

HEARING SUMMARY – DR SHARON DE LUCA – MARINE ECOLOGY

Corrections

1. I have the following corrections to my evidence in chief:
 - (a) Page 9, paragraph 6.5, I authored chapter 4 of Technical Report 16 – Ecological Impact Assessment, not Technical Report 15: Coastal Processes.
2. I have the following corrections to my rebuttal:
 - (a) Page 4, paragraph 4.6, second line change godwits to wrybill.

Role

3. I have undertaken two different roles in the Project:
 - (a) Providing expert advice in relation to marine ecology; and
 - (b) Co-ordinating and leading the expert ecology team.

Overview of my conclusions

4. The primary adverse effects of the East West Link (EWL) project on marine ecological values include intertidal habitat loss due to reclamation and permanent occupation. Through the collaborative approach of the EWL team, those effects (and others) have been minimised through the design stages of the project.
5. The primary positive effect of the EWL on marine ecology values is through treatment of stormwater which will improve water quality and benefit marine ecological values and result in reduced contaminant concentrations in sediment around discharge points.
6. As outlined in both the ecology and reclamation Joint Witness Statements (JWS), there was a high level of agreement between myself and Dr Kala Sivaguru (Auckland Council Marine Ecology Expert) with respect to the level of effects on marine ecological values, the integrated approach to the development of the proposed mitigation and offset measures and the quantum of mitigation.
7. Due to the significant adverse effects on marine ecological values (primarily through reclamation and permanent occupation), mitigation and offset measures are required. The EWL ecology and wider project team worked collaboratively to develop an integrated suite of proposed measures to avoid, mitigate and offset effects on ecological values. The approach taken was to assess the “bucket of effects” across all areas of ecology and develop a “bucket of mitigation and offset”, as it is not possible to propose like for like mitigation for effects such as permanent loss of marine habitat. For example, even though adverse effects of the Project on freshwater ecological values are not particularly significant, measures to enhance freshwater ecological values have been proposed, which will improve functioning and values of the whole ecosystem.
8. During the ecology conferencing, all experts agreed that the integrated ecosystem approach to effects, mitigation and offsets proposed is appropriate (Paragraph 11(a) of the Ecology JWS).

Outstanding issues

9. While the quantum of mitigation and offsets proposed was a key topic of discussion during the ecology expert conferencing, it was agreed by all experts that to achieve the benefits sought, all of the measures outlined in Table 7 in my evidence in chief need to be successfully implemented.
10. In addition, assuming that all of the measures outlined in Table 7 of my evidence in chief are successfully implemented, all experts, apart from Dr Craig Bishop, agreed that the quantum of mitigation and offset was appropriate, albeit finely balanced. Mr Bishop's rebuttal evidence has proposed an additional number of measures in order to ensure the quantum was appropriate. In the past week, subsequent to the expert witness conferencing, the EWL ecology team has been discussing the detail of offset mitigation with the Department of Conservation. I can confirm that the quantum of offset now included in the proposed conditions is significantly greater, due primarily to the scale of pest control and timeframe committed to at wrybill breeding habitat in the South Island (>20km over c. 8 years). The finely balanced mitigation and offset package is now not finely balanced and has "fat" or "redundancy" in it.
11. Dr Kala Sivaguru raised concerns in her EIC regarding the proposed subtidal dredging and the effects that dredging may have on benthic ecology, primarily around elevated suspended sediment, deposition of sediment and recovery of dredged areas. Mr Marcus Cameron, in his EIC, raised concerns about the potential for dredging to resuspend contaminants.

My position on those issues

12. Whilst all of the ecological experts logically agreed in caucusing that not doing any dredging is a better outcome for marine ecology compared to dredging (paragraph 9 (g) of Ecology JWS), my assessment is that the moderate level of adverse effects of subtidal dredging will be temporary, with benthic ecology being recolonised and recovering from the disturbance in the long term. It was also agreed in caucusing that subtidal dredging should be focussed on areas of lowest ecological value i.e. areas where invasive Asian date mussel mats have smothered indigenous organisms (paragraph 9 (g) Ecology JWS).
13. With respect to Mr Cameron's concerns regarding contaminants becoming mobilised during dredging, I note that other than contaminants from geological sources (arsenic and nickel), almost all contaminants in subtidal sediments are below ANZECC ISQG-low thresholds. The fact is, that benthic sediment within the Mangere Inlet is contaminated to similar levels to other parts of Auckland, as explained by Mr Priestly, even at depths of >1m. It is my opinion that resuspension of contaminants attached to sediment particles through dredging does not present a significant risk to marine ecological values.

Matters raised by the Board

14. I understand that the Board has raised concerns about the appropriateness and value of research studies as part of the ecological response package. I consider that there is significant value in such research. The offset is the knowledge itself, not whether invertebrates can be enhanced in the Mangere Inlet, as many marine ecological assessments assume that structures and disturbed sediments will be recolonised without monitoring recolonisation success. The research tasks identified are directly relevant to the effects of the Project and will allow a more efficient and effective response to this type of effect in the future. I note that research scholarships is included as part of the ecological response package for the dredging of the Tauranga Harbour Channel.

15. In light of the Board's questions and cross-examination questions, I have been working with Ms Hopkins to revise the Ecological Management (EM) conditions to provide for more certainty of some of the mitigation and offset outcomes. I understand that the specific changes will be introduced by Ms Hopkins.

Conclusion

16. Overall, I consider that the significant adverse effects on marine ecological values arising from reclamation and permanent occupation of the CMA, and the adverse effects assessed by my ecological colleagues in the areas of terrestrial, herpetofauna, freshwater and avifauna ecology are adequately mitigated and offset through the integrated ecosystem measures proposed.