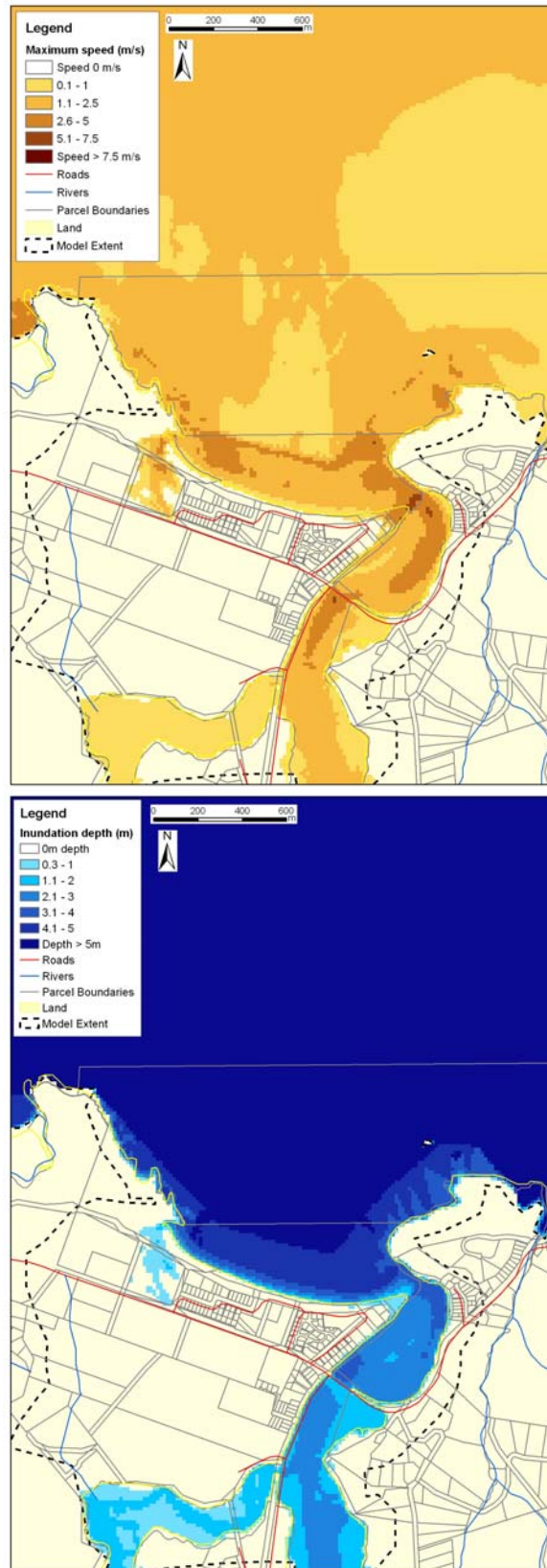
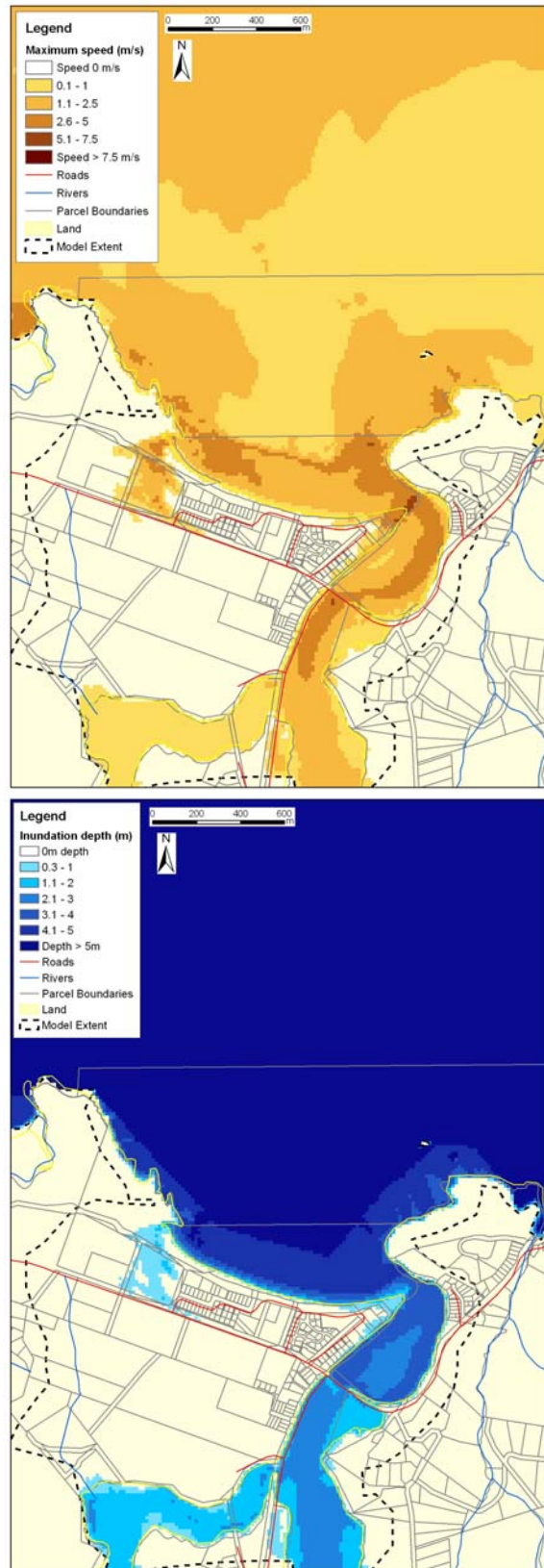


#### **4.5.2. Inundation Maps – $M_w$ 8.5 Tonga-Kermadec subduction zone**

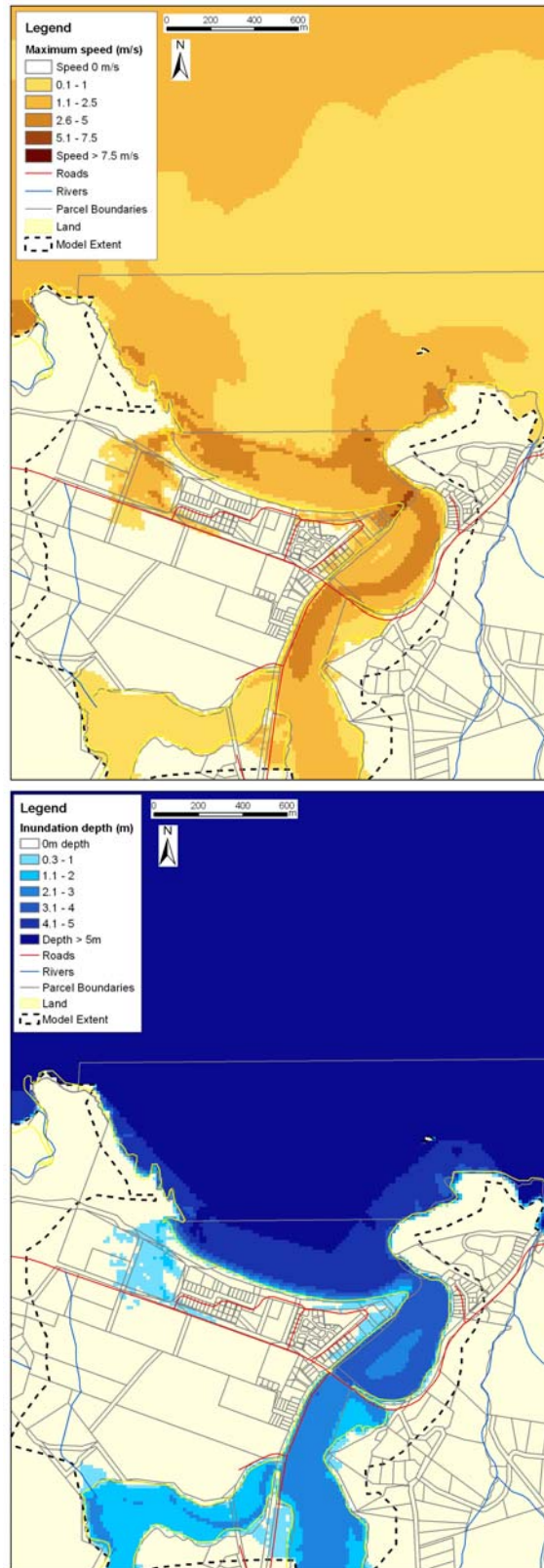
The most significant difference between this and the South American event is that water speeds are significantly enhanced in the river channel and offshore. Coastal and riverbank erosion can be expected to be extreme. Inundation is markedly more severe to the western end of Taipa Beach along a small creek channel. The sea level rise scenarios show increasing degrees of inundation, reaching SH10 and beyond. There are significant implications for evacuation planning given that the bridge will also be subjected to high water speeds and riverbank erosion. There is also increasing encroachment along the riverbanks. Maps showing maximum inundation and maximum water speed for the  $M_w$ 8.5 Tonga-Kermadec subduction zone tsunami for the three sea levels are given in Figures 46, 47 and 48.



**Figure 46:** Taipa: 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 47:** Taipa: Maximum inundation speed (upper) and depth (lower) plots for the  $M_w8.5$  Tonga-Kermadec subduction zone scenario at MHWS + 30cm (to extent of LIDAR).



**Figure48:** Taipa: 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).