Papua New Guinea Country Insights

21 Feb 2025

Congratulations! This country has available data.

This page includes country-specific insights and more detailed analysis, including carbon stocks, emissions factors, and ecosystem wetland area for mangrove, marsh, and seagrass ecosystems. This report details information for the selected country, **Papua New Guinea**.

Please explore the rest of the dashboard for more exciting visualizations, map features, and data.

Resources referenced to calculate estimates for **Papua New Guinea** are listed below under 'References' at the bottom of this document.

Total Carbon Stock Estimates

Total Carbon stock estimates were calculated for each country and habitat At this time total Carbon stock estimates do not include seagrass

We estimate that **Papua New Guinea** contains between 214050044.88 to 152837581.24 metric tonnes of soil C to a depth of 1 m, with a mean estimate of 183443813.06 metric tonnes C.

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
Papua New Guinea	Papua New Guinea	total	183443813	214050045	152837581	15615424

This total estimate includes total mangrove carbon stocks, from NA to NA metric tonnes of soil C to a depth of 1 m, with a mean estimate of 181933884.61

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
Papua New Guinea	Papua New Guinea	mangrove	181933885	NA	NA	15728431

This total estimate also includes total tidal marsh carbon stocks, ranging from NA to NAmetric tonnes of soil C to a depth of 1 m, with a mean estimate of 1509928.45

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
Papua New Guinea	Papua New Guinea	marsh	1509928	NA	NA	212314.6

Seagrass carbon stocks were not included in the total value due to lack of a global, transparent, and independently assessed seagrass habitat map, however, best available areas and stocks for **Papua New Guinea** are explored in the following 'Wetland Areas and Activities' section.

Wetland Areas and Activities

We estimate mangrove area in **Papua New Guinea** to be 413858.810062297 to 6693.92205333088 hectares, with a mean estimate of 471331.307283402 hectares according to Global Mangrove Watch Bunting et al. (2018).

We estimate tidal marsh area in **Papua New Guinea** to be 3586.58955115738 to 6693.92205333088 hectares, with a mean estimate of hectares according to Worthington et al. (2024).

We estimate seagrass area to be **Papua New Guinea** to be a mean of 11720 hectares, according to McKenzie et al. (2020), aggregating data from multiple sources.

McKenzie et al. (2020) classifies seagrass area estimates as either high or medium to low confidence. seagrass_area_high_confidence % of the estimated seagrass area of **Papua New Guinea** is considered high to medium confidence, while seagrass_area_low_confidence % of the estimated seagrass area is categorized as low confidence.

Calculated Stocks and Emissions Factors

This section of the report details whether data is available to estimate Tier I, Tier II, or Tier III value estimates for tidal marsh, mangrove, and seagrass ecosystems in **Papua New Guinea**.

If data for the selected country is available in the Coastal Carbon Atlas, we have applied a Tier II emission factor based on a simple average of country specific data queried from the Atlas.

Data from **Papua New Guinea** includes 0 soil profiles from 0watersheds. This data comes from 0 different habitat types.

If there is not yet any country specific information in the Coastal Carbon Atlas, we instead applied IPCC Tier I estimate. IPCC Tier I estimates for mangrove, marsh, and seagrass ecosystems are listed below. **SOURCE**

The table in this section also details whether the calculated Tier II value is significantly different from the estimated Tier I values. This is observed in the "Overlap" column.

Table 4: IPCC Tier I Value Estimates

Habitat	Mean	Lower_CI	Upper_CI
mangrove	386	351	424
marsh	255	254	297
seagrass	108	84	139

Table 5: Availiability of Tier I and Tier II Data

Country	Territory	Habitat	Tier	Overlap
Papua New Guinea	Papua New Guinea	mangrove	Tier I	NA
Papua New Guinea	Papua New Guinea	marsh	Tier I	NA
Papua New Guinea	Papua New Guinea	seagrass	Tier I	NA

Tier I Carbon Stocks

This table includes Tier I Carbon Stocks included for **Papua New Guinea**.

country	territory	habitat	stock_MgHa_mean	stock_MgHa_lowerCI	stock_MgHa_upperCI	tier	carbon_pool
Papua New Guinea	Papua New Guinea	mangrove	386	351	424	TierI	soil
Papua New Guinea	Papua New Guinea	marsh	255	254	297	TierI	soil
Papua New Guinea	Papua New Guinea	seagrass	108	84	139	TierI	soil

Tier II Carbon Stocks

This table includes Tier II Carbon Stock estimates for **Papua New Guinea**. Estimates in this table were derived from data queried from the Coastal Carbon Atlas. SOURCE

country	territory	habitat	tier	carbon_pool	stock_MgHa_mean	stock_MgHa_se	stock_MgHa_upperCI	stock_MgHa_lowerCI

Tier III Carbon Stocks

Tier III carbon stocks were estimated, when available, from remote sensing data from Maxwell et al 2021 and Sanderman et al 2018. The table below details whether estimated values are available for **Papua New Guinea**, and any overlap with associated Tier I or Tier II values.

If there are no Tier III estimates associated with the selected country, please refer to Tier I and Tier II tables.

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## [1] "There are currently no Tier III remote sensing estimates for this country. Please refer to Tier
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References

Bunting, Pete, Ake Rosenqvist, Richard M. Lucas, Lisa-Maria Rebelo, Lammert Hilarides, Nathan Thomas, Andy Hardy, Takuya Itoh, Masanobu Shimada, and C. Max Finlayson. 2018. "The Global Mangrove Watch—a New 2010 Global Baseline of Mangrove Extent." *Remote Sensing* 10 (10): 1669. https://doi.org/10.3390/rs10101669.

McKenzie, Len J, Lina M Nordlund, Benjamin L Jones, Leanne C Cullen-Unsworth, Chris Roelfsema, and Richard K F Unsworth. 2020. "The Global Distribution of Seagrass Meadows." *Environmental Research Letters* 15 (7): 074041. https://doi.org/10.1088/1748-9326/ab7d06.

Worthington, Thomas A., Mark Spalding, Emily Landis, Tania L. Maxwell, Alejandro Navarro, Lindsey S. Smart, and Nicholas J. Murray. 2024. "The Distribution of Global Tidal Marshes from Earth Observation Data." *Global Ecology and Biogeography* 33 (8). https://doi.org/10.1111/geb.13852.