

## **Studies of salt diffusion process and fluxes from seabed sediments to freshwater of the Polder reservoir**

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**Abstract.** Based on field investigation and drilling, three kinds of original, disturbed sediments and local surface water were sampled near the Muguandao Polder Reservoir. Then, the temporal-spatial varieties of salinity in fresh water and pore water were measured carefully with conductivity apparatus using column and tank tests. At last, the salt fluxes released from the deposits were calculated. This research lays a scientific foundation for the evaluation and prediction of water quality of the impounding reservoir. According to the column tests, it has been found that a 7.5cm highly concentrated salinity layer is formed above the water-sediment interface due to molecular diffusion. However, salt concentration above the layer is relatively low and even. In addition, the column tests also show that salt discharge fluxes of silty clay, medium-fine sand and pelitic silt can be expressed as a negative exponential function. On the other hand, tank tests indicate that wind may influence the salt stratification above the interface, which is favorable to the salt mixture in the reservoir.

Key words: water-sediment interface; salt diffusion; polder reservoir

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