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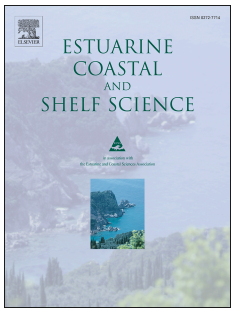

Decadal-scale variations of sedimentary dinoflagellate cyst records from the Yellow Sea over the last 400 years

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Decadal-scale variations of sedimentary dinoflagellate cyst records from the Yellow Sea over the last 400 years

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Abstract

In recent decades, the Yellow Sea has experienced severe environmental deterioration due to increasing input of anthropogenic pollutants and consequently accelerated eutrophication. Whilst there have been significant advances in documenting historical records of metal pollution in the Yellow Sea region, changes in phytoplankton community structures affected by eutrophication remain understudied. Here, we present a new record of dinoflagellate cyst-based signals in age-dated sediment cores from the Yellow Sea mud deposits to provide better insight into eutrophication history and identification of associated responses of the regional phytoplankton community. It is of note that there were significant variations in abundances and community structures of dinoflagellate cysts in three historical stages in association with increasing anthropogenic activity over the last 400 years. Pervasive effects of human interference altering the Yellow Sea environments are recognized by: 1) an abrupt increase of organic matter, including the diatom-produced biogenic opal concentrations (~1850); 2) a