Dredging and port construction around coral reefs – Overview of PIANC Report 108 (2010)

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An international working group was established by the PIANC Environmental Committee (Envicom) to develop guidelines for dredging and port construction near coral reefs. The report was released in late 2010. This presentation will give a brief overview of the development and contents of the report, with a focus on the recommended management measures. The key measures recommended in the report are:

- Impact minimisation during project planning
- Proactive adaptive management during construction

Impact minimisation during planning builds on PIANCs position paper "Working with Nature", and requires developers to understand the environment where their project will be situated, via early assessment and study, and what the potential impacts of their development may be. Approaches to minimise these impacts by working with the natural conditions rather than against them should then be explored. Some examples will be given. Unlike more traditional approaches to environmental management of dredging, proactive adaptive management during construction utilises direct monitoring and management of the source of the impacts (i.e. the dredging or reclamation activities) as well as the receptors. For larger scale projects, daily measurement of the actual release of fine sediments from dredging or reclamation activities is critical to proactively manage the impacts of a project. The concept of a spill budget is introduced, which sets a limit on the release of fine sediments, based on a site specific assessment of the particular dredging activity via detailed numerical modelling. Daily measurements of fine sediment spill from the project are compared against the spill budget, and used in a hindcast sediment plume model to estimate actual TSS and sedimentation impacts at all receptors on a daily basis. Exceedence of the spill budget or tolerance limits set for each receptor highlight potential impacts before they occur. This triggers further investigation and intervention before impacts are realised. Traditional biological (e.g. corals) and water quality (e.g. turbidity or light) monitoring are still an integral part of the program, but the data are used to validate and/or update the spill budget and tolerance limits, rather than as operation triggers for environmental management.

WAMMP: Monitoring strategies for active adaptive conservation management of marine biodiversity in Western Australia

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The Department of Environment and Conservation (DEC) is tasked with delivering a world class marine monitoring system for areas of special biodiversity significance and for threatened marine fauna within Western Australia. The objectives of this program are to provide:

i An ongoing assessment of the condition of marine assets, which incorporates a measure of the natural, human and climate change pressure/s on these assets and of DEC's management responses, using appropriate indicators;

iii A better understanding of the natural and anthropogenic drivers of asset condition, including ecosystem reference points that can be used for comparison with altered environments;

ii An early warning of asset condition change to allow the development and implementation of effective mitigation measures; and

iv Information to meet audit requirements to allow measurement by the department and the community of DEC progress towards ecological performance and visitor access and appreciation goals.

Systematic monitoring of marine parks, reserves and threatened marine fauna offers the opportunity for realising long term fundamental datasets that are needed to build understanding of ecological processes and increase our ability to provide effective ecosystem based management (EBM). In this presentation, I will explain how DEC's Western Australian Marine Monitoring Program (WAMMP) is establishing such a system to provide evidence for management, and to allow community determination of DEC's progress in managing marine biodiversity.

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