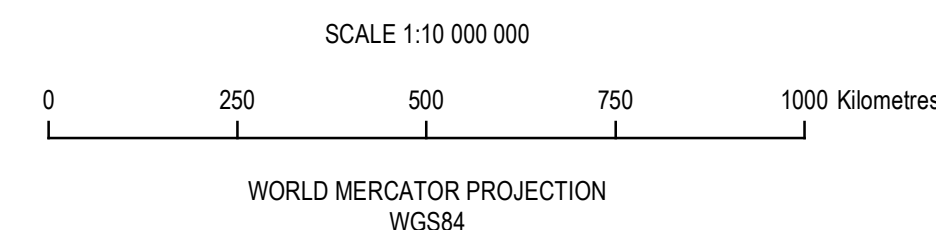


POTENTIAL VULNERABILITY OF GROUNDWATER IN THE PACIFIC REGION TO FUTURE RAINFALL (2070–2099)

SHEET 2 OF 7

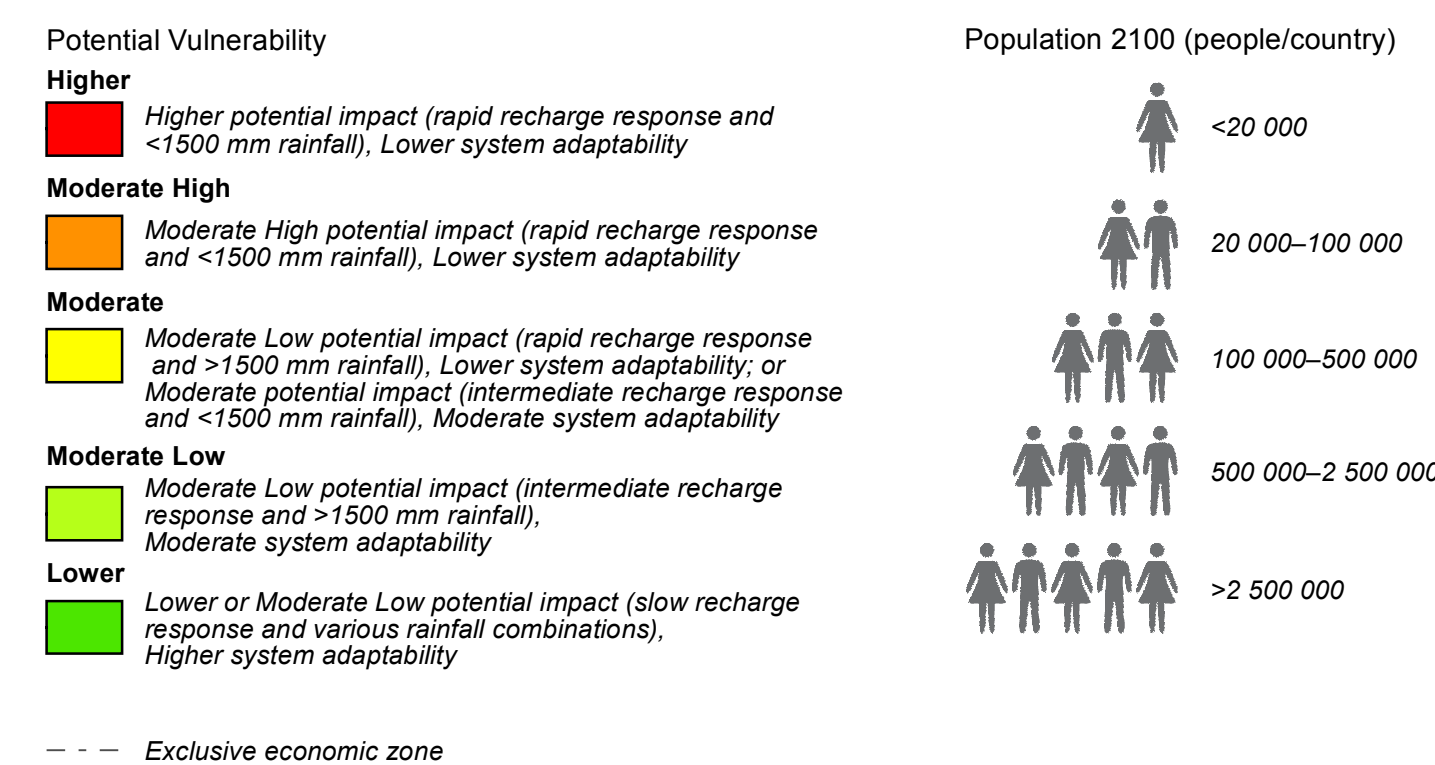
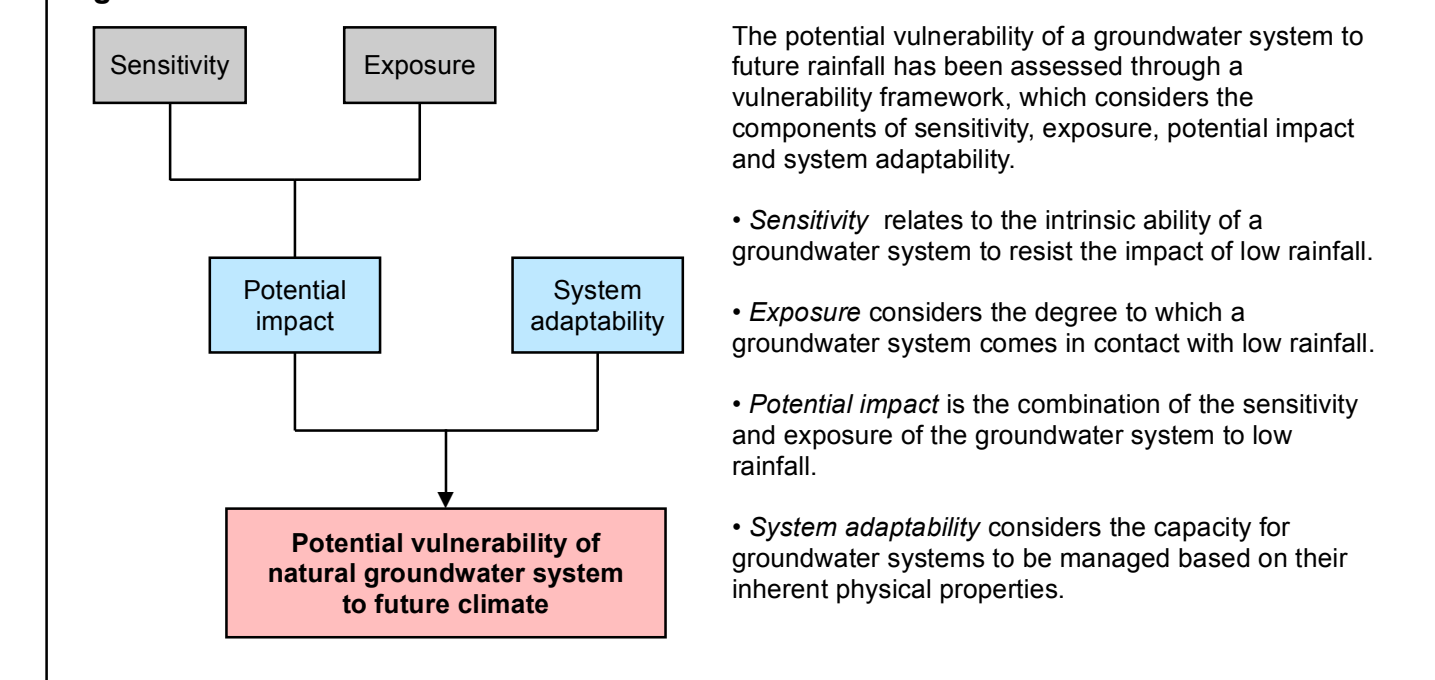


EXPLANATORY NOTES:

Potential Vulnerability of Natural Groundwater Systems to Low Rainfall during ENSO

This map shows the relative potential vulnerability of groundwater systems on islands in the Pacific region to projected lowest mean annual rainfall during ENSO phases for the period 2070–2099, considering rainfall data under both moderate and higher emissions scenarios (RCP4.5 and 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 the 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 rainfall, based on a consistent set of assumptions and consistent regional data.

Figure 1



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 Climates: First-Pass Regional Vulnerability Assessment. Record 2014/43. Geoscience Australia, Canberra. <http://dx.doi.org/10.11638/Record.2014.043>

ACKNOWLEDGMENTS:
This map has been produced by Geoscience Australia and funded by the Australian Government Department of the Environment under the Pacific-Australia Climate Change Science and Adaptation Planning (PACCSAP) Program.

Expert knowledge was provided by Pacific island hydrologists (Tony Falkland and Ian White). Input from the Applied Geoscience and Technology Division (SOPAC) of the Secretariat of the Pacific Community is acknowledged.

Various datasets were provided by the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Bureau of Meteorology (BoM), the Secretariat of the Pacific Community (SPC) and the Regional Coastal Susceptibility Framework for the Pacific Islands Project team.

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

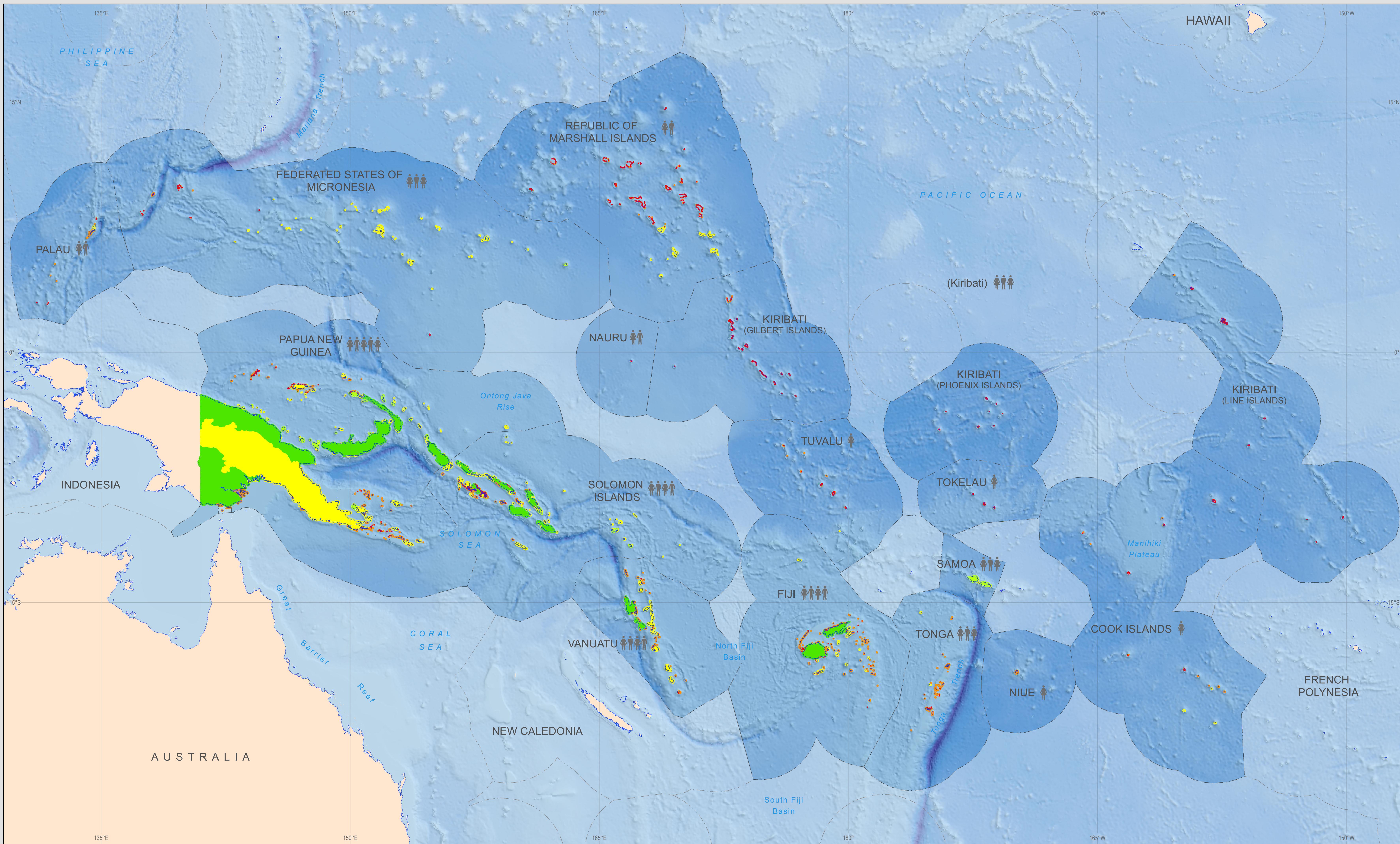
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Background bathymetry image is derived from W.H.F. Smith and D.T. Sandwell, Global Seafloor Topography from Satellite Altimetry and Ship Depth Soundings, Science v277, pp. 1956–1962, 26 September 1997.

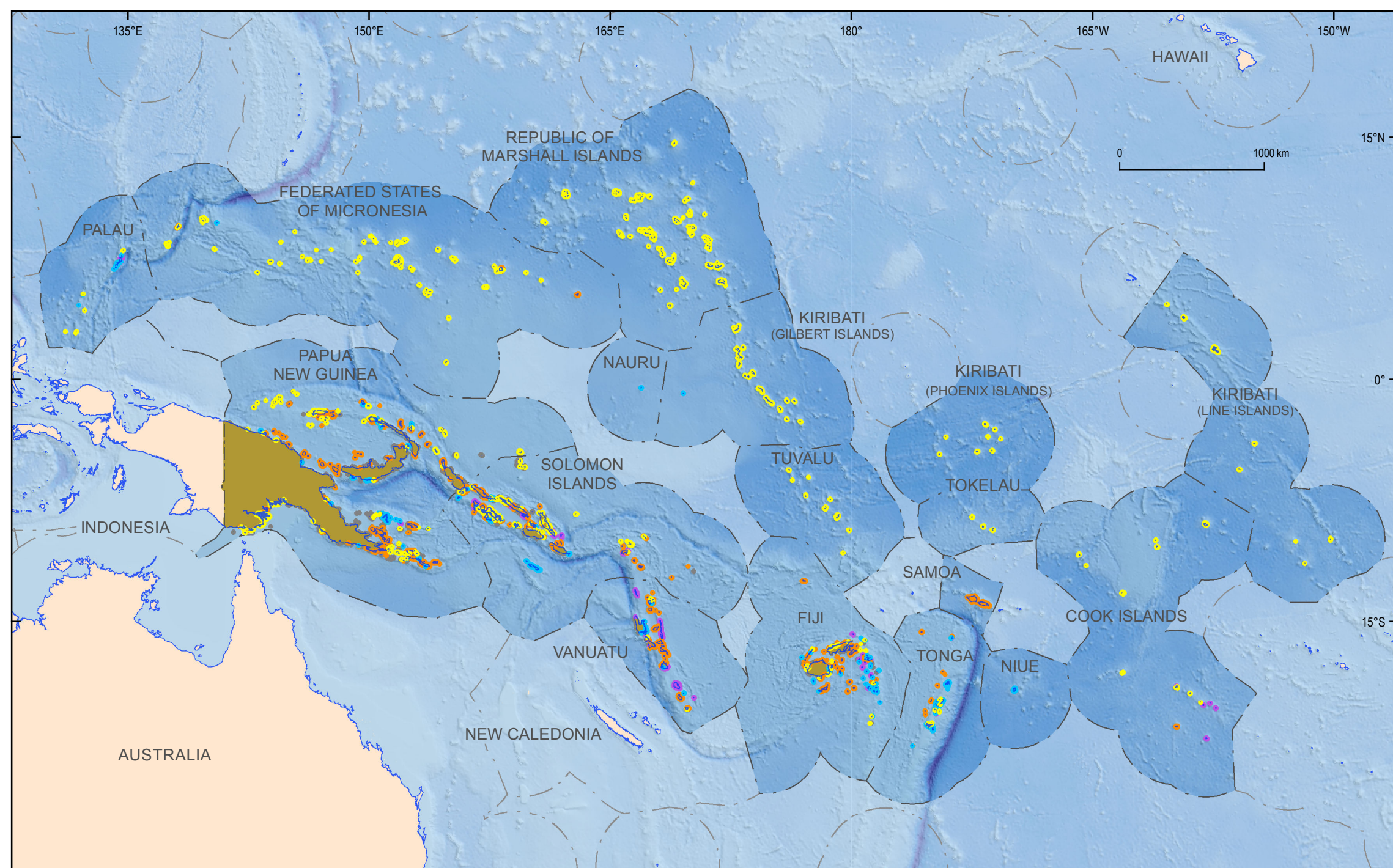
Exclusive economic zone dataset is derived from Exclusive Economic Zones of the World - version 8. VLIJ (2014). Maritime Boundaries Geodatabase, version 8. Available online at <http://www.maritimerregions.org/>. Consulted on 2014-04-10.

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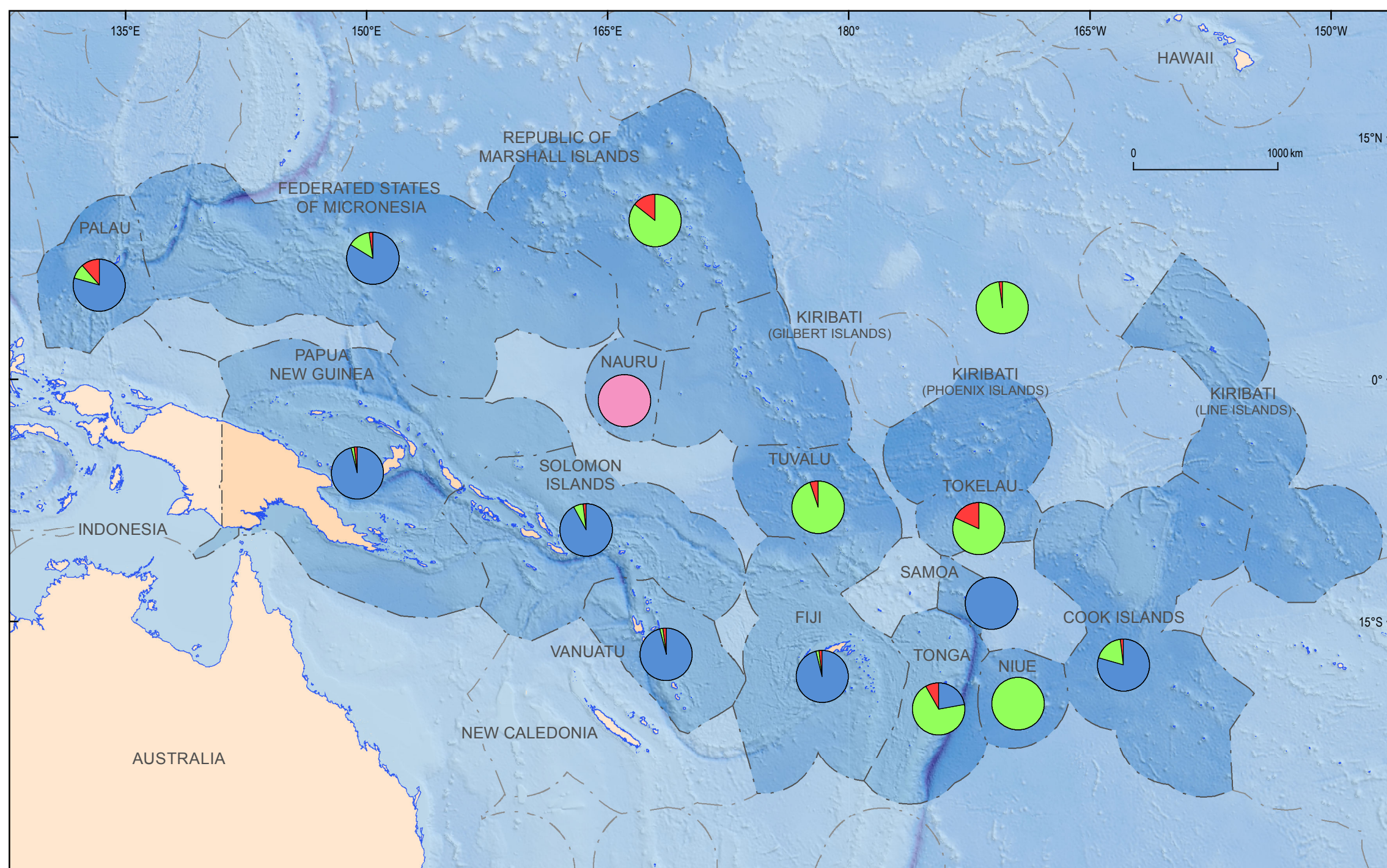
Hydrogeological Island Types



Hydrogeological Island Type

Low Carbonate Limestone Volcanic Composite Complex

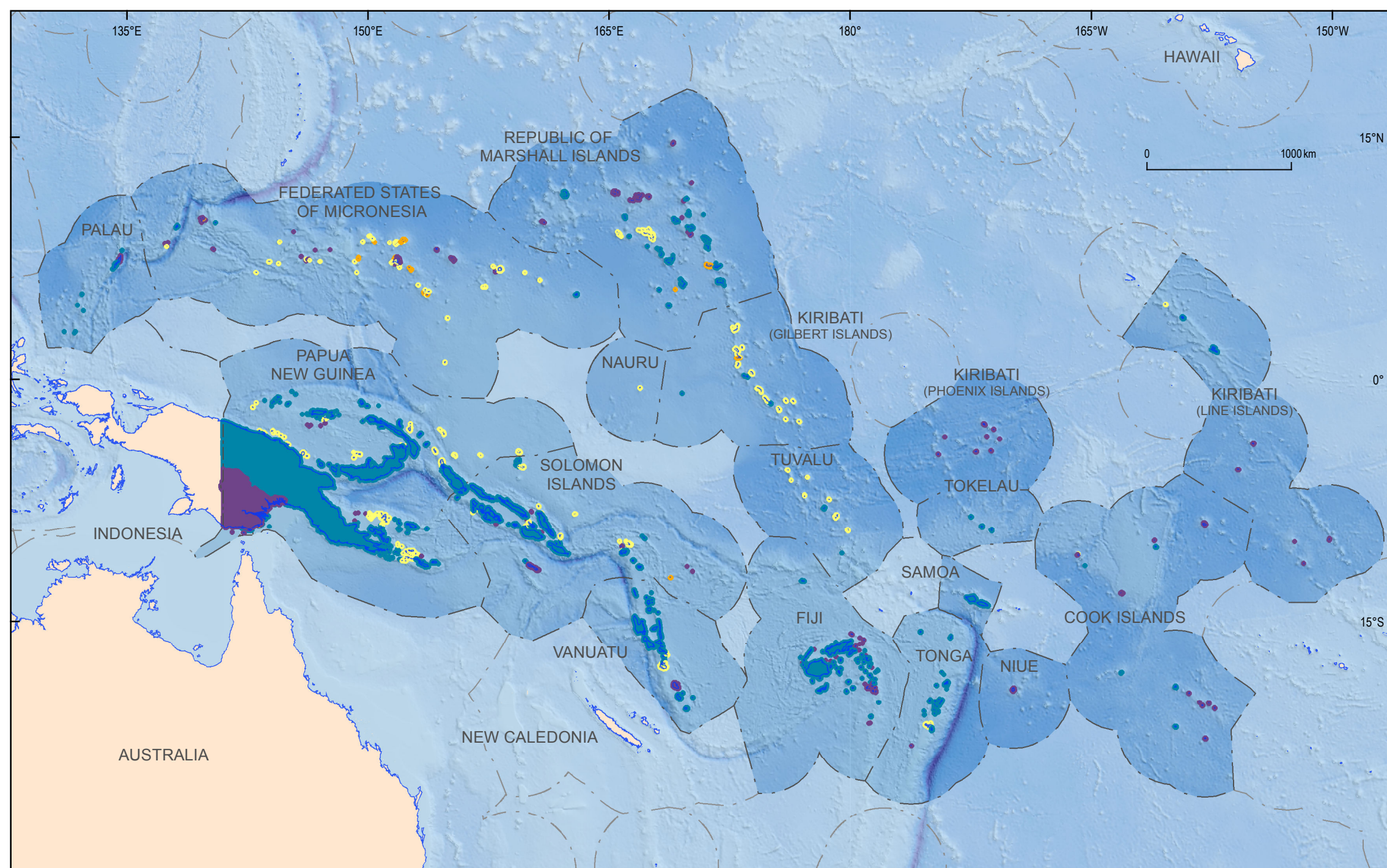
Freshwater Potential



Freshwater Resource Potential (% area)

Potential fresh groundwater; potential surface water Potential fresh groundwater; unlikely surface water Limited fresh groundwater; limited surface water Unlikely fresh groundwater; unlikely surface water

Population Density (2100)



Population Density 2100 (people/km²)

Lower (<20) Moderate Low (20–200) Moderate High (200–1000) Higher (>1000)