Mapping of the saltwater intrusion in west Kedah and north Perai area, Malaysia

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The two-dimensional electrical imaging technique was employed in the coastal plain area of South-West Kedah and Northern Perai area in West Malaysia to map the saltwater and freshwater boundary. The survey was carried out using the Wenner electrode arrangement. The electrical method was used, as it is very sensitive to changes in ground water salinity. At most of the places under investigation, the saltwater intrusion was found to be delineated in a depth range of 5 m to 25 m. The resistivity of the saltwater area is in the range of 2–10 Wm and the interface was found to be approximately 6km far from the coastline. The resistivity models obtained from the inversion of the field surveys data in the investigation area was found to be in good agreement with the available geophysical and borehole information. The two dimensional electrical imaging method using the Wenner array configuration was found to be highly suitable for mapping saltwater intrusion in coastal areas.

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