

Salt mobilisation in a floodplain
environment: Using EM techniques to
identify mechanisms that alter the
distribution of saline groundwater

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TITLE

Salt mobilisation through natural inundation: Using electromagnetic techniques to identify mechanisms that alter the distribution of saline groundwater.

RUNNING TITLE

Floodplain freshening through lateral flow

ABSTRACT

River Murray floodplain systems have become highly salinised through river regulation and historical irrigation practices. Naturally, floodplain inundation is the hydraulic mechanism that reduces the concentration of salt on the floodplain. Flushing of saline groundwater through lateral flow following river recession post flooding was previously unidentified. Geophysical techniques have been utilised to collect subsurface conductivity data on Clark's Floodplain, a typical Murray floodplain system. Conductivity data on the floodplain is well constrained, and change in its distribution after the 2010/2011 River Murray flood has been interpreted to identify three freshening mechanisms. They include vertical infiltration of flood water and bank recharge during overbank flows, as well as lateral flow of groundwater after river regression.

KEYWORDS

Salinity, flooding, inundation, freshening, groundwater, lateral flow, TEM

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