



BERAU MARINE PROTECTED AREA

At a Glance

Stretching over 160 kilometers along the coast of East Kalimantan, Berau, which includes the Derawan Island chain, is among the most biologically rich areas in all of Indonesia. The waters of the Derawan Islands are strongly influenced by Indonesian through-flow, a tropical oceanic current that moves warm and low-salinity water from the Pacific Ocean to the Indian Ocean, the result of a periodic deep-sea upwelling from the Sulawesi Sea and major river outflows from the Berau River and its tributaries. These varied conditions make for a unique, highly diverse and dynamic marine environment.

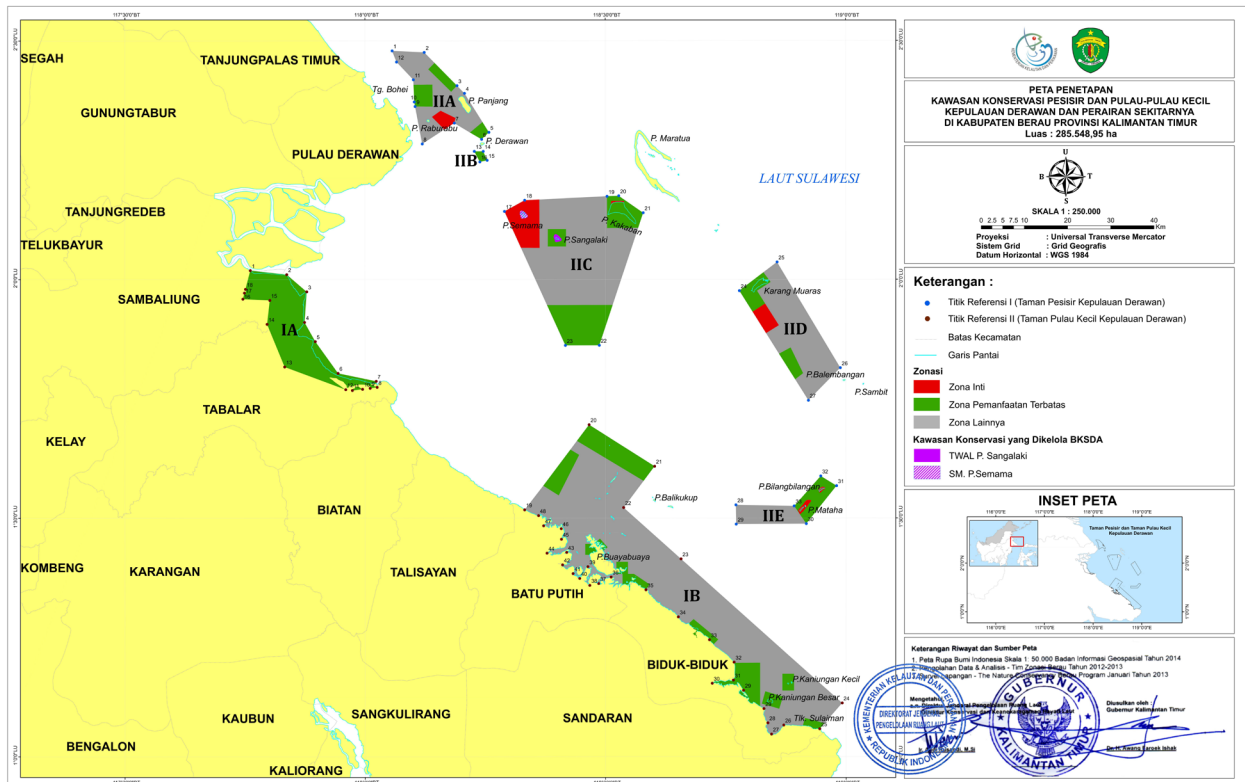
In 2016, an area of 285,548.95 hectares was declared a marine protected area (MPA) by the Minister of Marine Affairs and Fisheries of Indonesia, and designated as the Coastal Conservation Area and Small Islands of Derawan and Surrounding Waters. It is more commonly known as the Berau MPA, and includes six of eight coastal sub-districts in Berau Regency: Pulau Derawan, Maratua, Tabalar, Sambaliung, Batu Putih, and Biduk-Biduk.



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Legislation

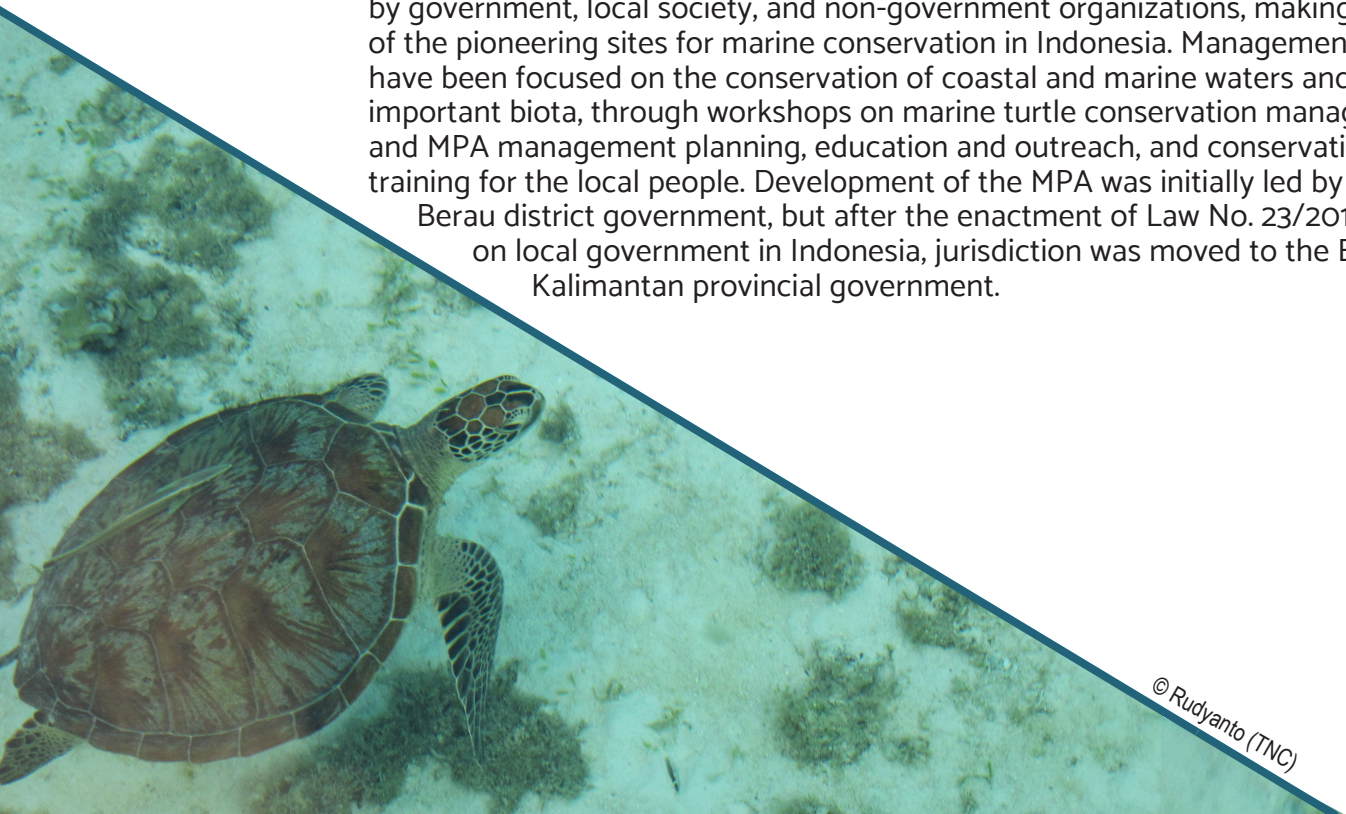
In Indonesia, the marine turtle is protected under Law No. 5/1990 (Conservation of Natural Resources and Their Ecosystem) and Government Regulation No. 7/1999 (Preserving Flora and Fauna). Anyone caught selling protected animals can be imprisoned for up to five years, or fined up to IDR 100,000,000 (about US\$7,500).



Location and configuration of Berau Marine Protected Area

Conservation History

Conservation and management efforts in the Berau MPA were initiated in 1998 by government, local society, and non-government organizations, making it one of the pioneering sites for marine conservation in Indonesia. Management efforts have been focused on the conservation of coastal and marine waters and their important biota, through workshops on marine turtle conservation management and MPA management planning, education and outreach, and conservation training for the local people. Development of the MPA was initially led by the Berau district government, but after the enactment of Law No. 23/2014 on local government in Indonesia, jurisdiction was moved to the East Kalimantan provincial government.



Conservation Importance

Berau's waters contain more than 500 different species of corals, the second highest level of hard coral diversity in the world, after Raja Ampat Islands in eastern Indonesia.

A study documented more than 800 species of reef fish and other charismatic species, ranging from pygmy seahorses to giant manta rays, whale sharks and false killer whales.

Groups of up to 50 manta rays have been seen feeding in Berau's waters. The Berau River is also home to some of the last remaining Irrawaddy dolphins in Indonesia.

The Berau MPA covers most of the important coastal ecosystems, including an extensive mangrove area in the southern Berau delta. The delta is home to the endemic proboscis monkey and many other species. Corals around the Semama and Sangalaki Islands are important feeding grounds for marine turtles and manta rays. The southern islands of Berau MPA, Mataha and Bilang-Bilangan, are known marine turtle nesting grounds. Meanwhile, Kakaban Island contains the world's largest jellyfish lake, with four unique species of stingless jellyfish. The coastal waters of Biduk-Biduk sub-district feature a variety of coral, seagrass, and mangrove ecosystems.

Berau is the largest nesting site for endangered green sea turtles (*Chelonia mydas*) in Indonesia, as well as in all of Southeast Asia. More than 5,000 marine turtles have been recorded nesting each year. The turtles emerge from the sea every night all throughout the year to lay their eggs on the white sandy beaches of Sangalaki, Derawan, Semama, Mataha, and Bilang-Bilangan. The peak nesting season is from May to August.

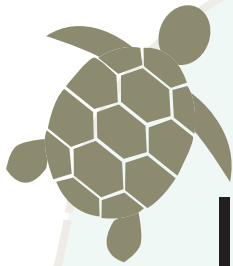
The area has a unique and distinctive natural beauty that could benefit from further tourism development, and several companies are already specializing in marine tourism (such as dive and snorkeling tour operators and companies offering beach recreational activities). Another potential ecotourism activity is whale and dolphin watching. However, uncontrolled tourism activity could pose a threat to the natural environment if not properly managed. Hence, the conservation program is crucially needed in the area.

Statistics

- Mangrove forest: **49,159** hectares
- Range of seagrass meadow cover: from less than **10 percent** to **80 percent**
- Coral: **507** species
- Reef fish: **872** species
- **10** cetacean species: 5 dolphin species and 5 whale species
- **6** marine turtle species



The Marine Turtle Protected Area Network (MTPAN)



In 2009, the Tri-National Committee for the Sulu-Sulawesi Marine Ecoregion (SSME) approved the design of a Sea Turtle MPA Network, after scientific studies showed the **connectivity of the marine turtle populations in the three SSME countries** (Indonesia, Malaysia, and the Philippines).

The SSME Tri-National Committee recognized the **need to jointly manage shared marine resources**, and identified the establishment of the Marine Turtle Protected Area Network (MTPAN) as among the key programs through which transboundary cooperation could take place.

Following the expiration of the SSME Memorandum of Understanding (2006–2016), this initiative has continued under the Coral Triangle Initiative for Coral Reefs, Fisheries, and Food Security (CTI-CFF), given that the Sulu-Sulawesi is recognized as a priority seascape in the CTI Regional Plan of Action. The **marine protected area (MPA) managers of the network shall agree on the modalities for cooperation** to actively support each other's MPA management efforts, and collectively contribute to regional initiatives.

The importance of marine turtles

Marine turtles are crucial for conservation because they play a number of ecologically important roles. They are described as “gardeners of the ocean” because they help keep coral reefs and seagrass meadows healthy as they feed and graze. They need various habitats as they go through their life cycles, such as nesting beaches, coral reefs, open sea, and seagrass meadows. A healthy marine turtle population, therefore, serves as an indicator of the health of these different habitats, and conserving marine turtles also means conserving a wide range of ecosystems and ecosystem services that benefit human communities.



Regional Importance

In the 1980s, there were eight recorded nesting sites for green turtles in Berau; as of 2005, only six islands remained: Derawan, Sangalaki, Sambit, Blambangan, Mataha, and Bilang-Bilangan. Along with some islands in the Philippines (Taganak, Baguan, Langaan, Boan, Lihiman, and Great Bakkungan) and Malaysia (Turtle Island Park), the Berau MPA is an important habitat for green sea turtles.

Five other marine turtle species are also found in Berau: leatherback (*Dermochelys coriacea*), olive ridley (*Lepidochelys olivacea*), loggerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*), and flatback (*Natator depressa*).

However, the poaching, sale, and smuggling of turtle eggs remain rampant throughout the region, which may lead to decreasing numbers.



The hawksbill sea turtles also call the Berau MPA as a home (Photo: Rudyanto, TNC).

Communities

Coastal community in Berau consists of several ethnics mainly from South Sulawesi (Buginese) and Bajau people (sea nomad). Main livelihoods in this area include fisheries, tourism, aquaculture and transportation. Fisheries are important to the locals in terms of both subsistence and export revenue.

The fishing community is generally equipped with knowledge passed down through generations, or gained from interacting with the surrounding environment. There is much local wisdom related to fishing activities, manufacturing, repair, and use of fishing equipment, knowledge of weather, seasons, and wind directions, marine biota, and others.



Local community in Berau MPA is actively involved in the management decision making process (Photo: Rudyanto, TNC).

Different fishing methods, from traditional artisanal to modern industrial, are used in coastal and marine habitats, notably in reefs and pelagic waters. These methods include hand lines for reef fishes, fixed nets, fixed fish traps and fish aggregating devices (FADs), purse seine, long lines, and drift nets. Unfortunately, destructive fishing methods such as *muro-ami* (diving with an air compressor), blast, and poison fishing are still used by several people.

Management Aspects



A guard post in Berau MPA. Enforcement is the most crucial part of the MPA's management. (Photo: Raymond Jakub, TNC)

The Berau MPA was established to preserve the area's biodiversity and ecosystem, as well as to protect socio-economic and cultural resources in the area. Among the management actions that have been taken are the full protection of Mataha and Bilang-Bilangan as core zones of the Berau MPA, specifically for educational and research activities; the formation of a monitoring and surveillance team; and educational campaigns and activities to promote the MPA.

Several challenges have also been identified:

1. **Insufficient capacity.** With the enactment of Law 23/2014, management authority has been transferred, previously from Berau District government to the East Kalimantan provincial government. Unfortunately, the transfer is not followed by the management capacity from the District government to the Provincial government. Therefore, it is important to strengthen the management capacity of the Provincial government to effectively manage the conservation area.
2. **Inadequate law enforcement.** The vast area of the Berau MPA is a logistical challenge when it comes to sea patrolling and monitoring. Illegal activities in the protected area, including blast fishing, cyanide fishing, coral harvesting, and protected species trade, are still taking place.
3. **Ecosystem degradation.** Ecosystem degradation in the Berau MPA has been mainly due to unsustainable fishing methods (e.g., blast and cyanide or potassium fishing), land conversion that increases sedimentation, and unmanaged waste from land and boats.
4. **Key species degradation.** Key species decline is a serious concern. For several years, marine turtles, one of the key species in Berau, are targeted as commodities. This activity might lead to the degradation of the species.



Prospects for Conservation

To overcome these challenges, future plans have also been outlined:

1. **Institution strengthening** will enhance human resource potential in the management of coastal and marine natural resources, especially for the East Kalimantan provincial government and local communities.
2. **Education and outreach programs** are needed to revitalize local wisdom and encourage community empowerment and participation in the management of the area.
3. **Strengthen the reimplementation of surveillances and patrols** to enforce management in Berau MPA will promote the cooperation of communities with the authorities for the protection of important coastal ecosystems and key species.
4. **Monitoring and patrol training for management units** will further strengthen ecosystem and species protection, and facilitate the establishment of support teams in each village or sub-district.



Relocating sea turtle eggs to ensure the survival of the species in Derawan Island (Photo: Famega Syafira, TNC)

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Project in Focus

The Sulu-Sulawesi Seascape Project (2012–2018)

The Sulu-Sulawesi Seascape, shared by Indonesia, Malaysia, and the Philippines, ranks among the most diverse and productive marine ecosystems in the world. It is also home to the largest nesting populations of green sea turtles in Southeast Asia. The marine resources in the Sulu-Sulawesi Seascape face major threats such as overfishing, destructive fishing practices, rapid population growth, unsustainable coastal development, and pollution. As a consequence, valuable coastal habitats like mangrove forests, coral reefs, and seagrass beds are at risk of losing their function as breeding and nursery grounds for marine organisms. This situation is exacerbated by the effects of climate change.

Indonesia, Malaysia, and the Philippines see the need for transboundary cooperation to address these threats. This is being carried out under the umbrella of the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF). Designated as a priority seascape under CTI-CFF by the six member countries of the CT (Indonesia, Malaysia, the Philippines, Papua New Guinea, the Solomon Islands, and Timor-Leste), the Sulu-Sulawesi Seascape serves as a geographic focus of investments, action, conservation, and climate change-related results under the CTI-CFF Regional Plan of Action (RPOA).

Funded by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), the project focuses on effective management of MPAs and the establishment of a regional MPA network for marine turtles; an Ecosystem Approach to Fisheries Management in selected areas; and climate change adaptation planning. Included in the approach are scientific research to establish connectivity of marine turtle populations, institutional strengthening, and knowledge sharing through regional exchanges, cross visits, and publication and dissemination of lessons learned.

The project is jointly implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Conservation International (CI), with the Ministry of Marine Affairs and Fisheries (MMAF) of Indonesia; the Ministry of Science, Technology, and Innovation (MOSTI), the Department of Fisheries Sabah (DOFS), and Sabah Parks in Malaysia; and the Department of Environment and Natural Resources-Biodiversity Management Bureau (DENR-BMB) and the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) in the Philippines.

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