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Dear Dan

BLOWHOLE POINT DEPOMOD OVERLAY FOR PROPOSED FARMS

Background

The Ministry for Primary Industries have requested that Cawthron provide a map showing estimated depositional footprints from existing mussel farms overlaid with the depositional modelling outputs for proposed salmon farms near Blowhole Point, Pelorus Sound. They also requested a short commentary on the nature of likely cumulative benthic effects associated with the proposed salmon farms. This letter summarises the results of the mapping work and briefly discusses the nature of benthic affects associated with overlapping salmon and mussel farm depositional footprints.

Method

Depositional footprints from proposed salmon farms at Blowhole Point North and South, and Horseshoe Bay were obtained from recent high resolution benthic ecological effects assessments (Brown et al. 2016; data provided by NIWA). For the existing mussel farms at these sites, depositional footprints were taken from previous lower resolution modelling and benthic effects assessments. All depositional values were then converted to common units of kg m^{-2} yr^{-1}. Depositional areas represented as polygons were converted to raster format, and these rasters were then summed to provide a combined level of deposition in ArcMap. Bathymetry and cage locations were traced in ArcMap from the existing reports.

Results and Discussion

At all three sites the depositional footprint from the proposed salmon farms was the overriding influence on overall depositional rates (Figures 1 and 2). Importantly, the significantly lower levels of predicted deposition from the existing mussel farms did not push the salmon farm footprints into the next depositional category (as shown in Figures 1 and 2). Consequently, despite there being a predicted overlap of depositional footprints for the proposed salmon farms and existing mussel farms, in terms of seabed enrichment effects, the predicted outcomes and the assessed effects from the original DEPOMOD modelling for the proposed farms, discussed in Brown et al. (2016), remain valid.

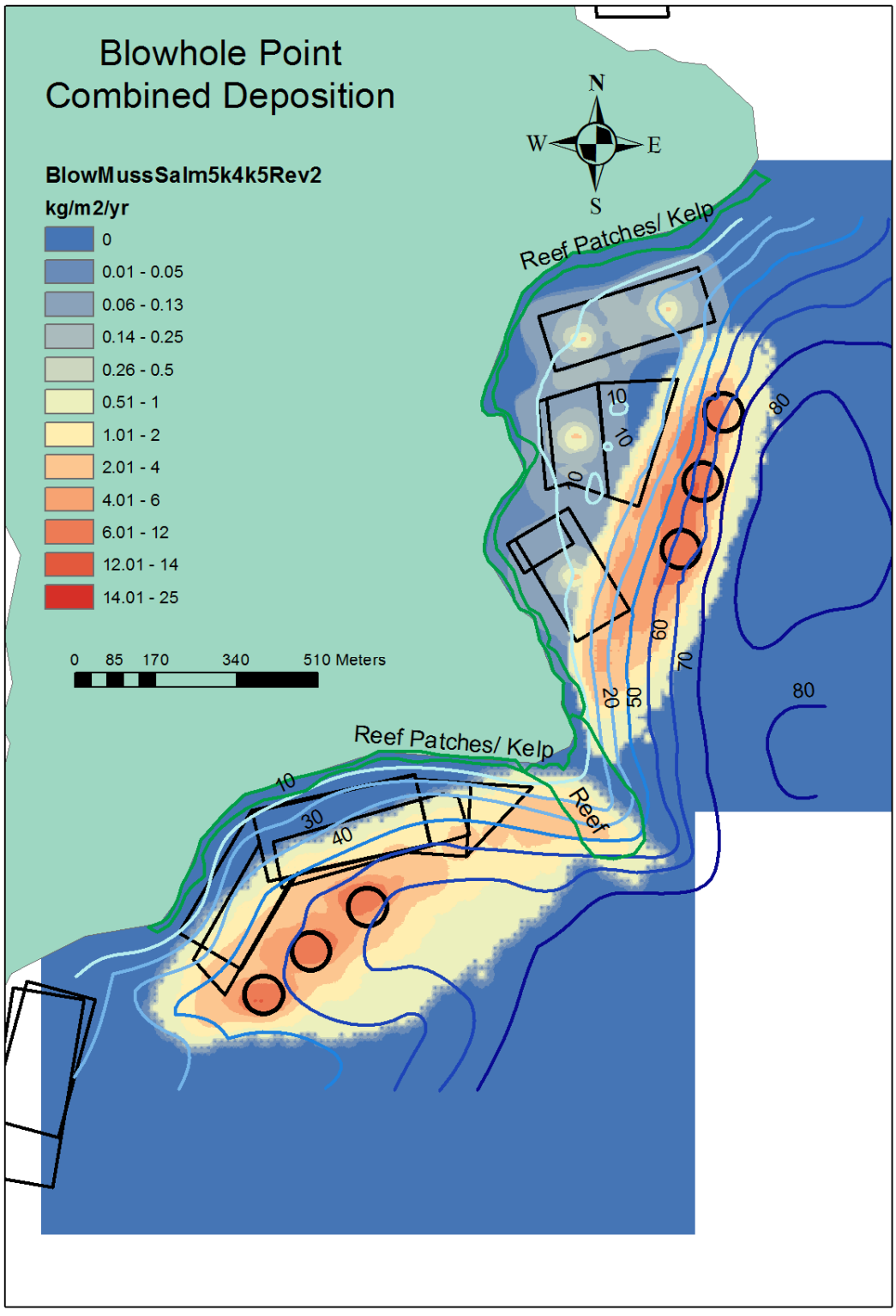

Figure 1. Predicted combined depositional footprints of proposed salmon farms and existing mussel farms at Blowhole Point North and South, Pelorus Sound.

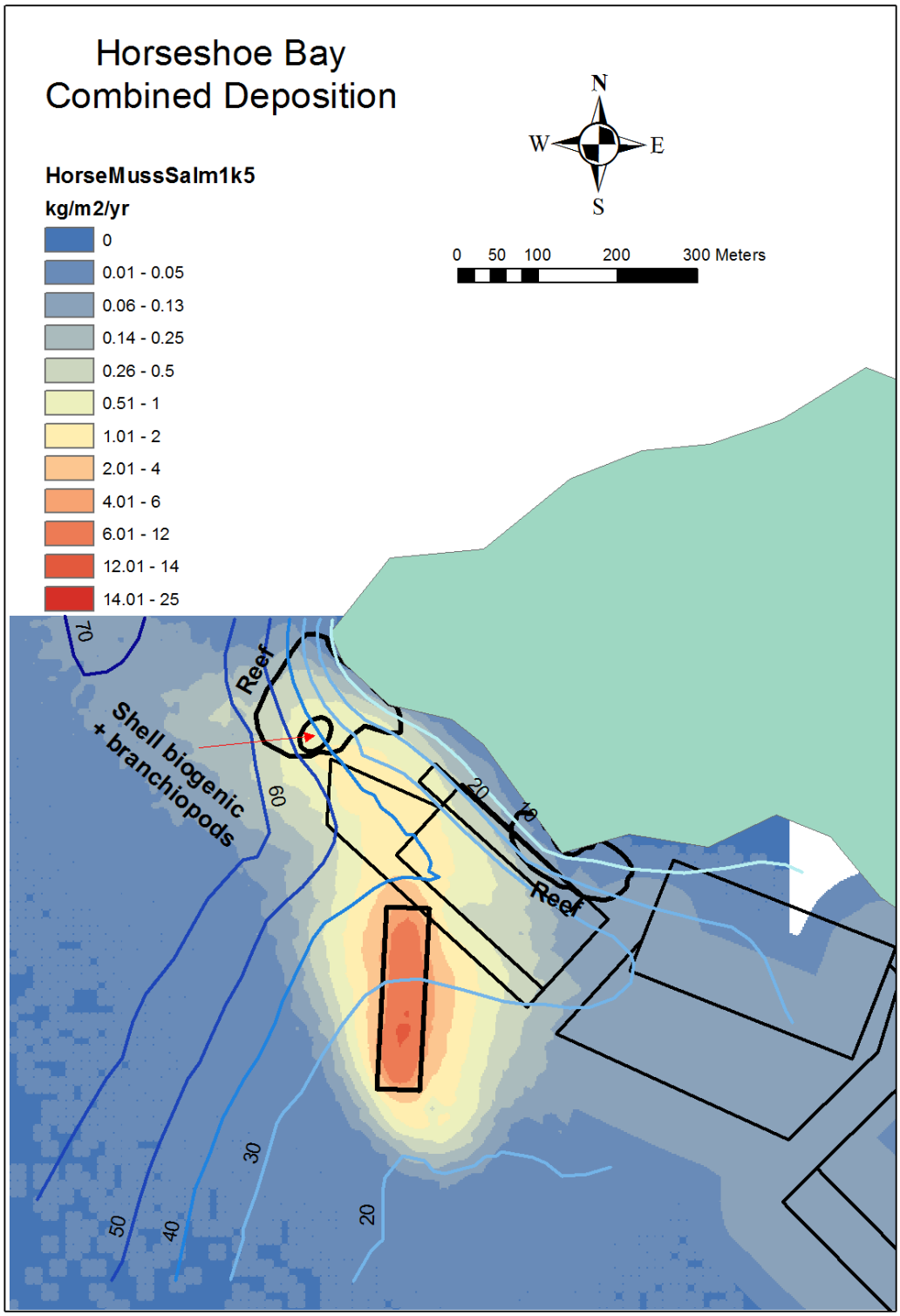

Figure 2. Predicted combined depositional footprints of proposed a salmon farm and existing mussel farms at Horseshoe Bay, Pelorus Sound.

Please don't hesitate to contact me if you require further information.

Yours sincerely

Scientist

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Reviewed by

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References

Brown S, Ren J, Mackay K, Grant B, O'Callaghan J 2016. Benthic ecological assessment for proposed salmon farm sites. Part 2: Assessment of potential effects. Prepared for Ministry for Primary Industries. NIWA Client Report No: NEL2016-006. 65 p.