

New Zealand Country Insights

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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, **New Zealand**.

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

Resources referenced to calculate estimates for **New Zealand** 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 **New Zealand** contains between 4567517.15 to 3323057.47 metric tonnes of soil C to a depth of 1 m, with a mean estimate of 3945287.31 metric tonnes C.

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
New Zealand	New Zealand	total	3945287	4567517	3323057	317464.2

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 1837169.86.

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
New Zealand	New Zealand	mangrove	1837170	NA	NA	NA

This total estimate also includes total tidal marsh carbon stocks, ranging from NA to NA metric tonnes of soil C to a depth of 1 m, with a mean estimate of 2108117.46.

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
New Zealand	New Zealand	marsh	2108117	NA	NA	324078

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 **New Zealand** are explored in the following ‘Wetland Areas and Activities’ section.

Wetland Areas and Activities

We estimate mangrove area in **New Zealand** to be 27482.7784986431 to 30414.0736110683 hectares, with a mean estimate of 31299.3069196613 hectares according to Global Mangrove Watch Bunting et al. (2018).

We estimate tidal marsh area in **New Zealand** to be 16295.797553739 to 30414.0736110683 hectares, with a mean estimate of hectares according to Worthington et al. (2024).

We estimate seagrass area to be **New Zealand** to be a mean of 29400 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 **New Zealand** 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 **New Zealand**.

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 **New Zealand** includes 14 soil profiles from 8 watersheds. This data comes from 2 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: Availability of Tier I and Tier II Data

Country	Territory	Habitat	Tier	Overlap
New Zealand	New Zealand	mangrove	Tier II	Country-specific average is significantly less than Tier I
New Zealand	New Zealand	marsh	Tier II	Country-specific average is significantly less than Tier I
New Zealand	New Zealand	seagrass	Tier I	NA

Tier I Carbon Stocks

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

country	territory	habitat	stock_MgHa_mn	stock_MgHa_lowerCI	stock_MgHa_upperCI	tierI	carbon_pool
New Zealand	New Zealand	seagrass	108	84	139	TierI	soil

Tier II Carbon Stocks

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

country	territory	habitat	tier	carbon_pool	stock_MgHa_mn	stock_MgHa_lowerCI	stock_MgHa_upperCI	stock_MgHa_lowerCI
New Zealand	New Zealand	mangrove	TierII	soil	58.69682	11.142948	NA	NA
New Zealand	New Zealand	marsh	TierII	soil	78.35824	5.921803	89.96476	66.75172

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 **New Zealand**, 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.

country	territory	habitat	stock_MgHa_mn	stock_MgHa_lowerCI	stock_MgHa_upperCI	tierIII	tierIII_greater_than_tierI	tierIII_greater_than_tierII	tierIII_greater_than_tierI_and_tierII
New Zealand	New Zealand	mangrove	363.9272	245.8140	482.0410	greater than	Remote-sensing estimate is significantly greater than country-specific average	less than	Remote-sensing estimate overlaps Tier I
New Zealand	New Zealand	marsh	276.0512	252.6083	299.4946	greater than	Remote-sensing estimate is significantly greater than country-specific average	greater than	Remote-sensing estimate overlaps Tier I

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>.