# Montenegro 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, **Montenegro**.

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

Resources referenced to calculate estimates for **Montenegro** 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 **Montenegro** contains between 934551.82 to 537211.42 metric tonnes of soil C to a depth of 1 m, with a mean estimate of 735881.62 metric tonnes C.

| country | territory | habitat | total_stocks | total_stocks_lower | total_stocks_upper | total_stocks_se |
|---|---|---|---|---|---|---|
| Montenegro | Montenegro | total | 735881.6 | 934551.8 | 537211.4 | 101362.3 |

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 0

| country | territory | habitat | total_stocks | total_stocks_lower | total_stocks_upper | total_stocks_se |
|---|---|---|---|---|---|---|
| Montenegro | Montenegro | mangrove | 0 | NA | NA | NA |

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 735881.62

| country | territory | habitat | total_stocks | total_stocks_lower | total_stocks_upper | total_stocks_se |
|---|---|---|---|---|---|---|
| Montenegro | Montenegro | marsh | 735881.6 | NA | NA | 103474.1 |

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

## Wetland Areas and Activities

We estimate mangrove area in **Montenegro** to be 0 to 3262.36268122076 hectares, with a mean estimate of 0 hectares according to Global Mangrove Watch Bunting et al. (2018).

We estimate tidal marsh area in **Montenegro** to be 1747.96715756944 to 3262.36268122076 hectares, with a mean estimate of hectares according to Worthington et al. (2024).

We estimate seagrass area to be **Montenegro** to be a mean of NA 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 **Montenegro** 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 **Montenegro**.

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 **Montenegro** 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 |
|---|---|---|---|---|
| Montenegro | Montenegro | mangrove | Tier I | NA |
| Montenegro | Montenegro | marsh | Tier I | NA |
| Montenegro | Montenegro | seagrass | Tier I | NA |

**Tier I Carbon Stocks**

This table includes Tier I Carbon Stocks included for **Montenegro**.

| country | territory | habitat | stock_MgHa_mean | stock_MgHa_lowerCI | stock_MgHa_upperCI | tier | carbon_pool |
|---|---|---|---|---|---|---|---|
| Montenegro | Montenegro | mangrove | 386 | 351 | 424 | TierI | soil |
| Montenegro | Montenegro | marsh | 255 | 254 | 297 | TierI | soil |
| Montenegro | Montenegro | seagrass | 108 | 84 | 139 | TierI | soil |

**Tier II Carbon Stocks**

This table includes Tier II Carbon Stock estimates for **Montenegro**. 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_ | 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 **Montenegro**, 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.