



Water quality evaluation in the estuarine delta area using a novel water quality index

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With the influence of tide backwater, water quality evaluation in the estuarine delta area is a complex problem. In this study, principal component analysis was used to pick out typical pollution indices, which synthesized hydrologic features to investigate water quality in delta area. In terms of such idea, a novel water quality index (WQI) was generated. Dongjiang River Delta in China serves as a case study. Results show that the water quality in upstream area and coastal region has better water quality than central delta, where the main urban system is located. Results further reveal that water quality in coastal region is more variable with the change of hydrologic features, and water quality in inland area is stabilized relatively. This novel WQI synthesized hydrologic features can evaluate water quality in the estuarine delta area well, and statistical techniques used in this paper can also be applied in different geographical areas considering the specificities for each area.