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# Modern and Ancient Continental Shelf Anoxia

Edited by R.V. Tyson (Newcastle University, UK) and T.H. Pearson (Scottish Environmental Advisory Services Ltd, UK)

This volume is unique in its consideration of severe oxygen depletion in coastal shelf waters from the perspectives of both marine ecology and geology.

Seasonal anoxia is a serious problem in the coastal waters of Europe, North America and Japan. Its drastic impact on environmental quality and on marine inshore fisheries has stimulated intensive research, in particular into the relative roles of biological and meteorological variables and of anthropogenic eutrophication. However, continental shelf anoxia is not a new phenomenon; at many times in the geological past vast areas of extensive shelf seas experienced episodes of severe oxygen depletion that lasted from thousands to millions of years, depositing most of the source beds for the world's hydrocarbon reserves. This fact has stimulated intensive research into the sedimentology, palaeoecology and organic and inorganic geochemistry of these sediments.

It is hoped that this book will inspire further research into this economically and environmentally important phenomenon.

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## Outline of Contents

Modern and ancient continental shelf anoxia: an overview · **Modern shelf anoxia** · Effects of hypoxia on continental shelf benthos · Hypoxia in the Gulf of Mexico 1985-88 · Recovery responses of benthic assemblages in the Gulf of Mexico · Biofacial patterns in river-induced shelf anoxia · Oxygen depletion in Chesapeake Bay · Hypoxia in the northern Adriatic Sea · Sedimentary biogeochemistry · Anoxia in the northern Adriatic Sea · Benthos communities and oxygen-deficient conditions on the Peru Shelf · Oxygen deficiency on the Benguela continental shelf · **Ancient shelf anoxia** · The dysaerobic zone revisited · Oxygen-related biofacies in marine strata · Pelletal black shale fabrics · Submarine erosion on the anoxic sea floor · Pennsylvanian black shales, N America · Late Permian anoxia in E Greenland · British black shale biofacies · Posidonia Shale, Germany: depositional history · Toarcian palynomorphs, S Germany · Inorganic geochemistry of 'Posidonia Shale' · The Lower Oxford Clay, central England · Kimmeridgian shelf anoxia, western Europe · Nordenskjöld Formation palaeoenvironments · Mid-Cretaceous glauconitization, SE France · Mid-Cretaceous of Sergipe Basin, NE Brazil · Sulphur and carbon in dysoxic-anoxic conditions, Central Parathethys

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