
INTERIM ADVICE OF THE INDEPENDENT EXPERT GROUP TO THE INQUIRY FOR THE SUPPLEMENTARY ENVIRONMENT EFFECTS STATEMENT FOR THE CHANNEL DEEPENING PROJECT, 18 JULY 2007

BACKGROUND

The Inquiry considering the Supplementary Environment Effects Statement (SEES) for the Channel Deepening Project (CDP) has requested the Secretary DSE to seek advice from the Independent Expert Group (IEG) "...about any issues the Inquiry should pursue further with PoMC" in relation to the following documents:

- PoMC response to the IEG's May 2007 advice
- PoMC Opening Submission
- PoMC Submission on Hydrodynamics and Coastal Processes
- PoMC expert witness statements by:
 - David Provis – Hydrodynamics and Coastal Processes,
 - Terry Healy – Coastal Processes and Geomorphology
 - Andrew Longmore – Nutrient Cycling
 - Greg Jenkins – Fisheries and Aquaculture
 - Marcus Lincoln Smith – Marine Ecology in the Entrance
 - Simon Mustoe – Marine mammals and Penguins
 - David Fox – Environmental Monitoring Programs for Turbidity
 - Scott Chidgey – Marine Ecology in the Entrance and Seagrass
 - David Cotterill – Recreation and Tourism.

The PoMC's response to the IEG's May 2007 advice is based on the information provided in the expert witness statements. Please note that the IEG's expertise does not encompass Recreation and Tourism and therefore David Cotterill's expert witness statement was not considered in this advice.

This IEG advice is interim, and the IEG will provide further advice in relation to above mentioned documents covering hydrodynamic modelling, turbidity modelling and sediment transport in due course. This advice adopts the same thematic structure as the IEG's May 2007 advice.

IEG ADVICE

INTRODUCTION

In May 2007, the IEG advised that overall, the SEES is sufficiently broad in scope to enable the assessment of the potential effects of the project. It seems unlikely, given the scope of the SEES, and the approach adopted, that a major impact of the Channel Deepening Project has been overlooked or underestimated. At the same time, there are some uncertainties in the SEES that should be addressed through a robustly designed Environmental Management Plan (EMP). In the IEG's view, this precaution of strengthening the EMP is essential.

The PoMC's response and expert witness statements address many issues raised by the IEG, but indicate that in most cases, a detailed response is to be provided as part of the revised Environmental Management Plan (EMP). The IEG's comment on the adequacy of these responses is therefore subject to the content of the revised EMP and supporting documentation.

The IEG notes that PoMC's response (p. 2) lists six outstanding actions in relation to the EMP. These are:

- "Action 1: Review the updated EMP requirement to conduct post-construction plateau inspection following dredging..."
- "Action 2; LIDAR monitoring of the Great Sands..."
- "Action 3: Fish monitoring program for fish stock and recruitment..."
- "Action 4: Review updated EMP specification for the post-construction deep reef inspection program."
- "Action 5: Review Entrance geomorphology in the context of TDP rockfall survey."
- "Action 6: Review environmental limit proposed for seagrass."

The IEG advises the Inquiry to ensure that these issues are addressed in the revised EMP.

The PoMC's response and the witness statements make several references to additional erosion in the Entrance region, in the area of the Entrance that was subject to trial dredging. As few details are provided, the IEG advises the Inquiry to seek further information from PoMC about this issue. In particular, information is needed about the extent of possible additional erosion, and the implications of any such loss for assessment of the Channel Deepening Project. In particular:

1. Would the erosion cause bathymetric changes large enough to affect hydrodynamics at the Entrance, and consequent bay flushing rates, tidal amplitudes, and sediment transport processes?
2. Would rates of recovery of affected marine biota be affected?
3. Would there be additional rockfall in the Entrance, beyond the capital dredging program?
4. Would the possibility of erosion increase the need for monitoring of rockfall and cleanup?

QUESTION 1 - CONCEPTUAL APPROACH OF SEES

This has been satisfactory addressed and no new issues have emerged.

QUESTION 2 - DREDGING TECHNOLOGY AND DREDGING METHOD OPTIONS

(i) The size of TSHD for dredging different channel segments

The IEG understands that there will be changes in the sizes of the proposed dredger(s), and recommends that the Inquiry seek further information from PoMC on the implications of these changes. With the change in dredger sizes and consequent implications for the dredging schedule, the issue of possible delays in start date for the project, which might result in shifts in timing which could in turn increase risk, becomes even more important (e.g. risks and impacts to seagrass if dredging occurs during a second spring.) The IEG advises the Inquiry to seek clarification from PoMC on possible shifts in seasonal timing of critical activities and locations in response to schedule changes, if these could substantially increase the risks and impacts.

(ii) The 'ripper' draghead technology selected to remove the rock at the Entrance

The IEG notes that ripper draghead test results have been reported in summary in Appendix 20. The IEG considers that the amount of rock spill is likely to increase when dredging over an uneven topography. The IEG advises the Inquiry to seek clarification from PoMC on this issue.

PoMC's response indicates that it is not technically feasible to monitor the amount of rock spill during the Entrance works using side scan sonar, due to difficulty in distinguishing a rough bed without loose rock from a smooth bed covered with rubble or loose rocks (p. 7). This difficulty would preclude effective frequent monitoring of the amount of spill lying on the seabed using side scan sonar.

In its May 2007 advice, the IEG highlighted that during dredging in the Entrance, there will be conflicting pressures between continuing dredging and the conduct of cleaning activities to collect loose rock (p. 13). Consequently, the IEG considers that it is necessary for the EMP to contain a relevant safeguard, e.g. that the ratio between dredging and cleaning times is kept below a certain figure. The IEG notes that this would not provide, in itself, a measure of the acceptable amount of rock spill being left behind.

The IEG notes that PoMC proposes to enhance post-dredging monitoring of ecological impacts and recovery from rockfall. The IEG will consider these issues associated with monitoring rockspill and rockfall, and recovery of biota, when the revised EMP is available.

Refer to Question 7 (ii) for further comment on rockfall in the Entrance.

(iii) The technology selected for filling and capping contaminated material in the extension to the Port of Melbourne Dredge Material Ground

In regards to turbidity produced during sand capping operations, the EMP should include provisions for monitoring the turbidity from this operation. PoMC has indicated that the revised EMP will contain further measures to monitor the capping process, and the effectiveness of bunding and capping in containing contaminated material during and after dredging. The IEG will be able to consider these matters when the revised EMP is made available.

QUESTION 3 - HYDRODYNAMIC MODELLING

IEG advice on this issue is pending.

QUESTION 4 - TURBIDITY MODELLING

In relation to uncertainty in the turbidity modelling, (e.g. (i) resuspension, (ii) sedimentation, (iii) fine material flowing to the seabed being re-entrained into dredger increasing the percentage of fine material, and (iv) the source terms for the different dredger sizes), the IEG advise the Inquiry to ensure that the EMP will enable departures from the predicted modelling to be detected and effectively addressed.

In relation to sedimentation, PoMC's response focuses solely on whether sediment will remain on seagrass leaves. But the question raised by the IEG was the time scales on which sediment will move from shallow coastal environments to deeper waters, and the implications both for benthic fauna and flora, are not addressed here, nor in the statements from Provis and Chidgey. The IEG notes that, while sediment may be quickly dislodged from seagrass leaves, it might be argued that sediment settling beneath seagrass will be partially protected from resuspension.

Chidgey suggests that total accumulations of 2-5 cm on seagrass beds amount to only 0.02 cm per day over 15 months. But based on the model turbidity plume statistics, it seems likely that much of this accumulation may occur over periods of days or weeks. If this occurs, the consequences for biota will depend on the time with which the material is resuspended, and this might be expected to vary between unvegetated sediments, and between dense and relatively sparse seagrass beds. The IEG advises the Inquiry to seek information from PoMC about the potential for high sediment loads to accumulate over short periods, and the likely ecological consequences.

QUESTION 5 - SEDIMENT TRANSPORT

IEG advice on this issue is pending.

QUESTION 6 - NUTRIENT CYCLING PROCESSES

The IEG notes that that the EMP is being amended to include monitoring of nutrient cycling processes, as suggested in the IEG's May 2007 advice. The details of this monitoring should be included in the revised EMP, including in the Annexure 8 "Baywide Environmental Monitoring."

QUESTION 7 - MARINE ECOLOGICAL COMMUNITIES

(i) Seagrass Habitats

PoMC's response to the IEG advice is brief, and states that the environmental limit is being reviewed. The major thrust of IEG comments about the major seagrass of Port Phillip Bay, *Zostera*, was about the environmental limit and the EMP (refer to Question 8 for further details.) The witness statements suggest that potentially longer recovery times were detailed in the Technical Appendices, but this reinforces the IEG comments that statements about recovery in the main body of the SEES are in several places more optimistic than those in the Appendices.

The response by PoMC about *Amphibolis* has misinterpreted the IEG's advice. The response defends the light limit chosen for this seagrass species, but the IEG suggested that arguments could be made for other light limits. It sought advice from PoMC about whether the conclusions about impact were sensitive to the chosen light limit.

(ii) Reef communities in the entrance

The expert witness statement by Lincoln Smith endorses the IEG comments, and raises no new issues. PoMC's response and Chidgey provide an adequate response to the IEG advice. Chidgey's witness statement also highlights that a more rapid recovery is predicted in the main body of the SEES (e.g. p.14-3) than in the Technical Appendices (52, p. 58-9). The IEG also notes that the terms used to describe recovery ("functional recovery" and "general community functionality") are neither recognized scientific terms or definitions, nor the definitions that were the base of the risk analysis, and these should be clearly explained.

(iii) Fish species in the lower Yarra and Hobsons Bay

No specific comments were made in PoMC's response or witness statements on this issue.

(iv) Fish larvae entering the Bay

PoMC's response and the expert witness statements accept the IEG's advice. The IEG notes that additional questions raised in the IEG May 2007 advice about possible effects on fish recruitment, from a range of sources, including changes to seagrass, are proposed to be addressed in the revised EMP.

QUESTION 8 - ENVIRONMENTAL MANAGEMENT PLAN

(i) its overall conceptual and technical basis;

(ii) protection of marine ecological assets, especially seagrass. Specific comment is sought on the proposed environmental limits and monitoring strategy

The IEG recommended review of two of the environmental limits for seagrass and for the special zone around Rye intended to protect two kinds of seabird.

The PoMC documents suggest that the limit for seagrass is being, or has been, reviewed, and that there will be a detailed response in the revised EMP. The status of

the revised environmental limit for seagrass is unclear in the documentation provided to the IEG. The IEG will consider the environmental limit(s), including the relationship between TSS and NTU, when the revised EMP is available.

The PoMC response for the seabird limit is confusing, and does not address the IEG advice. The issue is that the special environmental limit is proposed to protect gannets and terns, which are considered sensitive to turbidity. But the environmental limit is set based on data for another species, which is not of concern, and is less sensitive to turbidity. The IEG advise the Inquiry to clarify this issue with PoMC, unless the revised environmental limit for seagrass would remove the need for consideration of this limit.

(iii) the feasibility of implementing the Channel Deepening Project as proposed on the basis of the Environmental Management Plan

The IEG consider it would be necessary to examine the potential effect that triggering and responding to the environmental limit could have on the cost and feasibility of the project. The Inquiry is referred to page 47 of the IEG's May advice.