South Africa 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, **South Africa**.

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

Resources referenced to calculate estimates for **South Africa** 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 **South Africa** contains between 3408871.32 to 1945401.21 metric tonnes of soil C to a depth of 1 m, with a mean estimate of 2677136.27 metric tonnes C.

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
South Africa	South Africa	total	2677136	3408871	1945401	373334.2

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 161309.77

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
South Africa	South Africa	mangrove	161309.8	NA	NA	27355.68

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 2515826.5

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
South Africa	South Africa	marsh	2515826	NA	NA	353756.3

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 **South Africa** are explored in the following 'Wetland Areas and Activities' section.

Wetland Areas and Activities

We estimate mangrove area in **South Africa** to be 1187.8243294242 to 11153.3407532573 hectares, with a mean estimate of 1352.77727669072 hectares according to Global Mangrove Watch Bunting et al. (2018).

We estimate tidal marsh area in **South Africa** to be 5975.93684052912 to 11153.3407532573 hectares, with a mean estimate of hectares according to Worthington et al. (2024).

We estimate seagrass area to be **South Africa** to be a mean of 38103 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 **South Africa** 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 **South Africa**.

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 **South Africa** includes 253 soil profiles from 21watersheds. 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: Availiability of Tier I and Tier II Data

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

Tier I Carbon Stocks

This table includes Tier I Carbon Stocks included for **South Africa**.

country	territory	habitat	stock_MgHa_mean	stock_MgHa_lowerCI	stock_MgHa_upperCI	tier	carbon_pool
South Africa	South Africa	marsh	255	254	297	TierI	soil
South Africa	South Africa	seagrass	108	84	139	TierI	soil

Tier II Carbon Stocks

This table includes Tier II Carbon Stock estimates for **South Africa**. 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_median	stock_MgHa_upperCI	stock_MgHa_lowerCI
South Africa	South Africa	mangrove	TierII	soil	119.2434	18.32378	155.1574	83.32945

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 **South Africa**, 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_mean	MgHa_lowerCI	MgHa_upperCI	overlaps_tierII	tierIII_gt	overlaps_tierI	tierIII_gt	tier
South Africa	South Africa	mangrove	239.0911	296.2196	281.9627	greater than	Remote-sensing esimate is significantly greater than country-specific average	less than	Remote-sensing esimate is significantly less than Tier I	Tier III

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.