

4.4. Mangonui, Doubtless Bay

Maps of predicted inundation depth and maximum speed for Mangonui are presented in Figures 16-21. The South American tsunami causes inundation along the coastal strip from the south of White Point round to the south west of Rangikapiti Head. Inundation depths are generally 0.3 – 1 m, but reaching up to 4m in a small section immediately to the south of White Head. Water speeds reach 2.5 – 5 m s⁻¹ in the channel between White Head and Butler Point, and also between Rangikapiti Head and Rangitoto Point. The addition of sea level rise has deepens the inundation slightly but has little effect on its extent or current speed.

Predicted inundation and water speeds for the TKSZ M_w8.5 event are relatively unchanged from those of the South American tsunami event. For the TKSZ M_w9.0 however, not only is inundation depth slightly increased, but also the area of Coopers Beach at the mouth of the Kanekane Stream is inundated, up to 1 km inland and up to depths of 4 m. Current velocities reach up to 7.5 m s⁻¹ between Rangikapiti Head and Rangitoto Point, to the west of Rangikapiti Pa, and just off the beach at the mouth of the Kanekane Stream. Speeds exceed 7.5 m s⁻¹ between White Point and Butler Point. Inundation extents and speeds are only marginally modified by sea level rise.

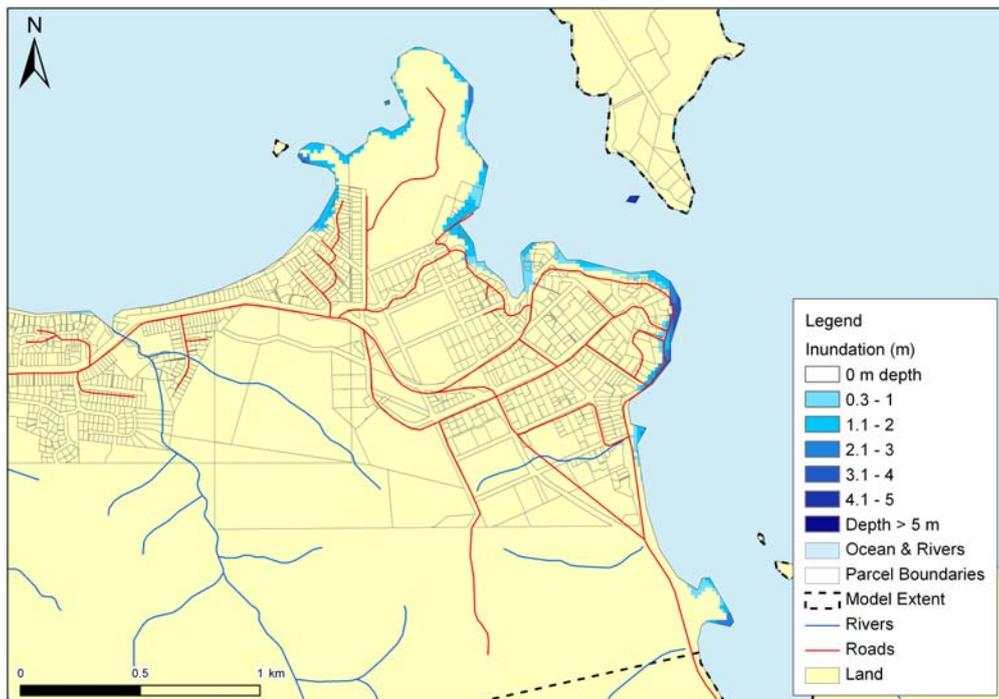
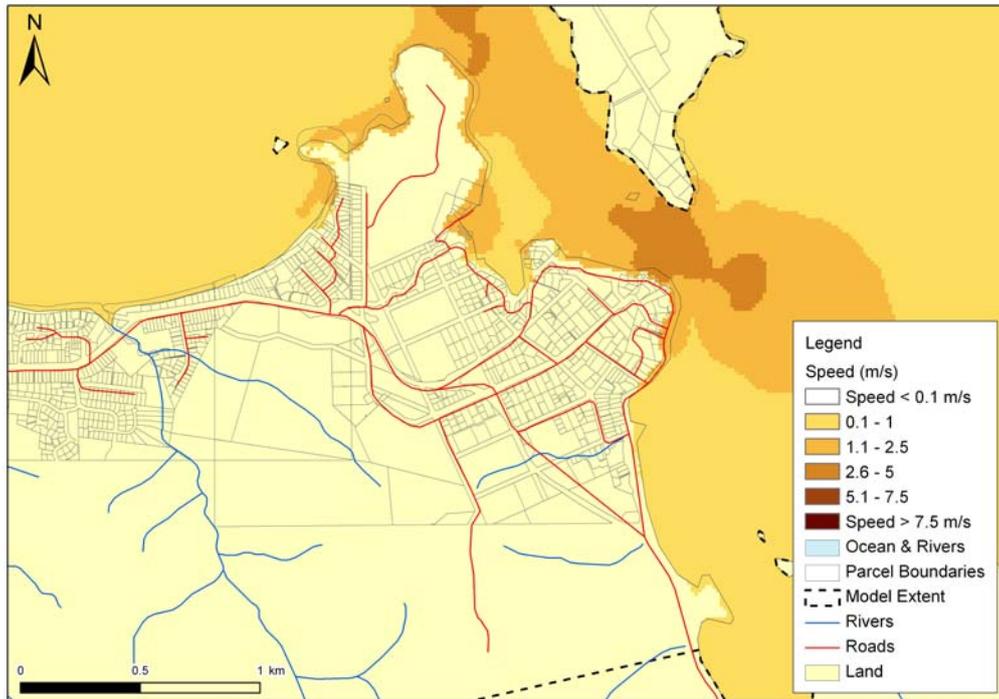


Figure 16: Mangonui, Doubtless Bay: Maximum inundation speed (upper) and depth (lower) plots for the South American tsunami scenario at MHWS (to extent of LiDAR).

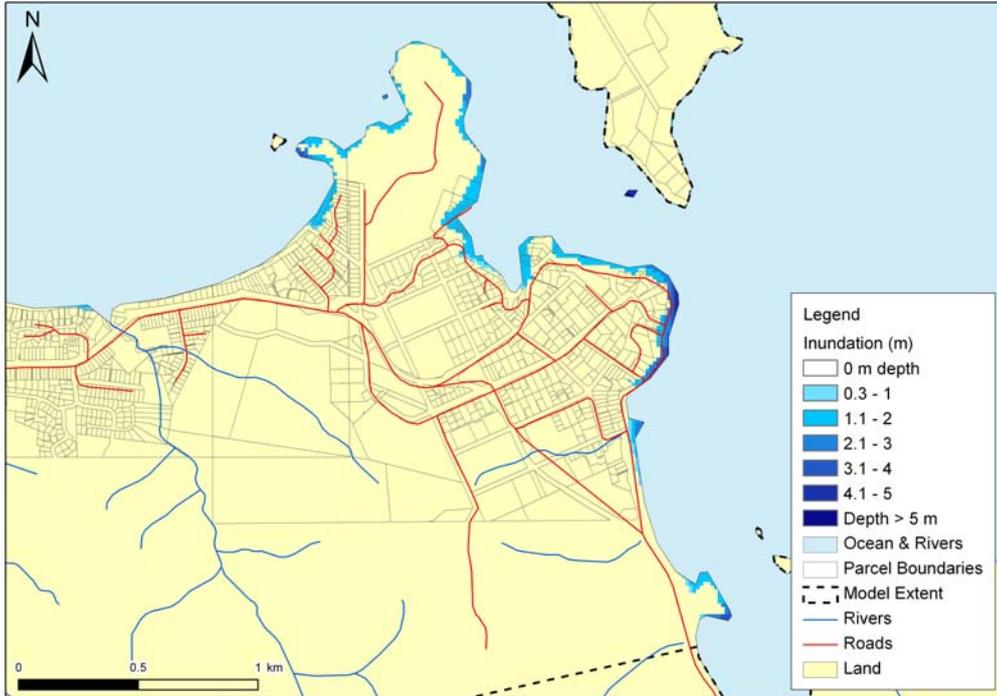
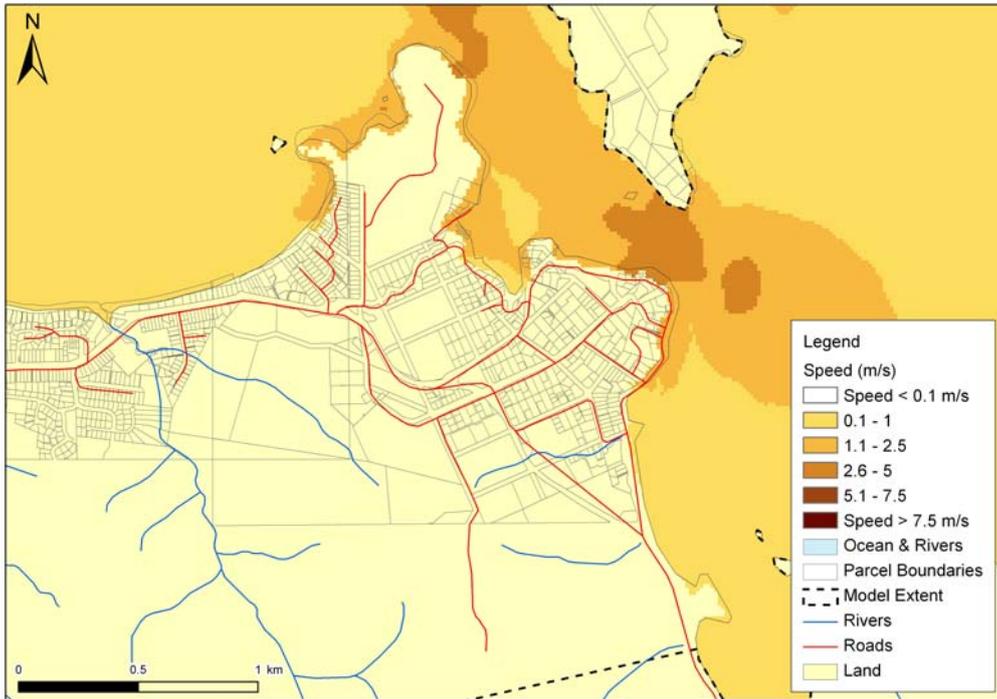


Figure 17: Mangonui, Doubtless Bay: Maximum inundation speed (upper) and depth (lower) plots for the South American tsunami scenario at MHWS + 50cm (to extent of LiDAR).

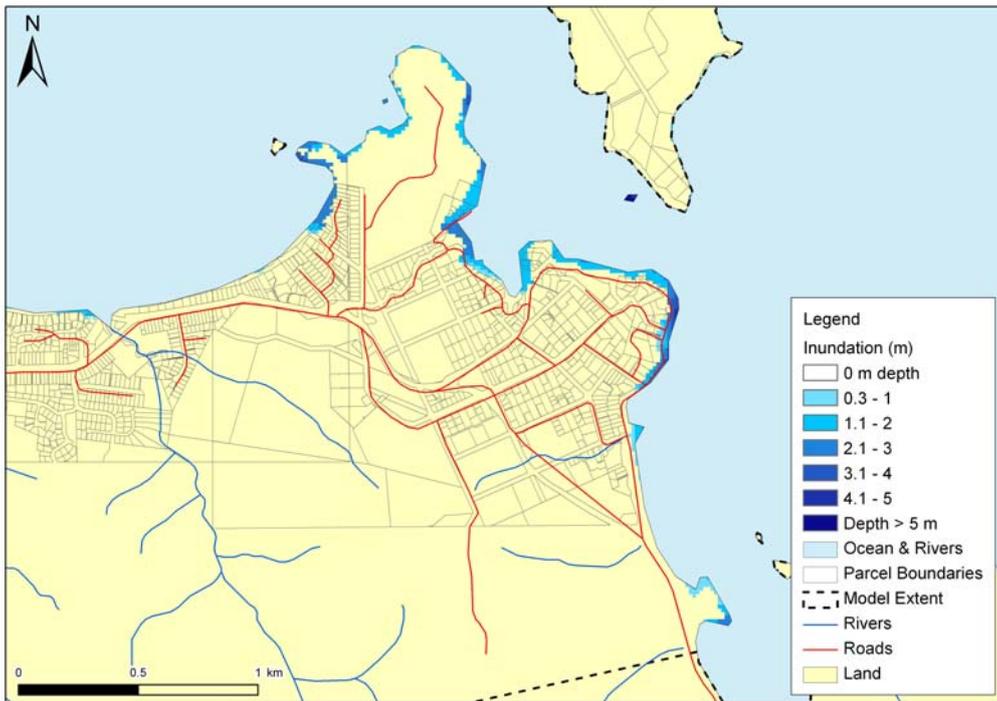
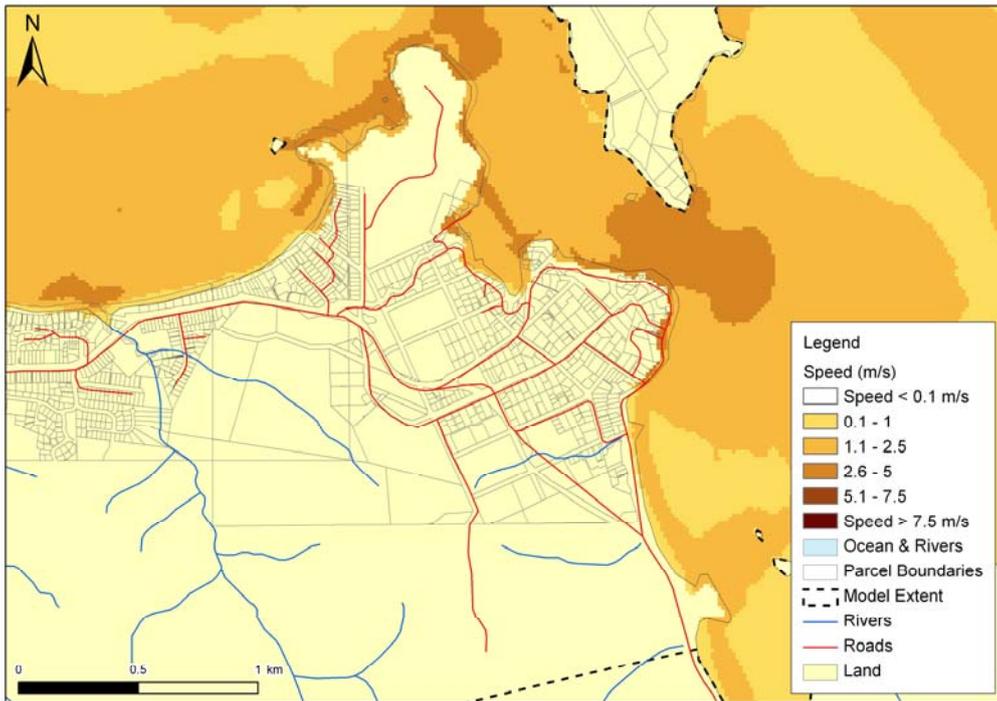


Figure 18: Mangonui, Doubtless Bay: Maximum inundation speed (upper) and depth (lower) plots for the M_w 8.5 Tonga-Kermadec subduction zone scenario at MHWS (to extent of LiDAR).

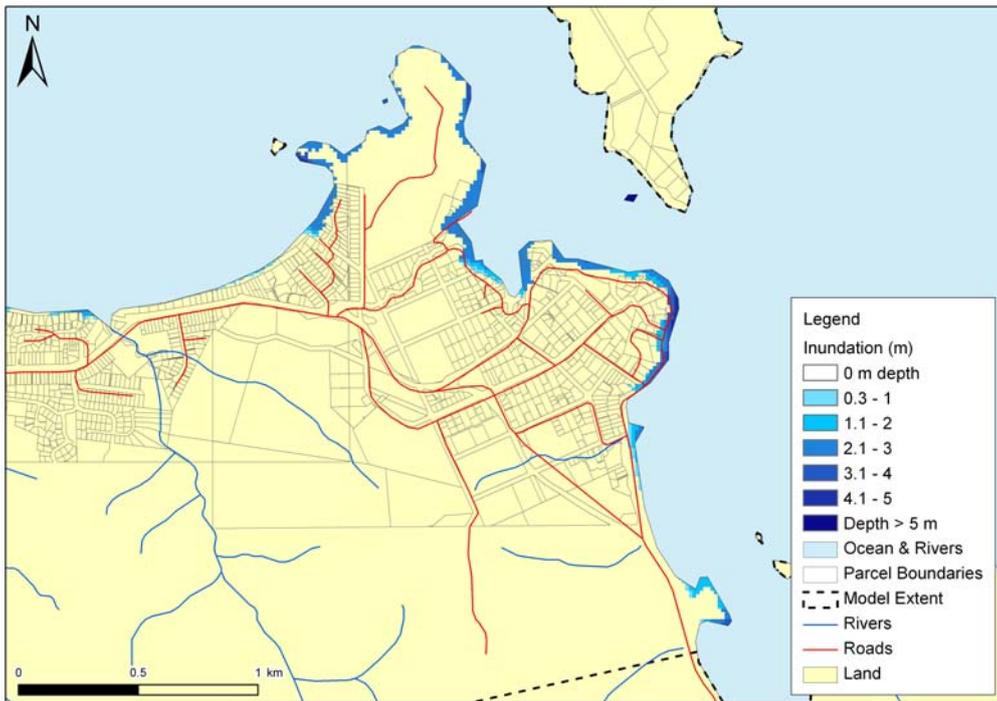
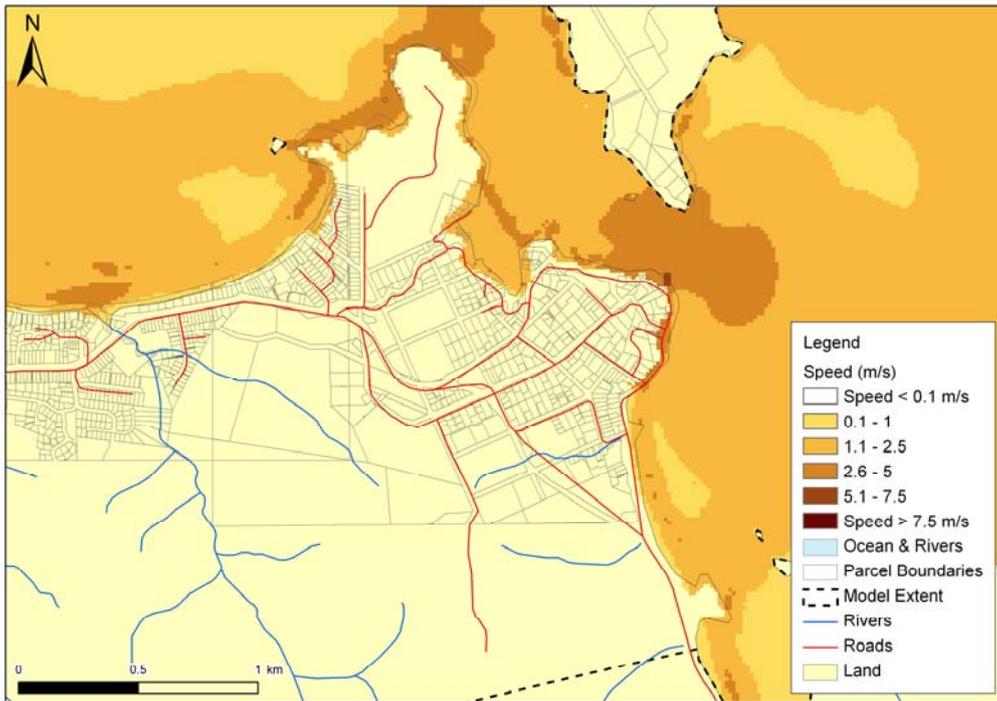


Figure 19: Mangonui, Doubtless Bay: Maximum inundation speed (upper) and depth (lower) plots for the M_w 8.5 Tonga-Kermadec subduction zone scenario at MHWS + 50cm (to extent of LiDAR).

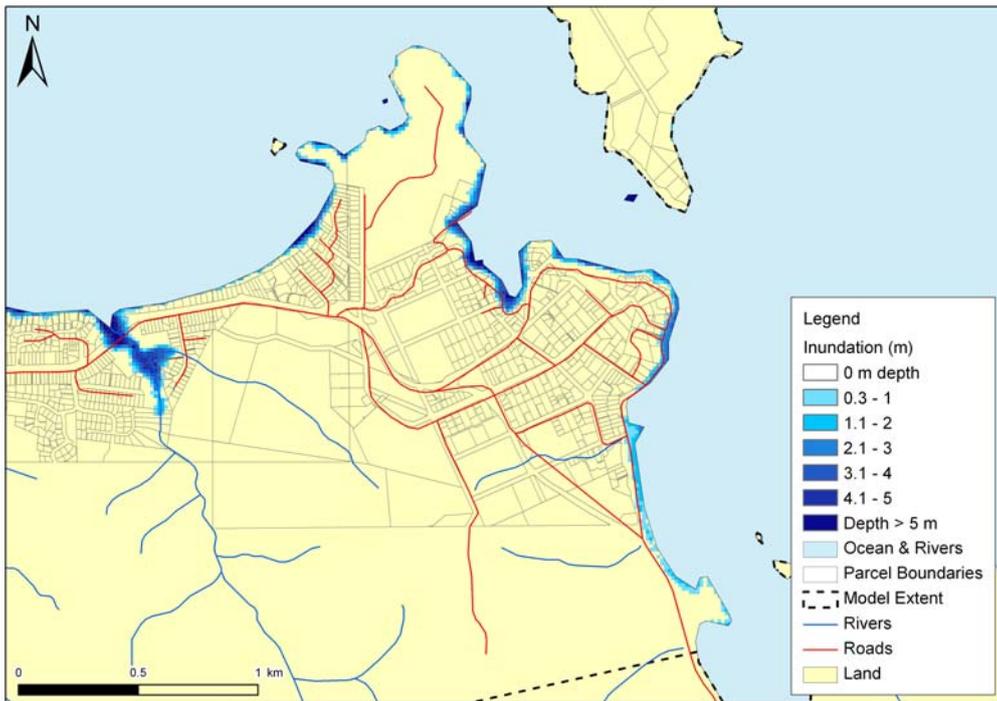
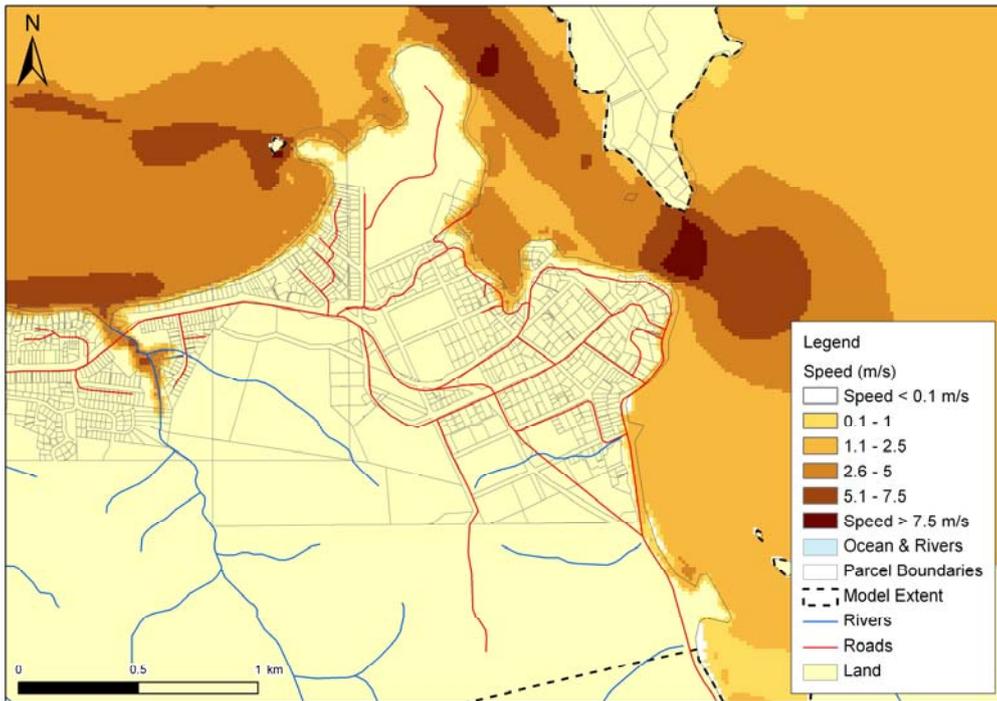


Figure 20: Mangonui, Doubtless Bay: Maximum inundation speed (upper) and depth (lower) plots for the M_w 9.0 Tonga-Kermadec subduction zone scenario at MHWS (to extent of LiDAR).

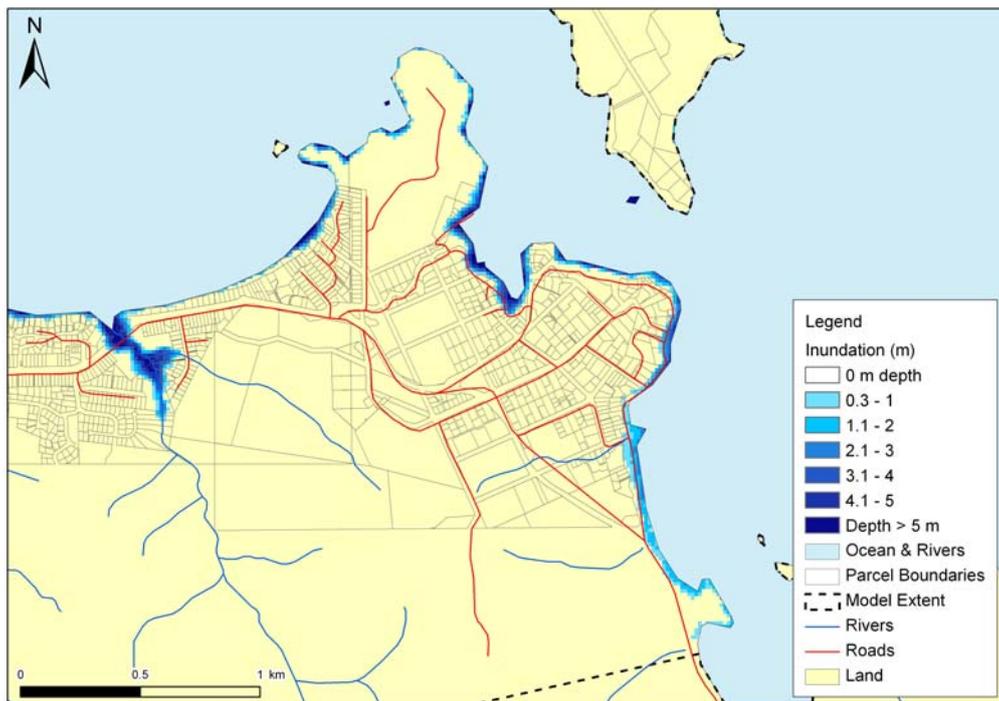
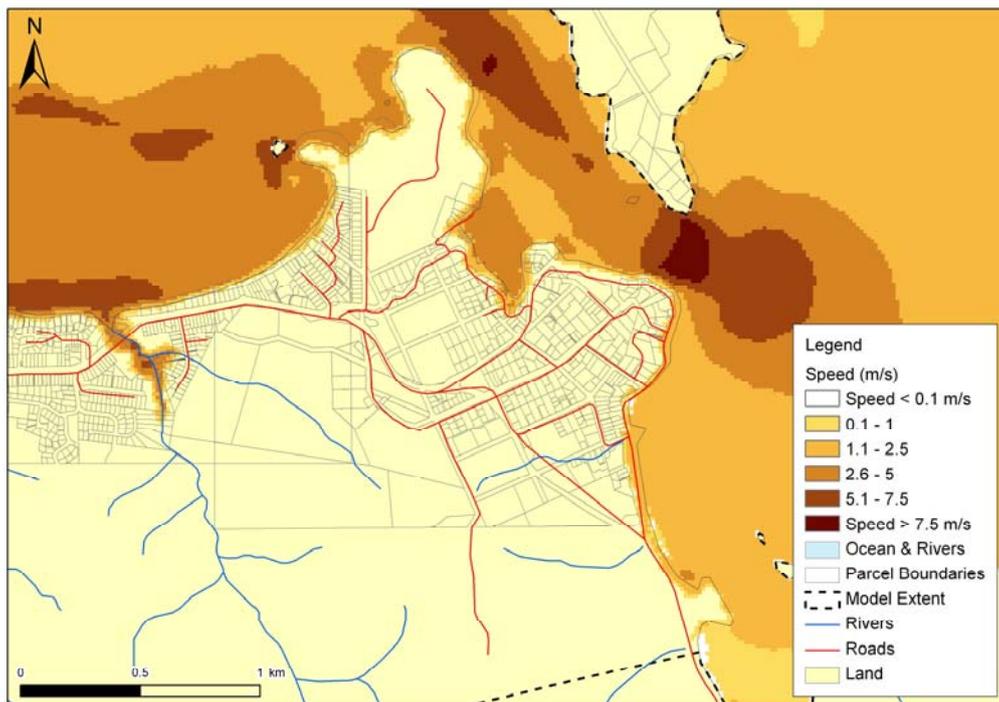


Figure 21: Mangonui, Doubtless Bay: Maximum inundation speed (upper) and depth (lower) plots for the M_w 9.0 Tonga-Kermadec subduction zone scenario at MHWS + 50cm (to extent of LiDAR).