EXECUTIVE SUMMARY - BLUE CARBON ECOSYSTEMS OF THE SOUTH PACIFIC: ECOSYSTEM AND CARBON ASSESSMENTS IN FIJI, PAPUA NEW GUINEA, SOLOMON ISLANDS, AND VANUATU

Blue Carbon Ecosystems Assessments for SPREP component of the MACBLUE project.

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Executive Summary

Seagrass and mangroves are valuable coastal ecosystems for Pacific Island Nations

Blue Carbon Ecosystems (BCEs), such as Seagrass and Mangrove ecosystems, provide substantial ecological, economic, and social benefits, significantly supporting the lives and livelihoods of Pacific Island Nations.

Seagrass and mangrove ecosystems capture and store carbon, acting as highly effective carbon sinks and play a crucial role in climate change mitigation. These systems, despite being much smaller in size than terrestrial forests, sequester carbon at a much greater rate. When these systems are degraded or removed, a large amount of carbon is emitted back into the atmosphere, where it can contribute to climate change.

Ecologically, these habitats serve as critical nurseries for numerous marine species, enhancing biodiversity and supporting fisheries that are vital for food security. Mangroves, with their complex root systems, stabilise coastlines, reduce erosion, and protect against storm surges and tsunamis. Economically, these ecosystems support artisanal and commercial fisheries, providing livelihoods for coastal communities. Additionally, they attract ecotourism, which generates income and promotes conservation efforts. Socially, mangroves and seagrasses contribute to the cultural heritage of Pacific communities, offering resources for traditional practices and medicines.

The protection and restoration of these BCEs not only protect carbon stores that help mitigate climate change but are also essential for the sustainable development and resilience of Pacific Island nations.

The largest blue carbon assessment program in the South Pacific—first of its kind

This project is the first to apply a standardised method for assessing carbon stocks, ecological features, and threats across the four Pacific Island Nations of Fiji, Papua New Guinea, Solomon Islands, and Vanuatu. Previous studies have focused on individual sites, but this region-wide approach used rapid field methods to efficiently collect consistent data across diverse ecosystems.

By covering a broad geographic area, the project enabled meaningful comparisons between countries and settings, helping to identify patterns, highlight priority areas for protection, and guide future restoration and management efforts. The data generated also supports national greenhouse gas inventories and contributes to international climate reporting frameworks, including those aligned with the Intergovernmental Panel on Climate Change (IPCC) guidelines and blue carbon accounting initiatives.

Five reports document the findings and outcomes of this project:

1. Executive Summary – Overview of methods, findings, and implications *(this document)*
2. Ecosystem Assessments – Ecological features and threats
3. Field-Based Carbon Assessments – Field data and analysis
4. National Carbon Stock Estimates – Country-level carbon stock summaries
5. Field and Training Manual – Field methods and capacity-building guide

What was assessed

Field assessments focused on key ecological indicators used to estimate carbon stocks, potential emissions, forest structure, and ecosystem health (Table 1). The methods applied were consistent with Tier 2 reporting requirements under the Intergovernmental Panel on Climate Change (IPCC) guidelines, which rely on country-specific data and improve the accuracy of national greenhouse gas inventories. Figure 1 to Figure 4 illustrate how these measurements were taken in the field and highlight the diversity of settings assessed—from riverine mangroves to open coasts and reef-fringed islands.

Table 1. Key indicators used to estimate carbon stocks, forest structure, and ecosystem health.

Indicator	What it Measures
Carbon storage per area (Mg C ha^{-1})	Carbon stored in living and dead tree biomass and soil per hectare. Used to estimate ecosystem carbon density.
Total carbon stocks (Mg C)	Total carbon stored across a site, country, or region. Aggregated from area-based measurements.
Carbon dioxide emissions (Mg CO_2 ha^{-1})	Potential CO_2 emissions per hectare if stored carbon is released, typically calculated for degraded or converted ecosystems.
Above-ground biomass (AG)	Carbon stored in living tree biomass above the soil surface.
Below-ground biomass (BG)	Carbon stored in roots and other biomass below the soil surface.
Soil Organic Carbon (SOC)	Carbon stored in soil organic matter, typically measured to 1 metre depth.
Species	Mangrove and seagrass species observed during field assessments.
DBH (Diameter at Breast Height)	Tree trunk diameter measured at 1.3 m above ground, used to estimate biomass and calculate carbon stocks.
Canopy Cover (%)	Percentage of ground shaded by tree canopies, indicating forest density and structure.
Seagrass Cover (%)	Percentage of seabed covered with seagrass, indicating meadow density and extent.
Seedling Density (seedlings/m^2)	Number of mangrove seedlings per square metre, used to assess regeneration potential and forest resilience.

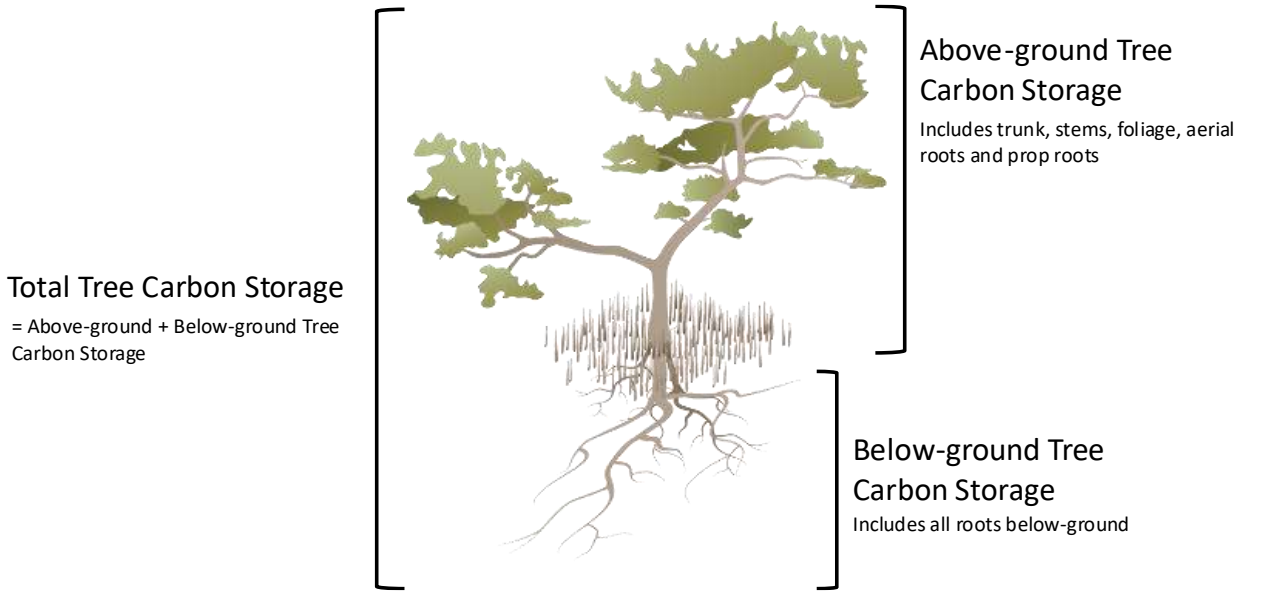

Figure 1. Mangrove total ecosystem carbon storage was assessed at every site, by combining estimates of total tree carbon (above + below-ground shown in this diagram) and soil carbon estimates (not shown). This was then used estimate mean total ecosystem carbon storage across all mangroves in each country.

Figure 2. Mangrove field assessments included species identification, forest density estimates, tree sizes measurements, seedling counts, and collecting soil cores to 1 m deep.

Figure 3. Seagrass field assessments included species identification, meadow density estimates and collecting soil cores between 15cm and 1 m deep, depending on conditions.

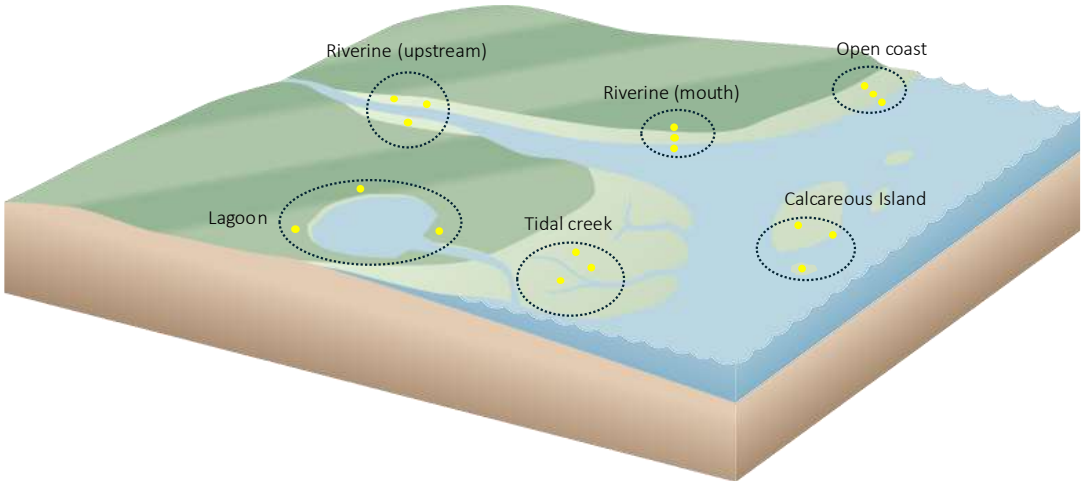

Figure 4. Field assessments included mangrove forest sites across different types of settings, such as mangroves in a river setting which are exposed to flows from the catchment; mangroves exposed to waves on an open coast setting; and mangroves on small calcareous island surrounded by reefs. This was important because carbon storage is known to vary depending on the where mangroves and seagrass are positioned in the land and seascape.

Figure 5. Assessments included a selection of mangroves forests that represented different disturbance types, including clearing for development, wood harvesting, cyclone damage and restoration.

Key Findings

Table 2 summarises the results and provides a snapshot of the ecological and carbon storage characteristics of mangrove and seagrass ecosystems across the four Pacific Island Nations studied.

Table 2. Country-level summary of key findings

Country	No. of mangrove species	No. of seagrass species	Mangrove area (ha)	Seagrass area (ha)	Canopy cover (%)	Mangrove carbon stock (million Mg C)	Seagrass carbon stock (million Mg C)	Carbon emissions factors (%)	Carbon emissions (Mg CO_2 ha^{-1})	Main threats observed
Fiji	6 observed 12 known to occur	3 observed 6 known to occur	51,983	49,285	Mangrove: 66-71% Seagrass: 23-37%	11.8–23.5	2.1–4.6	27–63%	455–1,318	Logging, land use change (roads, agriculture, plantations), dredging, sedimentation, extreme weather (e.g. cyclone impacts), invasive species, species harvesting
Papua New Guinea	29 observed 47 known to occur	7 observed 11 known to occur	318,778	91,305	Mangrove: 24-50% Seagrass: 27-66%	124.1–207.8	4.1–11.2	5–50%	125–1,343	Coastal and catchment clearing (e.g. oil palm), wood harvesting, sediment runoff, extreme weather, boat activity, intensive fishing, historical herbicide spill (New Ireland)
Solomon Islands	17 observed 33 known to occur	6 observed 10 known to occur	56,105	35,126	Mangrove: 48-83% Seagrass: 41-68%	40.9–58.1	1.6–2.7	3–45%	70–1,762	Logging, agriculture, mining, development, destructive fishing, wood harvesting, population growth, sea-level rise
Vanuatu	7 observed 25 known to occur	7 observed 11 known to occur	864	469	Mangrove: 31-73% Seagrass: 29-54%	0.23–0.34	21,105–45,493	–29% to 78%	–385 to 2,264	Invasive species, species harvesting, land-use change (roads, agriculture, plantations), extreme weather (cyclone impacts), high tides, sea-level rise, intensive fishing

Table 3. Sampling effort across the four Pacific Island Nations was extensive, with most sites covering locations not previously been studied.

Country	Locations	Number of mangrove sites assessed	Number of seagrass sites assessed
Fiji	Viti Levu (Rewa, Suva), Ovalau/Moturiki and Vanua Levu	20	10
Papua New Guinea	Central, Milne Bay, West New Britain, New Ireland and Western provinces	20	18
Solomon Islands	Marovo (Western Province), Lau Lagoon (Malaita Province), and Santa Isabel and Papatura Islands (Isabel Province)	19	11
Vanuatu	Moso-Undine Bay and Port Vila-Eratap (Efate Island, Shefa Province), Santo and Malo-Aore (Espiritu Santo Island, Sanma Province) and Malekula and Maskelyne (Malekula Island, Malampa Province).	19	14

Carbon assessments

The project found that mangrove ecosystems in the Pacific store large amounts of carbon, which is comparable to, and in some cases exceeding, global averages. A major international study[1] found that mangroves around the world typically store between 79 and 2,208 tonnes of carbon per hectare, with an average of about 856 tonnes. In this study, mangroves in Fiji, Vanuatu, Papua New Guinea, and the Solomon Islands stored between 435 and 827 tonnes per hectare—slightly below the global average but still well within the expected range.

Most of this carbon is stored in the soil rather than in the trees themselves. In fact, 70–83% of the carbon in Pacific mangroves was found below ground, which closely matches global patterns.

Carbon levels were found to vary depending on the type of environment. Mangroves in river settings tend to store more carbon than those on small islands with sandy or rocky soils. However, this difference wasn't always consistent, as carbon storage can vary a lot from site to site depending on species, soil type, and local conditions.

These findings confirm that Pacific mangroves, especially those in river and delta environments with dense *Rhizophora* forests, which are known to support high carbon accumulation, are significant carbon sinks.

For seagrass ecosystems, the study found surprisingly high levels of carbon stored in the top 15 cm of soil. In Fiji, Vanuatu, Solomon Islands, and Papua New Guinea, carbon levels ranged from 66 to 124 tonnes per hectare, which is much higher than previous studies in places like Indonesia, Palau, and even earlier research in Fiji.[2,3,4]

Across most countries, seagrass meadows dominated by *Enhalus* species were found to store more carbon than mixed-species meadows, with some sites reaching up to 182 tonnes per hectare. This is likely due to deeper organic sediments in *Enhalus*-dominated areas, which enhance carbon storage capacity.

When looking deeper, up to 1 metre, seagrass soils in Papua New Guinea stored up to 123 tonnes of carbon per hectare, which is close to the global average. Vanuatu's results also fell within the typical global range, while Fiji and the Solomon

[1] Kauffman, J. B., Adame, M. F., Arifanti, V. B., Schile-Beers, L. M., Bernardino, A. F., Bhomia, R. K., & Hernández Trejo, H. (2020). Total ecosystem carbon stocks of mangroves across broad global environmental and physical gradients. Ecological monographs, 90(2), e01405.
[2] Stankovic, M., Mishra, A. K., Rahayu, Y. P., Lefcheck, J., Murdiyarso, D., Friess, D. A., ... & Prathep, A. (2023). Blue carbon assessments of seagrass and mangrove ecosystems in South and Southeast Asia: Current progress and knowledge gaps. *Science of the Total Environment*, *904*, 166618.
[3] Cameron, C., Kennedy, B., Tuiwawa, S., Goldwater, N., Soapi, K., & Lovelock, C. E. (2021). High variance in community structure and ecosystem carbon stocks of Fijian mangroves driven by differences in geomorphology and climate. *Environmental Research*, *192*, 110213
[4] Kauffman, J. B., Heider, C., Cole, T. G., Dwire, K. A., & Donato, D. C. (2011). Ecosystem carbon stocks of Micronesian mangrove forests. *Wetlands, 31*(2), 343–352. https://doi.org/10.1007/s13157-011-0148-9

Islands were slightly below. These findings show that Pacific seagrass meadows, especially those with rich biodiversity and low disturbance, have strong potential to store carbon.

National carbon stock estimates

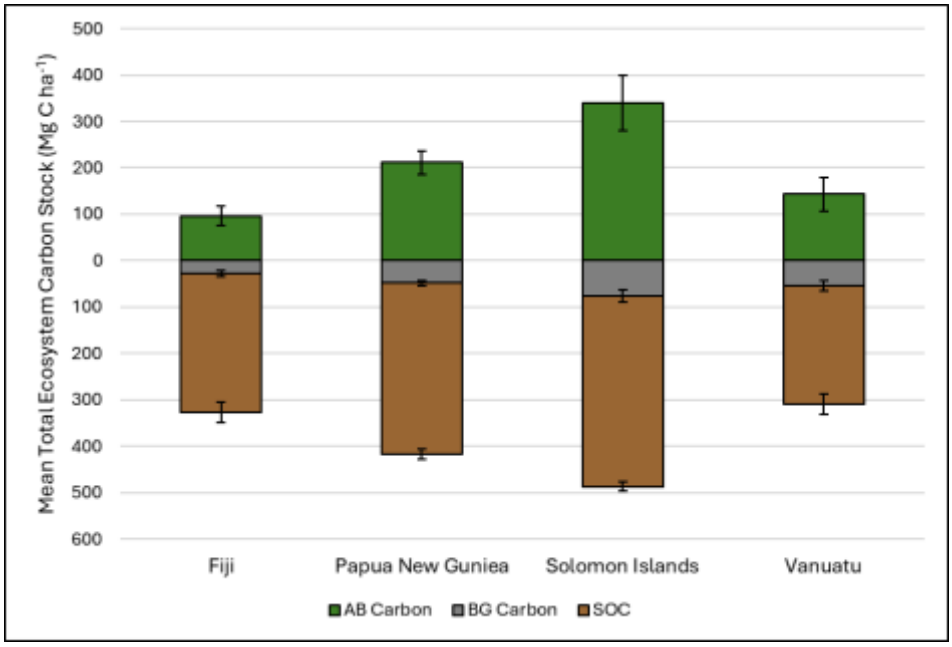

Figure 6 Mean total ecosystem carbon stocks (TECS) partitioned into three carbon pools: soil organic carbon (SOC); and above-ground (AG) and below-ground (BG) live tree carbon storage.

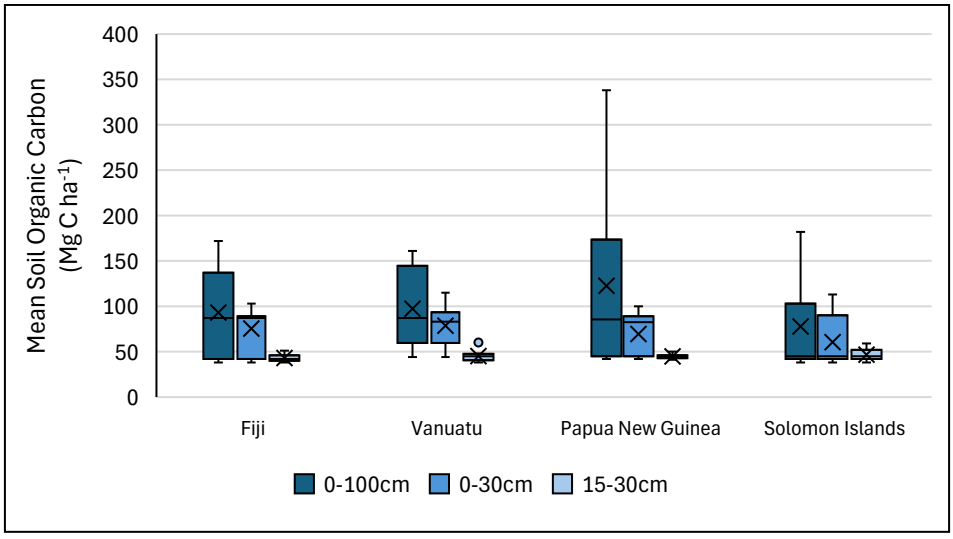

Figure 7 The variation in soil organic carbon (SOC) levels in seagrass ecosystems for each country partitioned by soil depth. Different depths are reported to allow for comparison with other studies that may use different approaches.

The total amount of carbon stored in mangrove and seagrass ecosystems varies widely across the Pacific Island Nations. Papua New Guinea (PNG) holds the largest mangrove carbon stocks, with an estimated 207.8 million tonnes, followed by the Solomon Islands (58.1 million tonnes), Fiji (23.5 million tonnes), and Vanuatu (just 0.34 million tonnes). For seagrass ecosystems, PNG again leads with 11.2 million tonnes, followed by Fiji (4.6 million), Solomon Islands (2.7 million), and Vanuatu (0.045 million).

These differences are mainly due to how much mangrove and seagrass area exists in each country, and how much carbon those ecosystems store per hectare. Mangroves generally contribute more to national carbon stocks than seagrass, largely

because seagrass areas are smaller and less well mapped. In fact, the study found major gaps in existing data on seagrass distribution, suggesting that better mapping could reveal greater carbon storage potential.

Emissions and carbon pools

Emissions are estimates of the release of stored carbon back into the atmosphere, typically as carbon dioxide (CO_2), following clearing or disturbance.

Across all sites, soil organic carbon (SOC) was the largest carbon pool in intact mangrove ecosystems, often storing more carbon than the trees themselves (above-ground biomass, or AGB). However, when mangroves were disturbed, live tree carbon contributed the most to emissions. In this study, live tree carbon accounted for around 54% of total emissions (585 ± 143 tonnes), compared to SOC, which contributed about 14% (152 ± 81 tonnes). This is because, although soils store more carbon overall, they are often less affected by certain types of disturbance, and some soil carbon can remain even after clearing, especially when the soil is not heavily disturbed.

At sites where mangroves had been cleared and converted for development or industry, emissions were typically estimated to be 48 to 78% of the original carbon stock. In contrast, sites affected by natural events like cyclones showed much lower emissions, which were generally between 0 to 10%, with one notable exception.

Sites impacted by wood harvesting, a common and culturally significant practice in many communities, showed more variable results. Emissions ranged from 0 to 45%, depending on how harvesting was carried out, how often it occurred, and whether other pressures like erosion or grazing were also present.

Seagrass and mangrove ecosystem health and biodiversity

The rapid assessment found that, despite significant catchment-scale threats in many locations, seagrass and mangrove ecosystems across Fiji, PNG, Solomon Islands, and Vanuatu continue to support essential ecological functions and maintain considerable biodiversity. These ecosystems remain resilient in many areas, sustaining high levels of services such as coastal protection, carbon storage, and habitat provision. However, in sites exposed to more intense pressures—such as land clearing, development, and extreme weather—there were measurable reductions in ecosystem function and associated services.

Across all countries, this study observed a subset of species known to occur, with PNG recording the most, followed by Vanuatu, Solomon Islands, and Fiji, reflecting both ecological patterns and survey conditions. Papua New Guinea has the highest coastal biodiversity in the region, with 13 seagrass species and 47 mangrove species, reflecting its equatorial location and extensive coastal habitats. Solomon Islands supports 9 seagrass species and 33 mangrove species, showing high diversity typical of the region. Vanuatu hosts 11 seagrass species and 25 mangrove species, representing moderate diversity for the region. Fiji has the lowest diversity among the four countries, with 6 seagrass species and 12 mangrove species, consistent with a latitudinal decline in species richness moving eastward and southward across the Pacific. The gradient observed aligns with global patterns of species richness, placing PNG and Solomon Islands among the most biodiverse coastal regions worldwide, while Fiji's ecosystems, though less diverse, remain ecologically significant within the South Pacific context.gr

One way to assess the health of mangrove forests is by looking at tree size, measured as Diameter at Breast Height (DBH). Larger trees often indicate older, more stable forests that provide better habitat and store more carbon. Papua New Guinea (PNG) sites showed a mix of tree sizes, with some degraded sites having larger trees—likely because only the most robust individuals survived past disturbances. Solomon Islands sites had greater variation in tree sizes, with larger trees found in healthier forests and smaller trees in areas facing more environmental pressure. Vanuatu sites had consistent tree sizes across all sites (13–22 cm DBH), suggesting that mangrove forests are broadly impacted by environmental stress, notably cyclone damage, regardless of location. Fiji forest sites reflected the range in environmental threat, with a clear difference between intact and degraded sites, with smaller trees (4–8 cm DBH) in degraded areas and larger trees (9–14 cm DBH) in healthier forests.

Mangrove seedling abundance, how many young mangrove trees are growing, is another key indicator of forest health. High numbers of seedlings suggest that forests are regenerating and can recover from damage. PNG and the Solomon

Islands showed strong regeneration in many areas, with high seedling counts. Vanuatu had mixed results, with some areas showing fewer seedlings and others demonstrating healthy regrowth. Fiji also showed good seedling abundance, even in areas with lower tree diversity.

Seagrass cover is a useful indicator of ecosystem health, as denser meadows can provide habitat for a high diversity of marine life, stabilise sediments, and enhance carbon storage. Seagrass cover also varied across the region. PNG had the highest average cover, reaching up to 65% in some areas. Solomon Islands showed strong coverage, ranging from 40% to 70%, while Vanuatu ranged from 29% to 54%, depending on site conditions and species composition. Fiji had moderate cover across intact sites, estimated between 27% and 37%.

Wildlife sightings included endangered green turtles and vulnerable dugongs in PNG, Solomon Islands, and Vanuatu, highlighting the importance of these habitats for marine biodiversity. Fiji's survey didn't record any IUCN-listed species, but this was likely due to the rapid nature of the assessment rather than absence of such species.

Key Threats and Pressures Across Sites

While some sites were found to be relatively intact, many were significantly affected by a combination of human activities and natural pressures. Widespread threats include timber harvesting, agricultural expansion, and coastal development, which contribute to habitat loss and degradation. Cyclone impacts were widespread and there was some evidence of the impacts from rising sea levels. Additionally, evidence across multiple sites of species collection and destructive fishing practices suggest impacts to biodiversity and ecosystem function. Together, these pressures erode the long-term resilience and carbon sequestration potential of both mangrove and seagrass habitats in the Pacific.

Drivers of carbon levels

Across all four countries, soil organic carbon (SOC) levels varied widely between sites, even within the same country. While some countries—like PNG—showed overall higher SOC values, these differences were often not statistically significant due to high variability across locations. Three key environmental factors help explain these patterns:

- Geomorphology: The physical setting of each site plays a major role. Mangroves in riverine or deltaic environments, such as those in PNG, receive fine sediments and nutrient-rich inputs that promote carbon accumulation. In contrast, mangroves on carbonate island coasts, like in the Solomon Islands, may have lower SOC depending on local water movement and sediment supply.
- Vegetation structure and species composition: Areas with tall, dense mangroves—especially *Rhizophora* species—and seagrass meadows dominated by *Enhalus* tended to store more carbon. These vegetation types trap more biomass and sediment and were consistently associated with higher SOC levels across multiple countries.
- Disturbance history: Past impacts such as logging, cyclones, or land-use change influence carbon storage. Mangrove areas affected by disturbance often show reduced tree biomass but still retain significant soil carbon. Similarly, undisturbed seagrass meadows continue to build up SOC over time. This resilience was evident in places like Vanuatu and the Solomon Islands, where soil carbon remained relatively stable despite lower overall stocks.

Limitations and considerations

- Integrate updated mangrove and seagrass maps: Mangrove and seagrass extent mapping used in this study is currently being updated under the MACBLUE project, however, was not available at the time of reporting. There were significant limitations to the older mangrove extent maps used, and they have likely underestimated the total carbon stocks. Re-calculating the national carbon stocks using updated mangroves areas from more comprehensive mapping is highly recommended.
- Site selection: Sites were selected for coverage and logistics (safety and accessibility), not as a statistical sample of national extent.
- Sampling depth: Many mangroves and some seagrass soils extend >1 m. This project adopted the standard protocol of ≤1 m, which could result in conservative results for sites in deltaic/riverine settings.
- Biodiversity data: This data was collected in a rapid assessment and did not include detailed sampling. This likely resulted in conservative results for biodiversity in these ecosystems.
- Emissions Estimates: The emissions presented in this report reflect upper-bound estimates, based on the assumption that all lost carbon is released as CO_2. However, in practice, a portion of this carbon may be redeposited in adjacent ecosystems or transported to the deep ocean. While correction factors to account for these dynamics are under development, they were not applied in this analysis.
- Geomorphic Classification: To account for environmental variability, this project applied an approach that classified mangroves based on geomorphic setting. Sites were grouped into four geomorphic categories: Riverine, Tidal Creek/Open Coast, Calcareous Island, and Lagoon. These settings reflect differences in hydrology, sediment type, and ecological function, which are known to affect carbon dynamics. Past studies such as, Adame et al. (2013)[5], Rovai et al. (2018)[6], and Kauffman et al. (2020)[7] have found that riverine mangroves typically store substantially more soil organic carbon than open coast or island settings due to higher sedimentation rates and nutrient inputs. Our study found relatively low or limited variation in total ecosystem carbon stocks (TECS) between these geomorphic groupings. This may be because the carbon stocks at the sites within each geomorphic class, may have been more strongly driven by local land use, disturbance history, and species composition, which may have masked broader trends. Improving site classification using more detailed geomorphic and ecological data could better capture variability.

[5] Adame, M. F., Kauffman, J. B., Medina, I., Gamboa, J. N., Torres, O., Caamal, J. P., & Herrera-Silveira, J. A. (2013). Carbon stocks of tropical coastal wetlands within the karstic landscape of the Mexican Caribbean. PloS one, 8(2), e56569.
[6] Rovai, A. S., Twilley, R. R., Castañeda-Moya, E., Riul, P., Cifuentes-Jara, M., Manrow-Villalobos, M., & Pagliosa, P. R. (2018). Global controls on carbon storage in mangrove soils. *Nature Climate Change*, *8*(6), 534-538.
[7] Kauffman, J. B., Adame, M. F., Arifanti, V. B., Schile-Beers, L. M., Bernardino, A. F., Bhomia, R. K., & Hernández Trejo, H. (2020). Total ecosystem carbon stocks of mangroves across broad global environmental and physical gradients. Ecological monographs, 90(2), e01405.

Capacity building outcomes

Capacity building was a key component of this project, and the reach of the project was significant. The key capacity building outputs were:

1. A Field and Training Manual was prepared and distributed for replication of the method beyond the end of the project. The manual was provided to more than 50 technical officers from government, non-governmental organisations, and other organisations who were engaged throughout the project.
2. One full-day capacity building workshop was conducted in each country, incorporating both a classroom session and field demonstrations. These workshops took place on the following dates:
   - Vanuatu – November 8, 2024 (12 participants)
   - Solomon Islands – December 5, 2024 (7 participants)
   - Papua New Guinea – February 7, 2025 (32 participants)
   - Fiji – March 12, 2025 (16 participants)
3. In each country, government officers and other individuals shadowed the field team throughout the field campaign, providing more than 47 participants with hands-on learning opportunities to apply field methods. This initiative helped strengthen each country's capacity to independently conduct carbon assessments.

Country	Workshop participants	Total no. of field survey team participants	Total no. of field survey participation days
Vanuatu	12	5	20
Solomon Islands	7	4	45
Papua New Guinea	32	24	87
Fiji	16	14	31
TOTAL	67	47	183

Recommendations for continued and future capacity building initiatives are based on the project's outcomes and lessons learned in this project. These focus on enhancing the effectiveness and sustainability of such efforts and include:

- Delivery of advanced follow-up training and workshops
- Provide resourcing for graduates and early career academics to get further experience in sample processing and analysis.
- Provide long-term sustainable resourcing to engage and train community members
- Increase field participation opportunities, as this was a highly valued element of the project
- Ensure ongoing access to training manuals and materials.

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We gratefully acknowledge the many individuals, communities, and organizations who made this blue carbon assessment project possible across Fiji, Papua New Guinea, Solomon Islands, and Vanuatu.

We extend our special thanks to the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) for their generous funding and support, which made this work possible.

This work was made possible through the generous support and collaboration of local communities, who welcomed us onto their lands and waters. We respectfully recognize the importance of the Free, Prior and Informed Consent (FPIC) process, which was followed in all locations. Communities were notified prior to our arrival, and permissions were formally granted by village chiefs, provincial administrators, and local leaders. Their trust and hospitality were essential to the success of this project.

Across the project, Turang Teuea and Paul Maxwell led project management, with field assessments coordinated by Emily Saeck and Erin Thompson. Field assessments were led by a dedicated team of botanists and ecologists, including Ana Backstrom, Emily Saeck, Erin Thompson, Rohan Khot, Chrissi Charles, Paul Maxwell, Patrick Pikacha, Simon Albert, Alistair Grinham, Fernanda Adame, and Nicholas Grundy. Blue carbon expert advice and oversight were provided by Cath Lovelock, Fernanda Adame, Simon Albert, Patrick Pikacha, and Alistair Grinham. Mapping support was led by Aakash Malik and Erin Thompson, in collaboration with SPC and GIZ. Charlotte Warfield and Erin Thompson led the big job of data management and analysis.

Field assessments in each country required the support of teams of local experts and field support, as summarised here. We hope we have not left anyone out.

Fiji

Local Expert Advice: Helen Sykes, Milika Sobey, Paula Tuvura

Fieldwork Coordination: Manasa Vulu, Vasiti Vosabalavu Naikoyadau, Shyam Lodhia, Turang Teuea

Fieldwork Support: Nick Metherall, Shyam Lodhia, Semi Lawevuso, Paula Tuvura, Mereoni Taga, Kalesi Tuitui Nadalo, Etuate Serevi, Vasiti Vosabalavu Naikoyadau, Mr Henry Miller, Mr Tom, Miss Sala, Mr Ben

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Papua New Guinea

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Fieldwork Coordination and Community Liaison: Phelameya Haiveta, Japheth Gai, Akanisi Lomaloma, Gideon Bogosia, Gerard Avoa, Benjamin Keni, Marika Seden, Tiana Reimann, Artie Jacobson, Dainah Gigiba, Lulu Osembo

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Province; Benjamin Keni – Central Province / Hiri District; Dianah Gigiba – South Fly District; Gideon Bogosia – New Ireland Province; Desmond Mondo Poka Vaghelo – West New Britain Province.

Solomon Islands

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Fieldwork Coordination, Fieldwork Support and Community/Provincial Liaison: Sammy Airahui, Myknee Sirikolo, Veira Pulekera

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