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The Coral Triangle

At the centre of marine biodiversity

Scientists have identified an area called the 'Coral Triangle' within the Indo-Pacific – its boundaries defined by marine zones containing 500 or more species of reef-building coral. This triangular shaped region covers all or part of the seas of six countries: Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands, and Timor-Leste. Certain neighboring countries, including Australia and Fiji, contain rich coral biodiversity as well, but with somewhat lower numbers known to science.

The Coral Triangle is the world's epicenter of marine life abundance and diversity. The richness of coral, fish and other species is so high that the region is sometimes referred to as the "Amazon of the Seas". It is home to:

- ▶ 75 percent of all coral species known to science
- ▶ More than 3,000 species of reef fish and commercially valuable pelagic species including yellowfin tuna, skipjack tuna, bigeye tuna, bumphead parrotfish, and Napoleon wrasse
- ▶ Six of the world's seven species of marine turtles including green, hawksbill, olive ridley, leatherback, loggerhead, and flatback
- ▶ Migrating whale sharks and manta rays which are attracted to the region by abundant plankton
- ▶ Marine mammals including 22 species of dolphin, endangered dugong, Bryde's whale, short-finned pilot whale, three species of sperm whales, humpback whale, Cuvier's and Blainville's beaked whales and the world's least studied cetacean – Longman's beaked whale.

Coral reefs provide a range of goods and services, from fisheries, pharmaceuticals, and employment, to coastal protection and tourism.

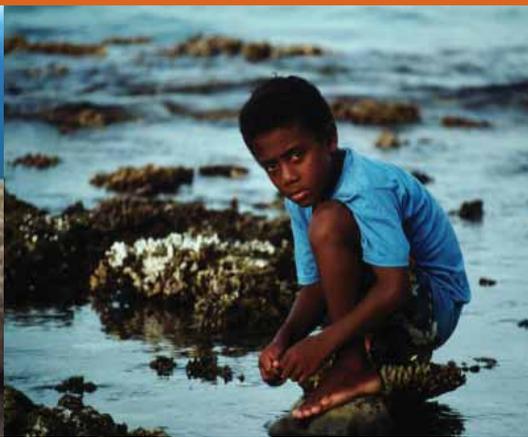


The Coral Triangle

Though the Coral Triangle is the center of marine biological diversity, it is straining to support some of the world's highest human population densities and growth rates. Its resources directly sustain more than 120 million people living within this area, and benefit millions more worldwide. Primary human benefits include:



Cyanide fishing on coral reef, Philippines



Boy playing among dead corals, Solomon Islands



Funae fishermen sorting tuna, Indonesia

- ▶ Supporting livelihoods, income, and food security – particularly for coastal communities. Total annual values of coral reefs, mangroves and associated natural habitats within the Coral Triangle are estimated at more than US\$2.3 billion
- ▶ Tuna spawning and nursery grounds support a multi-billion dollar tuna industry and supply millions of consumers worldwide.
- ▶ Healthy marine resources contribute to a growing nature-based tourism industry, valued at over US\$12 billion annually.
- ▶ Healthy reef systems and mangroves protect coastal communities from storms and tsunamis, reducing immediate damage and future reconstruction costs.
- ▶ In many of the region's islands, coastal resources are the foundation for traditional cultures and sustain the social fabric.

In addition, the Coral Triangle straddles an area that has emerged as the planet's economic epicenter. Dramatic population growth and economic development have fueled unsustainable coastal development and boosted demand for expensive marine resources such as tuna, shark fin, turtle products and live reef fish.

- *Marine resources* are being depleted at an unsustainable rate to supply burgeoning seafood markets within the Asia-Pacific region and beyond.
- *Overfishing and destructive fishing methods*, including the use of cyanide and dynamite, have destroyed large sections of coral reefs and depleted fish populations. This is further aggravated by the practice of targeting juveniles and fish spawning aggregations.
- *Mangroves*, which provide critical habitat for many species of fish, are being cleared for development, tourism activities, and for increasing aquaculture and fuel-wood demands.
- *More than 75 percent* of the world's aquaculture industry is centred in the Asia-Pacific region, particularly in the Philippines and Indonesia, and increasingly Malaysia.
- *Global warming* affects marine biodiversity and the lives of those who depend on the reefs for food and income. Coral bleaching poses a major threat to coral reefs, and the 1997–98 El Niño Southern Oscillation event triggered the largest worldwide coral bleaching event ever recorded.

Poor management of marine resources in the Coral Triangle is driven by a range of issues, including limited knowledge of the long-term value of sustainable resource use, a lack of political will, high levels of poverty, and poor collaboration among key stakeholders (government, the private sector and communities - both within and outside the region). These factors limit opportunities to realize the full economic and development potential of the region's coastal resources.

To maintain the health and productivity of the Coral Triangle, it is important to think of the region as a single, large-scale system – biological, social and economic. By approaching it holistically, we can better understand and protect the core ecological processes that feed millions, drive natural productivity, and sustain significant social and economic services. There is a growing recognition among the Coral Triangle governments of the need to collaborate to manage the resources for current and future generations.

The governments of the region are now exploring the potential for a new multilateral partnership: a Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security. This followed from the endorsement of 21 world leaders at the 2007 Asia Pacific Economic Cooperation (APEC) Summit of a *Coral Triangle Initiative* in their Leaders' Declaration on Climate Change, Energy Security and Clean Development.

WWF and the Coral Triangle

For more than 20 years, WWF has been working with partners in the private sector, governmental agencies and civil society in the Coral Triangle - from conducting cutting-edge marine research and policy reform, to pioneering community-based management and large scale marine protected areas. Within this new broader context, WWF is building on its experience with traditional conservation practices, partnering with industry on chain of custody issues and promoting best management practices.

WWF's Coral Triangle network initiative is working to ensure the health of the region's natural treasures and the millions of livelihoods that depend on it.

- ▶ Building a sustainable live reef food fish trade: One of the most lucrative and distinctive of the region's reef-based fisheries is the live reef fish trade with an estimated value in 2002 of US\$810 million. WWF's strategy will seek to replace destructive fishing practices with sustainable ones; reduce over-fishing of wild stocks, promote the uptake of best management practices and sustainable full-cycle mariculture; and promote sustainably-sourced fish in restaurants in target Asian cities.
- ▶ Promoting sustainable tuna fisheries: The Coral Triangle is home to the world's largest population of commercially-important tuna species, supplying 50% of global tuna production. WWF's strategy will seek to develop new approaches to channel some of the benefits derived back to tuna resource management in Coral Triangle countries; ensure ecologically based fisheries management that delivers equitable benefits to island communities; reduce illegal, unregulated and unreported fishing; implement incentives for sustainable fishing practices; and help inform and engage civil society on the importance, status and management of oceanic fisheries resources.
- ▶ Financing marine protected areas: Thousands of communities depend on seafood as their primary source of protein and income generation. To prevent the loss of biodiversity and prevent further fisheries collapse, well-designed and well-managed networks of marine protected areas and locally managed marine areas are essential. WWF's strategy will seek to establish mechanisms that provide long-term financial support for effectively managed marine protected areas and locally managed marine areas in the Coral Triangle.
- ▶ Protecting marine turtles in the Indo-Pacific: The Coral Triangle is home to six of the seven species of marine turtle but threats in the region are significant. In recognition of the crucial ecological role turtles play in maintaining the health and productivity of marine food chains, WWF's strategy will seek to protect turtles in critical nesting, foraging, and migratory habitats through the establishment of protected areas and the reduction of turtle bycatch through gear change and the promotion of best fishing practices.
- ▶ Reducing the impacts of climate change and tourism: Global warming is arguably the single biggest threat to the region's marine productivity. WWF's strategy will seek to promote an alliance of governments and the tourism/travel sector to actively support emissions reduction measures and implement adaptation measures to reduce the impact of climate change on the region's coral reefs.

WWF's vision for its contribution to a *Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security* is that the oceans and coasts of the Coral Triangle, the world's centre of marine biodiversity, remain vibrant and healthy providing food and livelihoods for generations to come.



Top image: WWF team members and villagers practice the skills of surveying and monitoring coral reefs, Fiji. Middle image: Anemonefish, Papua New Guinea. Bottom image: WWF researcher monitoring coral reef Sulu Sea, Philippines.

Help us protect the Coral Triangle for future generations

The beauty and magnificence of the Coral Triangle is being destroyed at an alarming rate. WWF is working closely with governments, the fisheries and travel industries, non-government organizations and civil society to safeguard our marine heritage.

Find out more about how you can participate in WWF's conservation efforts and make a natural investment in the Coral Triangle.

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WWF is one of the world's largest and most experienced independent conservation organizations, with almost 5 million supporters and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption.

With thanks to the Turing Foundation for their support to WWF's Coral Triangle network initiative.



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