

# NUSA PENIDA MPA LEARNING SITE



## Nusa Penida Marine Protected Area (MPA)

The Nusa Penida MPA protects some of the most diverse coastal and marine ecosystems in the world. It was established to conserve the islands' ecosystems and sustain the community, while allowing for the development of the island's economy.

The MPA is located off the southeast coast of Bali, surrounding a group of three islands, Nusa Penida, Nusa Ceningan and Nusa Lembongan. It was reserved in 2010 through the commitment of the Klungkung District Government and was established in 2014 via Ministerial Decree. In 2018, the Nusa Penida MPA was placed under the jurisdiction of the Bali Province Government, consequently placing the Nusa Penida MPA Management Unit under its wing. The management unit is directly responsible for the overall management of the protected area, implementing both the MPA zoning system and overall 20-year management plan.

The Nusa Penida MPA zoning system consists of four zones with seven sub-zones: core zone, traditional fisheries zone, marine tourism zone, sacred zone, special marine tourism zone, seaweed farming zone and harbor zone. The zoning system was specifically designed to incorporate local knowledge and traditions, including the sacred zone to respect traditional religious sites. Through this zoning system, 20,070 hectares of marine area surrounding the islands are protected, with 1,700 hectares designated as a no-take zone, meaning no extractive utilization is permitted. To ensure compliance with the MPA zoning system, the Nusa Penida MPA Management Unit, along with the Indonesian Navy, Marine Police, local community, and NGO partners conduct routine surveillance patrols in and around the MPA.



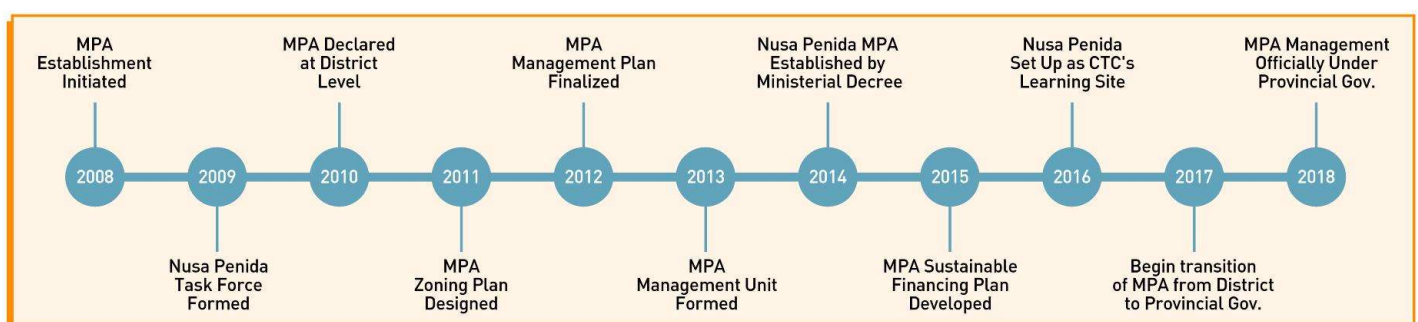
Nusa Penida MPA's marine ecosystems are assessed annually through Reef Health and Resource Use Monitoring Surveys, with support from the national government through the Ministry of Marine Affairs and Fisheries, and partners. These regular scientific surveys provide a clear picture of the conditions of the MPA's coastal and marine ecosystems and the effectiveness of conservation management interventions, and they inform and support adaptive management practices.

Resource use monitoring is undertaken to gather information on fishing and tourism boats operating in the MPA, and to assess the levels of user compliance with the MPA zoning system. Research on charismatic marine life common in the Nusa Penida MPA is also undertaken to develop programs, respond to challenges, and improve MPA management.

The Coral Triangle Center (CTC) has been supporting the development, design and management of the Nusa Penida MPA since 2008, when the area was recognized as a critical zone for marine biodiversity and as a site with a high livelihood dependence on marine resources. CTC played an instrumental role in facilitating the development of the Nusa Penida MPA's zoning system and management plan in collaboration with local government, community, and private sector stakeholders. To date, CTC supports the Nusa Penida Management Unit by conducting annual reef health and resource use monitoring surveys, supporting regular patrols, and providing training and technical expertise to the Nusa Penida MPA Management Unit personnel.



## Nusa Penida MPA Timeline





## Marine Life in the Nusa Penida MPA

### Coral Reefs

The predominant type of reef found in Nusa Penida is fringing reef. A survey conducted in 2008 found 296 species of corals present in the waters of Nusa Penida. Annual reef health monitoring surveys conducted by CTC from 2011 to 2018 show that live coral cover in some monitoring sites in the Nusa Penida MPA has remained relatively consistent while it has declined in others. Coral cover can be reduced by natural factors, such as strong currents or wave exposure, or human activities, such as destructive fishing, careless snorkeling and diving, and practices driving climate change.



### Mola (Southern Sunfish)

The mola, the largest bony fish in the sea, can weigh up to 2,300 kilograms. In the Nusa Penida MPA they are primarily observed from July to October, when seasonal cold-water upwelling brings a plentiful supply of their primary prey, zooplankton. Molasses also eat jellyfish and small fish. The molasses found in the Nusa Penida MPA are almost entirely of one species, the southern sunfish (*Mola alexandrini*).



### Manta Rays

Manta rays can be found in Nusa Penida all year round. They bask in warm, shallow waters and use the reef as a feeding and cleaning station. There are believed to be over 600 individual manta rays who have been frequenting Nusa Penida since studies into their behaviour began in 2004. Reef mantas (*Mobula alfredii*), the species commonly found in the Nusa Penida MPA, can grow up to 4.5 meters long. Mantas are highly intelligent, social creatures that filter feed on zooplankton.



## Challenges Facing the Nusa Penida MPA

With easy access from Bali and Lombok, Nusa Penida MPA faces unique challenges due to the high number of tourists who visit every year. Tourism, while beneficial in many ways, has increased pressure on the islands' marine and coastal ecosystems. To ensure these negative impacts are managed, CTC facilitates cooperation and collaboration between tourism industry providers, government, community leaders, and conservationists, to find mutually beneficial solutions that support ecosystems and the economy.



Plastic pollution in the waters around the Nusa Penida MPA also pose an additional challenge to both MPA managers and marine life. Filter feeders, such as manta rays, are at a particular risk from plastic pollution while marine animals, such as sea turtles and sunfish, often mistake floating plastic as food. CTC supports local efforts to address this issue through youth and tourist education programs as well as supporting community-led plastic waste management efforts.



20,057  
ha area of MPA



296  
species of coral



576  
species of fish



300,000  
visitors annually  
as of 2017



45,000  
residents dependent  
on fisheries and  
marine tourism



## Empowering Local Communities

As a booming holiday destination, the Nusa Penida MPA demonstrates the value of coastal and marine ecosystems in supporting a robust tourism-based economy. Recognition of this has led to a growing interest in marine conservation among local communities.

### Mangrove Tours

To develop a community-based mangrove ecotourism activity, CTC trained local community members from the Surya Mandiri group on Nusa Lembongan on the basic principles of MPA management, how to identify mangrove species, and how to conduct mangrove tours. During the high season, approximately 600 tourists join the tours every month, with fees for renting a canoe and local guide costing IDR 150,000 (\$11 USD) for up to 5 people per trip. The community is gaining extra income and the mangrove forests are being effectively protected as communities have become more committed to conserving this biological asset. The commitment has been so great that the size of the protected mangrove area was increased by almost 30 hectares.



### Coral Nursery

Human activities have damaged coral reefs in certain areas of the Nusa Penida MPA. Working with CTC, local community group Satya Posana Nusa has developed a coral nursery where coral fragments are transplanted to form a new reef. Coral fragments are attached to fixed metal posts and are then monitored for survival. Apart from promoting reef recovery, the nursery is a hands-on educational tool for local youth and tourists to learn about coral reef ecosystems while providing a source of income for the community.



### Nyepi of the Sea

Nyepi Segara, or Nyepi of the Sea, is a day of homage to Dewa Baruna, the Balinese ruler of the seas. For one day each year, all ocean activities in the Nusa Penida MPA cease, including fishing, diving and boat travel. This helps to bring balance between humans and nature, and builds understanding amongst coastal communities of the importance of respecting marine ecosystems. As a traditional marine conservation technique, Nyepi Segara has been integrated into the Nusa Penida MPA management plan. By combining modern scientific techniques and local knowledge and customs, the MPA has been tailored to the local environmental and cultural context and generates support from local communities.



## Working with the Marine Tourism Industry



With the growing number of tourism businesses operating in the Nusa Penida MPA, the industry has become a vital partner in the protection of the MPA's marine and coastal environment. Working with marine tourism businesses, CTC aims to raise awareness of and adherence to best practices that reduce tourism's negative impact on the environment. CTC does this by working with various tourism operators and coalitions, such as the Lembongan Marine Association, to promote and raise awareness of the Nusa Penida MPA zoning system as well as codes of conduct for sunfish and manta ray interactions. CTC also certifies businesses through the Green Fins program, an international standard for snorkeling and scuba diving practices, developed by UN Environment.





As part of its community education program, CTC collaborates with Bali Hai Cruises, the Lembongan Village head, and local schools to celebrate Earth Day every year. This annual event includes beach cleanups, cultural performances, and art and craft activities to educate students on the threats to marine environments. Through art and cultural traditions, such as the Wayang Samudra and trash art competitions, local youth are inspired to engage with marine conservation efforts.



## Nusa Penida MPA as a Learning Site In Action

CTC recognizes the importance of developing and supporting MPAs that serve as living laboratories to study marine conservation and management methods on the ground. These MPAs are on-site training platforms for managers and practitioners, government officials, community groups, scientists, students, and NGOs to gain hands-on experience, and to enable learning exchanges in the Coral Triangle and beyond.



Through CTC's portfolio of MPA learning sites, stakeholders can learn from a broad spectrum of MPAs with different ecological, economic, social, and geopolitical characteristics. The steps involved in designing and developing the various elements of MPA management for the Nusa Penida MPA have provided considerable practical lessons. These lessons, systems, insights and experiences provide a rich resource for marine conservation practitioners and students around the world.

Apart from the Nusa Penida MPA, CTC's learning sites are located in the Banda Islands, Lease islands, Buano Islands and Sula Islands in Indonesia and Liquica and Atauro in Timor-Leste.

Since 2008, CTC's Nusa Penida Program has been supported by various donors such as The Nature Conservancy, USAID, Margaret A. Cargill Philanthropies, Give2Asia, SymAsia, the Australian Government, and Hard Rock Hotel Bali.



## About Us

### Coral Triangle Center (CTC)

CTC is an Indonesian foundation based in Bali with a regional scope and global impact. CTC works closely with local communities, the private sector, governments, and partners to strengthen marine resource management in the Coral Triangle to protect coral reef ecosystems and ensure sustainable livelihoods and food security. CTC supports on-the-ground conservation in Bali, Maluku, North Maluku, and in Timor-Leste.

CTC is developing its Center for Marine Conservation in Sanur, Bali as an integrated learning space for training programs, outreach activities, and artistic and cultural performances to influence millions of people by 2025 to care for our oceans and those who depend on it. CTC leads regional learning networks of women leaders, local government executives and marine protected area practitioners in Indonesia, Malaysia, the Philippines, Papua New Guinea, Solomon Islands and Timor-Leste. CTC is also a certified training center of the Government of Indonesia and an official partner of the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security.

For more information, please contact:

**Wira Sanjaya**

Nusa Penida MPA Project Leader

**Coral Triangle Center**

Jl. Betngandang II No. 88-89, Sanur

Bali, 80228 Indonesia

[wsanjaya@coraltrianglecenter.org](mailto:wsanjaya@coraltrianglecenter.org)

[coraltrianglecenter.org](http://coraltrianglecenter.org) | [savingoceansnow.com](http://savingoceansnow.com)