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The Director, Transport Assessments
Planning and Assessment
Department of Planning, Industry and Environment
Locked Bag 5022
Parramatta, NSW 2124

Dear Sir/Madam,

RE: Comments on the Western Harbour Tunnel and Warringah Freeway Upgrade, Environmental Impact Statement: Project 1045; Application No: SSI 8863

On behalf of the Chair and members of the Australian Marine Sciences Association New South Wales branch (AMSA NSW), I am pleased to provide comments on the Western Harbour Tunnel and Warringah Freeway Upgrade Environmental Impact Statement.

AMSA represents Australian marine scientists from academia, industry, and government and engages in public policy discussion where we have specialist knowledge. Founded in 1963, the organisation has grown into Australia's largest professional organisation for practicing marine scientists; representing over 800 professional practitioners across all Australian states and territories. The NSW Branch of the Australian Marine Sciences Association has over 200 members and is a leading organisation promoting understanding and management of the coastal and marine environments of NSW and elsewhere.

The following are comments on biodiversity (marine) impacts and hydrodynamics and water quality impacts. AMSA NSW scientists are expert in a broad range of topics in marine science and are very happy to provide further information associated with this submission if required.

Kind regards,

Dr Katherine Dafforn
Chair, AMSA NSW Branch

A comprehensive literature review is required for accurate assessment of potential impacts.

To ensure a robust evidence-based assessment it is important that peer-reviewed scientific literature is considered alongside field-collected data from the EIS. This literature also provides an independent source of information for evaluation. Several key pieces of literature do not appear to have been considered when assessing potential impacts. The Marine Estate Management Authority (MEMA) Sydney Harbour Background Report (2014) provides a comprehensive review of estuary characteristics, ecological assets, relevant stressors and harbour use patterns. For example, water quality has been improving in Sydney Harbour since the closure of many industries and regulation of industrial and sewage inputs. As a result, Sydney Harbour now supports significant biodiversity and is one of the most diverse in the world. This should be acknowledged in the EIS and given more weight than threatened species such as turtles and white sharks that are rarely, if ever, observed in the Harbour. A full list of recommended literature is included at the end of this submission.

Significant exposure pathways, contaminant classes and interactions among stressors have not been considered.

The EIS lists potential impacts from removal of habitat, turbidity, sedimentation, mobilisation of contaminants, introduction/spread of marine pests, altered hydrodynamics, underwater noise, boat strikes and spill of contaminants. This fails to consider several important contaminant exposure pathways including the fine particulates resuspended during dredging and the pore waters that will be released.

Furthermore, the abundances of microplastics in the sediments in the White Harbour Tunnel (WHT) proposed area have not been quantified or considered as at risk of resuspension during dredging activities. Similarly, there has been no quantification of pathogenic bacteria or resting dinoflagellate cysts (a major cause of red tides) in the sediments that might be released during dredging activities and pose a human health risk or result in a harmful algal bloom.

While it is important to understand the potential impacts from individual stressors, the potential for these stressors to interact and have additive or even synergistic effects should also be considered. For example, while the EIS considers that increased turbidity and sedimentation would not substantially impact on seagrass communities, the potential for these stressors to interact in combination with e.g. metal contaminants has not been considered.

Similarly, the EIS posits that the marine communities present in the WHT proposed area may already be “adapted” to some of the potential impacts from the project. Without data on the tolerance of local species to different levels of each of these stressors, separately and in combination, it cannot be concluded that such species are ‘adapted’ to them. Furthermore, it is possible that while these marine communities are currently exposed to a variety of stressors, adding additional stressors might result in a tipping point from which they cannot recover.

Lack of data transparency

Apart from the summary of methodology included in the EIS, more detail should be provided about the contaminant data including mean, standard error/deviation and sample size. QA/QC

information should likewise be presented that includes at a minimum the detection limits of relevant analytical equipment, the certified reference materials used and recoveries. The time periods chosen to sample the water quality should also be justified since the periods were short and only captured one wet weather event, although the duration and volume of rainfall was not described. It should be clarified if the measurements collected were spot samples or continuously logged to understand tidal changes. The methodology described for understanding the impacts of underwater noise and vibration on marine assemblages also appears inappropriate as visual monitoring from the harbour surface is proposed. Given the predicted sedimentation and turbidity increases it is very unlikely that visual monitoring of water column assemblages will be possible from the surface.

The most up-to-date guidelines should be used to assess ecological risk.

The EIS has considered the ANZECC Interim Sediment Quality Guidelines from 2000, but these have been updated in Simpson et al. (2013), which should now be used instead. Furthermore, the National Light Pollution Guidelines for Wildlife were recently released and mitigation of light impacts on marine assemblages should be considered alongside those for terrestrial assemblages.

Insufficient containment measures for dredging activities.

Sydney Harbour typically experiences good visibility and water quality unless there is a rainfall event and so increases in turbidity from dredging activities should be prevented. Shallow silt curtains will not be effective at full containment of contaminated resuspended sediments. Full length silt curtains anchored to the sea floor are the only viable method of restricting the movement of fines. It should also be recognised that silt curtains cannot prevent the dispersal of toxic sediment pore water and sediment plumes created by dredging will be compounded by wind, tide and vessel movements.

Insufficient information is provided about reinstatement of natural habitats

The process intended for reinstatement of natural habitats (rocky reef and sediment) is not provided at the level of detail needed to assess the potential for recovery after the works. Further information about substrate types, sources, reconstruction methods should be included.

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