



MEMO

TO Shannon Watson
COPIED TO Roger Uys, Iain Dawe, Evan Harrison
FROM Megan Oliver
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Eastern Bays Shared Path notified consent – Review of Appendix A, Assessment of environmental effects for intertidal ecology, and Appendix C, Seagrass survey

I have reviewed the following reports to assess the impacts of the proposed construction works on the marine ecology of the Eastern Bays area:

- Appendix A-1: Assessment of environmental effects for intertidal ecology
- Appendix A-2: Assessment of environmental effects of beach nourishment in intertidal and subtidal beach areas
- Appendix C-1: An assessment of ecological effects on the proposed Eastern Bays Shared Path Project on coastal vegetation and avifauna (focus on seagrass)
- Appendix C-2: Seagrass survey, Point Howard, Lowry Bay, York Bay and Hutt River Estuary, December 2018

My review is presented in three parts to cover the assessed impacts on (1) intertidal rocky shore ecology, (2) intertidal and subtidal beach ecology, and (3) seagrass.

Intertidal rocky shore ecology

I have reviewed Appendix A-1: Assessment of environmental effects for intertidal ecology and find the sampling methods and subsequent taxonomic and statistical analyses to be appropriate for the purpose of the survey. I agree with the authors' characterisation of the habitats, infauna, macroalgae and sediment contamination, and with the conclusion that the community composition is what would be expected for this section of coastline and is similar to that found elsewhere in Wellington Harbour.

I strongly support the recommended additional mitigation measures for "high" and "medium" encroachment zones. As acknowledged in the report, enhancing what would otherwise be smooth concrete walls with textured concrete panels to provide habitat complexity will be essential for

mitigating the impacts of this project. I also strongly support the addition of rock pools drilled or cast into the steps of the curved walls and into the hard revetment rock. And I would encourage the applicants to provide additional habitat above the present-day intertidal zone (“low encroachment zones”) for future ecological resilience to sea level rise. This is consistent with the objectives of the PNRP to safeguard aquatic ecosystem health, including biological and habitat outcomes.

There are two points about which I have concerns or am not convinced are feasible:

1. The methodology for working in the subtidal areas while isolating the construction site. It is not entirely clear how this will be achieved, and crucially how cement- or sediment-laden water will be kept from flowing into coastal waters; and
2. Having contractors trained to check in rock pools and relocate fish outside the construction zone; I would prefer that a marine ecologist was on site to carry out this task, unless the contractors have a qualified environmental manager on site capable of doing this.

Intertidal and subtidal beach ecology

I have reviewed Appendix A-2: Assessment of environmental effects of beach nourishment in intertidal and subtidal beach areas and find the sampling methods, analyses and subsequent conclusion about the beach infauna and habitat to be appropriate and reasonable.

I agree with the assessment that there will be high immediate mortality following deposition of sand, but that recolonization will be reasonably quick. I strongly support **all** mitigation measures proposed and the requirement for follow up monitoring of beach infauna a year later. This will provide highly valuable information for ongoing renourishment at this site, and future projects at other sites.

Seagrass

I have reviewed the seagrass survey report and find the methods and observations to be generally sound. I would like the presence of seagrass flowers to be verified by a seagrass expert such as Fleur Matheson (NIWA Hamilton) as this is an incredibly valuable find, and from conversations with Fleur I don't think flowers have been seen as far south as Wellington before. If indeed, these are confirmed to be flowers then the value of these remnant meadows is even greater as they represent the most southern record of flowers and a potential seed bank.

Overall, my greatest concern with the seawall and beach nourishment work proposed for this project relates to the survival of the seagrass meadows in Lowry Bay. As noted in the reports, the three occurrences of seagrass in Lowry Bay represent the last of this habitat type in Wellington Harbour. And in fact, outside of Porirua Harbour, I am not aware of any other seagrass meadows left in the region. As such, these highly valuable, biogenic habitats are under threat of local extinction from smothering and erosion resulting from this project.

It is possible that the addition of sand to the beach and its subsequent redistribution could provide better substrate for the seagrass to spread, compared with the cobble habitat surrounding some of the meadows now. But as the beach nourishment report notes, “..there is little detail of the level of

redistribution of sediments over time..” and so the impact of this project and the outcome for these meadows is far from certain.

Seagrass has a threat status of “At Risk-Declining” and is listed as a habitat with significant indigenous biodiversity values in the coastal marine area in Schedule F5 of the Proposed Natural Resources Plan (PNRP) for the Wellington Region. As such, the PNRP directs these habitats to be protected and restored, for ecological connections to be maintained between fragmented habitats, to provide adequate buffers and to avoid cumulative adverse effects and incremental loss. The mitigation measures outlined are not sufficient to protect or restore the seagrass. I would like to see further consideration given to monitoring and mitigating the impact of sedimentation and changes in hydrodynamics on these meadows.

In the very least an environmental monitoring officer should be present to monitor sediment deposition on the seagrass beds resulting from construction works and sand deposition. In the event that sediment is visibly accumulating on the beds, then work should be stopped and only resumed once natural flushing of the sediment has occurred. I would recommend a seagrass expert be consulted for further advice.

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