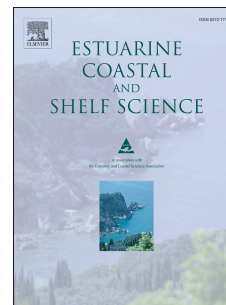


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Decadal-scale variations of sedimentary dinoflagellate cyst records from the Yellow Sea over the last 400 years

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

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11 **Abstract**

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

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