

**Economics Legislation Committee**  
ANSWERS TO QUESTIONS ON NOTICE  
Industry Portfolio  
Supplementary Budget Estimates Hearing 2013-14  
21 November 2013

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**AGENCY/DEPARTMENT:** AUSTRALIAN INSTITUTE OF MARINE SCIENCE (AIMS)

**TOPIC:** Research on Dredging and Dumping

**REFERENCE:** Question on Notice (Hansard, 21 November 2013, page 42)

**QUESTION No.:** SI-10

**Senator WATERS:** If we do not have much Australian research yet about the effects of dredging and dumping on marine organisms, why is it that we have had approvals given for massive port expansions—given that, to protect our environment, our decision makers are meant to employ the precautionary principle—when we do not have enough information to know whether it is safe?

**Dr Gunn:** I think, as you know, that is a matter for the Department of the Environment and the Great Barrier Reef Marine Park Authority to answer.

**Senator WATERS:** Can you just perhaps take on notice for me how progressed your research is; when you started it; and when you are expecting to publish any findings?

**Dr Gunn:** Of course, happy to do so.

**ANSWER**

In July 2013 AIMS embarked upon a \$6.8M study of the effects of sediment from dredging and dredge spoil disposal activities on key tropical marine organisms such as corals and filter feeders such as sponges. This work is focused on Western Australia and co-funded by AIMS and WAMSI (the Western Australian Marine Science Institution, using funds from state environmental offsets; <http://www.wamsi.org.au/category/region/research-dredging-science>). Additional work under the WAMSI dredging program is also being conducted by other WAMSI partners (CSIRO, UWA Curtin University, University of WA, WA Museum).

The Key objectives of this program are to:

- better understand the pressure gradients and range of measured biological responses associated with dredging in a range of biophysical settings
- better predict, measure and monitor relevant pressure-field parameters associated with dredge-generated sediments
- establish quantitative relationships between pressure and response for key groups of ecologically important organisms
- identify the critical ecological processes in marine communities in that could be affected by dredging programs.

Dredging and dredge spoil disposal releases sediments into the water column. These sediments will change the quality and quantity of light, which is very significant for photosynthetic benthic (bottom-dwelling) organisms including seagrasses, algae, and corals. The suspended sediment can affect the filtering and feeding processes of planktonic and benthic organisms and the released sediments can also subsequently fall out of suspension and smother organisms living on the seabed.

Despite the ubiquity of dredging operations, there is little convincing information that can be used to establish quantitative relationships between dredging related ‘pressures’ and the responses of key

tropical marine biota. The uncertainty can cause significant delays in approval and regulatory processes that are required prior to commencement of dredging operations, which may in turn escalate project costs and influence investment decisions.

Studies are being conducted on the effects of dredging on adult sponges and corals and also the early life-history stages of corals since reproduction and recruitment processes determine the persistence of communities, their resilience to disturbance and ultimately their ability to recover from disturbance events. The studies are associated with identifying the key cause and effect pathways and deriving relevant water quality parameters. The fit-for-purpose research program is designed to provide information that can be used to predict the possible effects of dredging at the Environmental Impact Assessment stage and that can be used to monitor impacts during dredging programs allowing adaptive management and optimization of dredging programs while underway to minimise impacts.

The studies involve laboratory-based studies in the AIMS National SeaSimulator and field studies and is a 3.5 year study. Results will be released yearly but more so towards the end of the project as the patterns and processes become clearer.