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ABSTRACT SPECIFICATIONS

Getting the physical science right in marine environmental assessment: the need to challenge the status quo

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Abstract:

The importance of managing Australia's marine environments effectively has been exemplified in the past decade or so by the occurrence of increased offshore oil and gas extraction along with construction and dredging for harbour works and increased shipping activity associated with recent mining boom times.

These activities directly impact the physical environment, especially in relation to dredging activity. Understanding and addressing the physical sciences in the environmental impact assessment (EIA) decision-making processes is fundamental to effective marine environmental management. We argue that application of the physical sciences in EIA in current Australian practice is deficient. We consider some potential consequences of changes to the marine physical environment associated with recent and ongoing coastal

and offshore development projects in Australia and examine how EIA practitioners can address them more effectively.

We focus in particular on two matters: water turbidity, in terms of how it is currently measured and assessed, and physical interference by developments of long-term bed sediment transport pathways. Both water quality and seabed sediments are key controls upon benthic habitats. We examine both issues in relation to current understanding of environmental impacts, and how they are currently treated in EIA decision-making processes and subsequent management. We suggest that treatment and management of physical processes in the marine environment falls far short of equivalent activities in a terrestrial setting.

We call on all stakeholders involved in EIA to challenge the status quo and ensure that the physical sciences are given the attention necessary to understand and manage fundamental environmental issues.