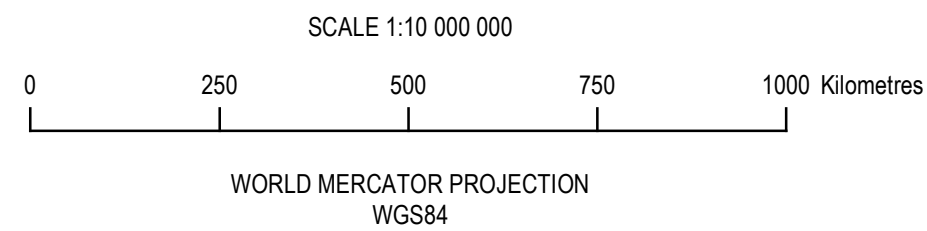


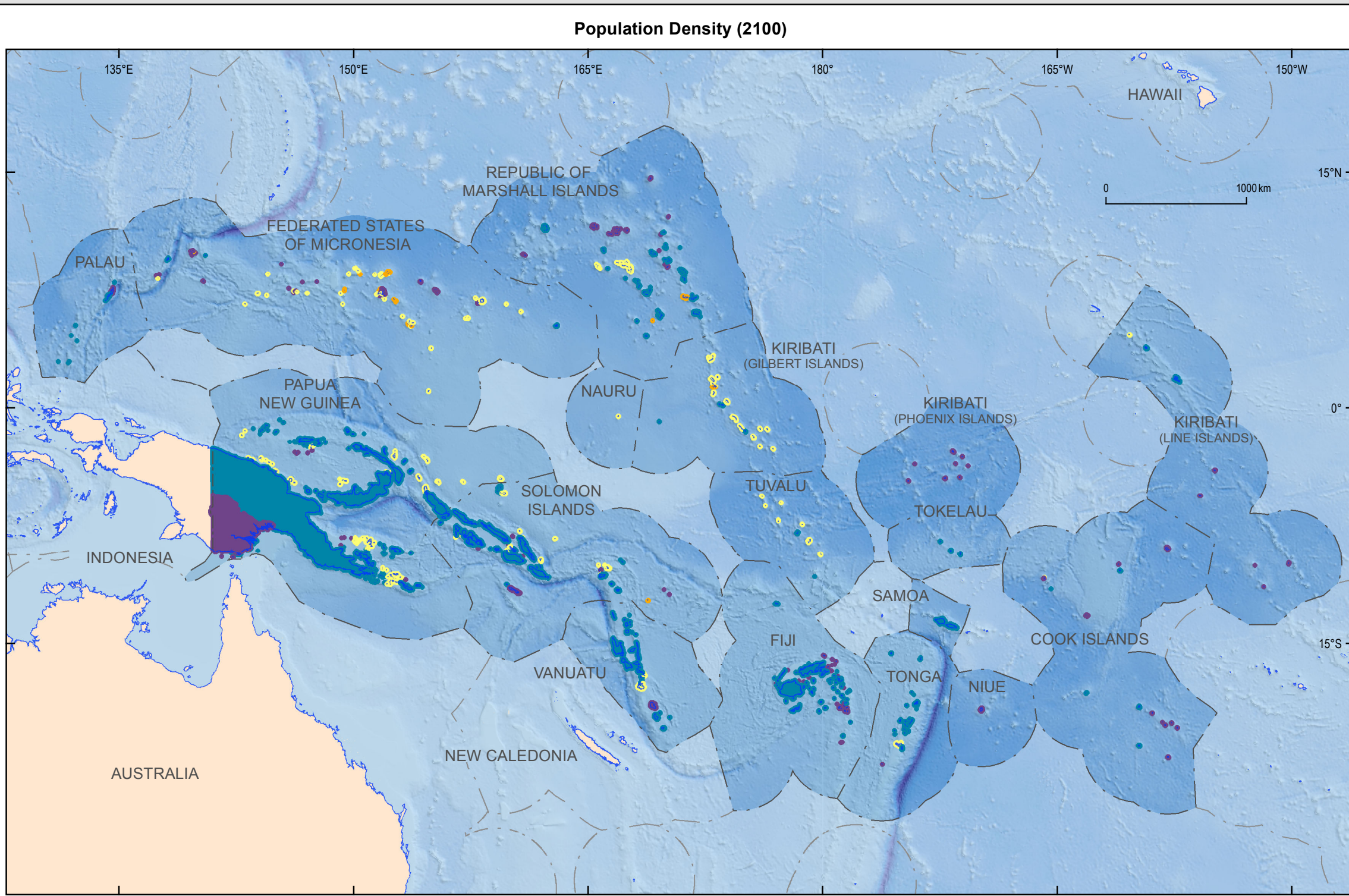
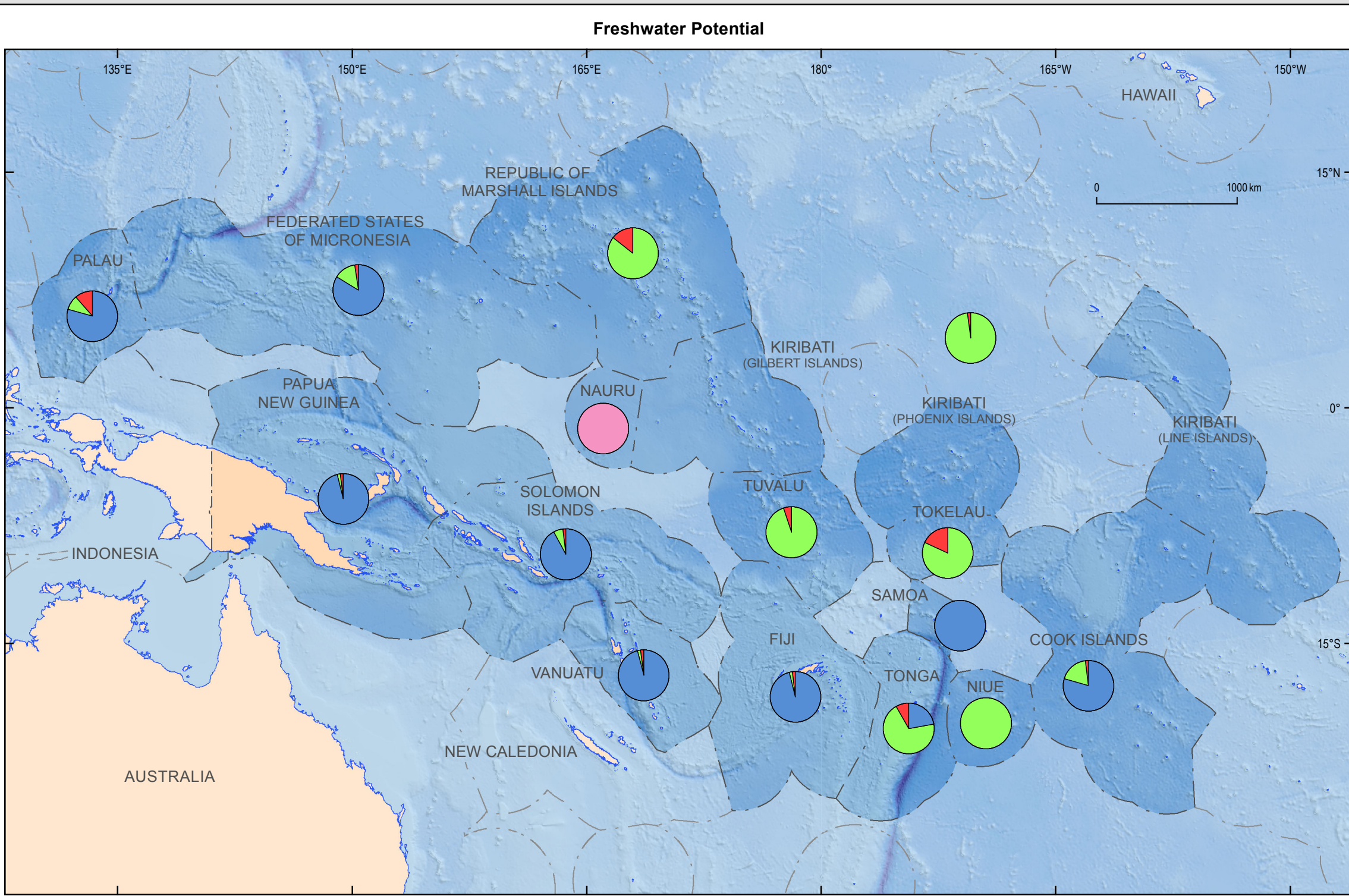
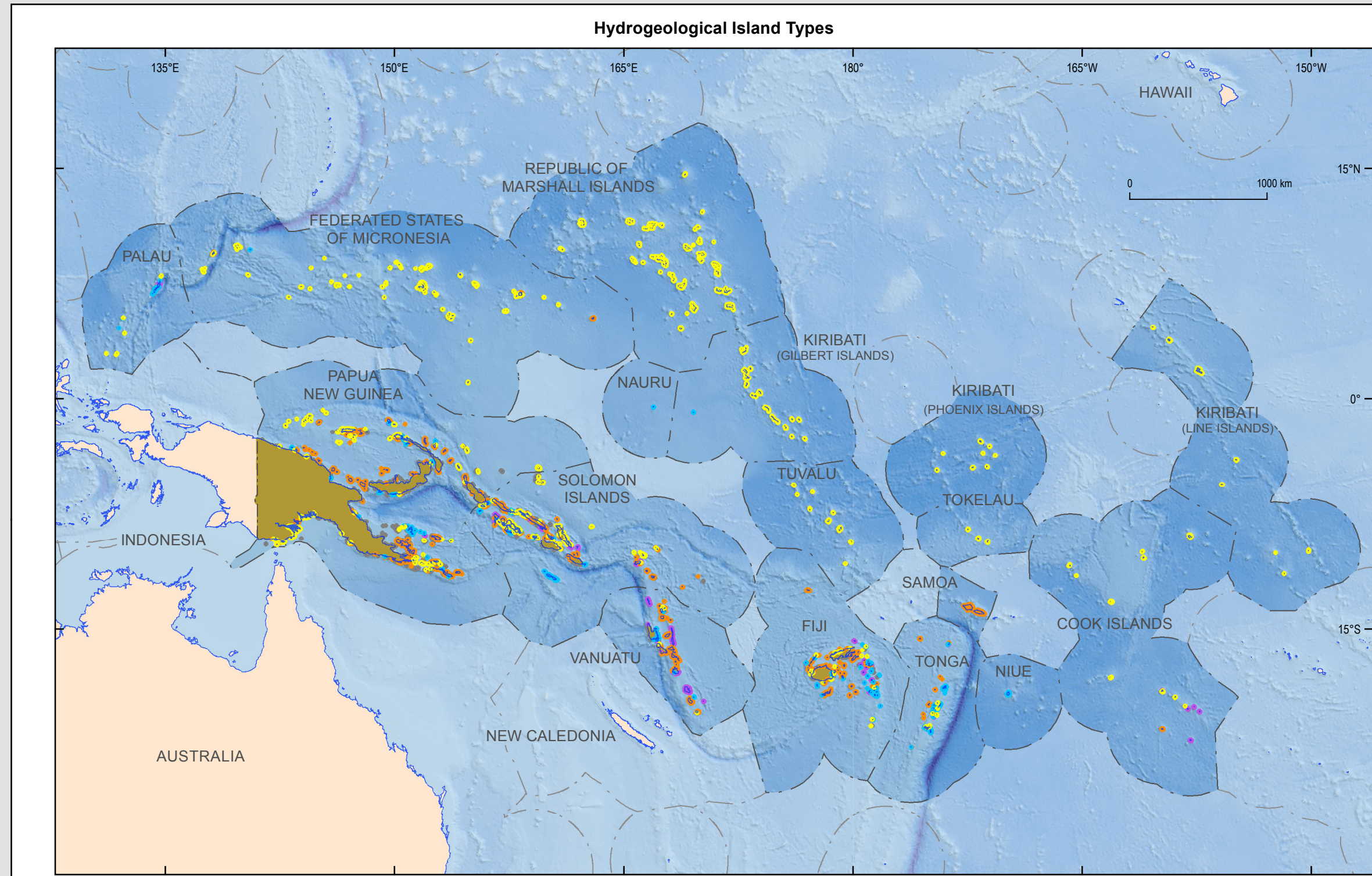
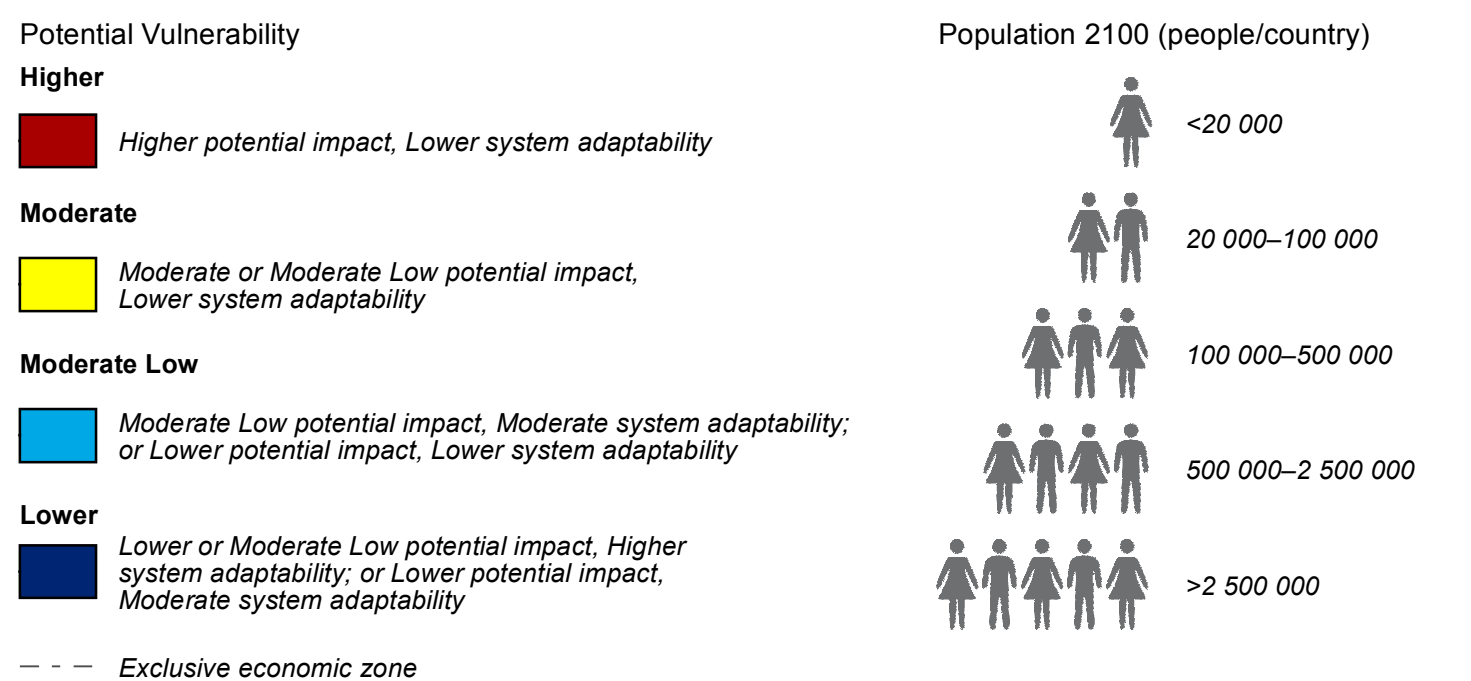
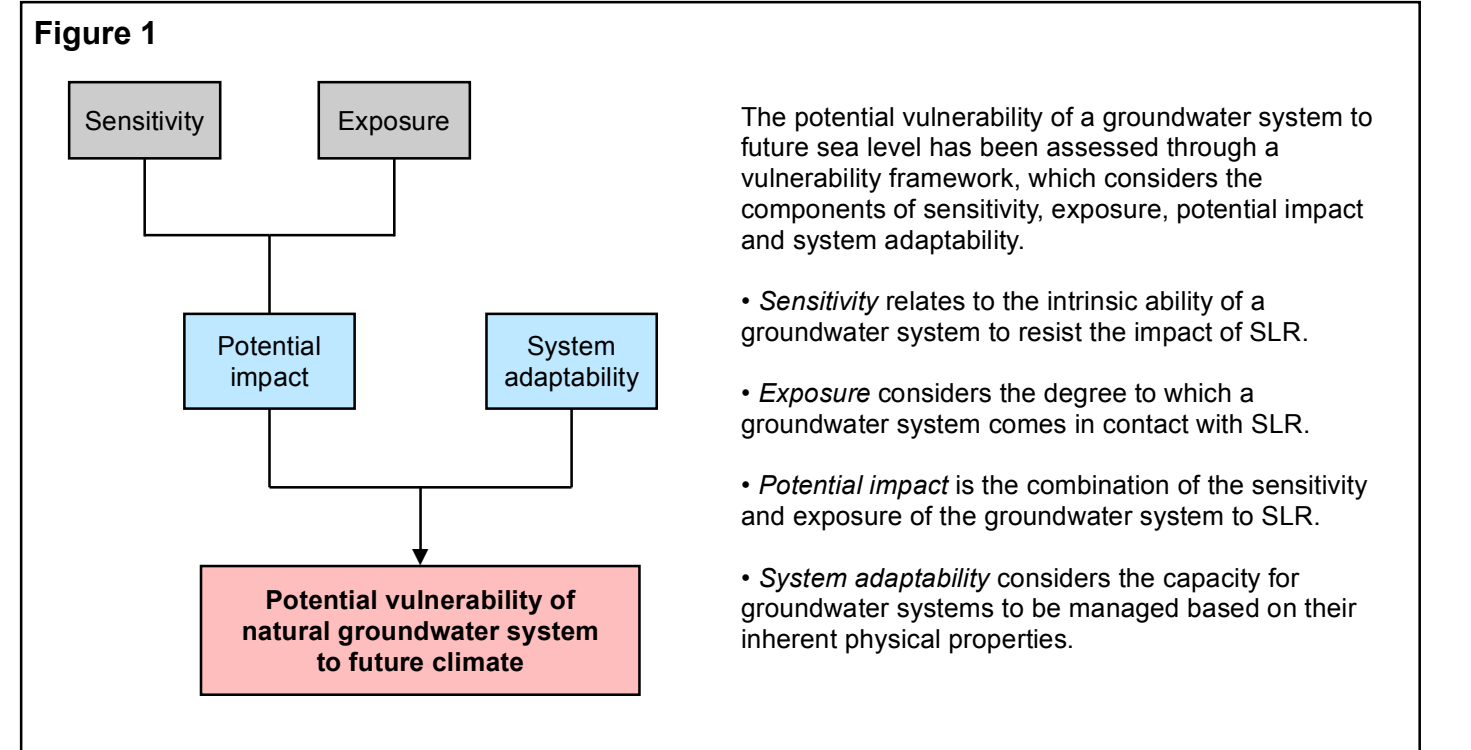
POTENTIAL VULNERABILITY OF GROUNDWATER IN THE PACIFIC REGION TO FUTURE SEA LEVEL (2070–2099)

SHEET 4 OF 7



EXPLANATORY NOTES:

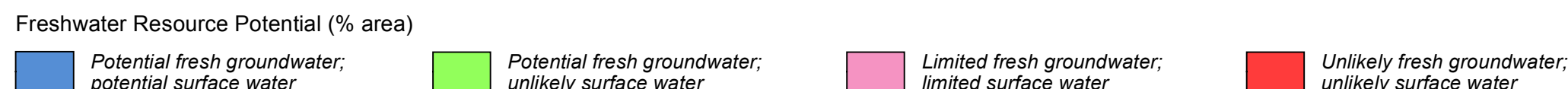
Potential Vulnerability of Natural Groundwater Systems to Mean Sea-level Rise
This map shows the relative potential vulnerability of groundwater systems on islands in the Pacific region to relative mean sea-level rise (SLR) for the period 2070–2099 considering sea-level rise data under a higher emissions scenario (RCP8.5). Potential vulnerability was assessed for the assumed principal aquifer on islands with potential for supporting permanent fresh groundwater. Ratings of potential vulnerability are on a relative scale based on a combination of potential impact (sensitivity and exposure) and system adaptability of a groundwater system to future climate impacts (Figure 1). Islands with Higher potential impact and Lower system adaptability are more likely to experience Higher potential vulnerability. This map was compiled using existing island-scale datasets and publicly-available information in combination with expert knowledge. The methodology used to produce the map is described in the companion project report by Dixon-Jain et al. (2014). This regional map is intended to be used as a first-pass indicator of the relative potential vulnerability of Pacific island groundwater systems to future mean SLR based on a consistent set of assumptions and consistent regional data.



This map shows the distribution of island types based on the hydrogeological characteristics of islands in the Pacific region. Data from Dahl (1998–2006) and multiple literature sources and expert opinion.

This map shows the distribution of potential for permanent fresh groundwater and surface water in each country as a proportion of island area. This provides an indication of the availability of natural freshwater in each country, but does not account for actual volumes of available fresh groundwater and surface water, or the relative dependence on these water sources.

This map shows population density for islands in the Pacific region and can provide an indicator of the population stress on the natural groundwater system. Data modified from AIR Worldwide (2011) and Tokelau National Statistics Office (2011).



BIBLIOGRAPHIC REFERENCE:
Dixon-Jain, P., Norman, R., Stewart, G., Fontaine, K., Walker, K., Sundaram, B., Flannery, E., Riddell, A., Wallace, L. 2014. Pacific Island Groundwater and Future Climate: First-Pass Regional Vulnerability Assessment. Record 2014/43. Geoscience Australia: Canberra. <http://dx.doi.org/10.11636/Record.2014.043>

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Cartography by Veronika Galinec, Products and Promotion, Geoscience Australia.

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Background bathymetry image is derived from W.H.F. Smith and D.T. Sandwell, Global Seafloor Topography from Satellite Altimetry and Ship Depth Soundings. Science v277, pp. 1956–1962, 26 September 1997.

Exclusive economic zone dataset is derived from Exclusive Economic Zones of the World - version 8. VLIJ (2014). Maritime Boundaries Geodatabase, version 8. Available online at <http://www.maritimerregions.org/>. Consulted on 2014-04-10.

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