

Mangroves: South East Asia



NATURE'S COASTAL GUARDIANS



Mangrove forests are unique ecosystems that are primarily found in tropical and subtropical regions near the equator, with significant areas located in countries such as Indonesia, Thailand, India, Malaysia and the Philippines. Mangroves play an important role in protecting shorelines from erosion initiated by storm surges, currents, waves, and tides. For example, mangrove trees thrive in low oxygen soils where slow moving waters allow fine sediments to accumulate, making them essential for coastal health.

Additionally, their trees are known for their dense tangle of prop roots giving them a stilted appearance above the water. This complex root system allows them to adapt to the daily rise and fall of tides, as they are typically submerged at least twice a day. Their roots slow down the movement of tidal waters, facilitating sediment settlement, contributing to the build up of the muddy substrate, which further assists in stabilising the coastline and creating habitats for various marine organisms, offering food and shelter from their predators.

NOAA. (2017) National Ocean Service, What is a mangrove forest? Available at <https://oceanservice.noaa.gov/facts/mangroves.html>

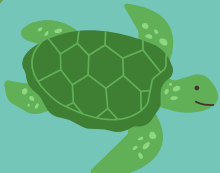


VITAL ECOSYSTEMS: BIG IMPACTS



Mangroves provide essential services that support human well-being and coastal ecosystems. They offer valuable resources like timber and charcoal, protect coastlines from floods and storms and serve as breeding grounds for many fish and other wildlife. These benefits are available to everyone and remain plentiful, yet mangroves are often undervalued because their economic importance isn't fully recognised in public and private decision-making. As a result, conservation efforts are often overlooked. Therefore, understanding the true value of mangroves is crucial to ensuring their protection.

(Brander et al., (2012). Ecosystem Service Values For Mangroves In Southeast Asia, 1(1) pp.62-69)



CHALLENGES FACING MANGROVES



Mangroves face significant threats from pollution, deforestation, habitat fragmentation and rising sea levels, primarily driven by factors such as population growth, coastal development and climate change.

Coastal development is the most significant threat, leading to the destruction of the forests and their replacement with urban structures and ports. This often alters the hydrology, increasing erosion and pollution. Rivers that once nourished mangroves are blocked or rerouted, disrupting filtration, sedimentation and salinity negatively impacting aquatic species vital for local fisheries.

In Asia tourism development and agricultural runoff, primarily from shrimp farming, pose significant threats, with oil pollution also being a major concern due to high maritime traffic occurring throughout transport canals.

(Spalding et al., (1997) World Mangrove Atlas. The International Society For Mangrove Ecosystems, pp.178)



CONSERVATION IN ACTION



To protect mangroves, several conservation methods can be implemented:

- Establishing buffer zones between coastal habitats and adjacent developments help reduce human impacts.
- Identifying areas where coastal habitats can retreat in response to rising sea levels ensures their long-term survival.
- Installing fencing along the intertidal zone can prevent unwanted livestock access.
- Designing waterfront structures such as boat ramps, jetties, and pathways, minimise disruption to water flows.
- Responsibly disposing waste and chemicals to avoid pollution.
- Removing invasive weeds that threaten native ecosystems.

Australian Government, (2016). Coastal wetlands – Mangroves and Saltmarshes. Available at: <https://www.dcceew.gov.au/water/wetlands/publications/factsheet-wetlands-mangroves-saltmarsh#:~:text=identifying%20and%20protecting%20areas%20where,rehabilitation%20projects%20to%20restore%20habitats>