater are Ca-HCO₃ or Ca-Mg-HCO₃ and they change to Ca-Na-Mg-HCO₃-Cl in the vicinity of seawater mixing regions. A statistical comparative analysis also shows that some of the samples are affected by sea water mixing. The extent of seawater intrusion is reflected by the distribution of salinity and electrical conductivity as an equiconcentration map.

KEYWORDS

Göksu Delta-Turkey, Ramsar Convention, Sea Water Intrusion, Statistical Comparative Analysis, Geographic Information System

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