



A Sea of Safe Havens



Establishing the Marine Turtle Protected Area Network in the Philippines

Philippine Inputs to the Transboundary Marine Turtle Protected Area Network in the Sulu-Sulawesi Seascape, A Priority Seascape in the Coral Triangle Initiative Regional Plan of Action



2018

A Sea of Safe Havens

Editors

Evangeline Florence B. Miclat, Conservation International Philippines
Hazel O. Arceo, Ph.D, Marine Science Institute, University of the Philippines

Copyeditor: Alya B. Honasan

Design and layout: Felix Miguel Mago

Photography: Tet Lara, Jürgen Freund, Nicholas Pilcher, Conservation International, DENR-Region 9.

Map art: Felix Mago Miguel (based on Google Earth)

©2018 Conservation International Philippines. All rights reserved. No part of this publication may be reproduced, stored in retrieval system, or transmitted in any form or by any means without written permission from the copyright holders.

Photographs ©Tet Lara, Jürgen Freund, Nicholas Pilcher, Keith Ellenbogen
Conservation International, DENR Region 9

Map art © Felix Mago Miguel for Conservation International

Recommended Citation:

Miclat EFBM, Arceo HO (eds) (2018) A sea of safe havens: establishing the marine turtle protected area network in the Philippines. Philippine inputs to the transboundary marine turtle protected area network in the Sulu-Sulawesi Seascape, a priority seascape in the Coral Triangle Initiative Regional Plan of Action. GIZ-CI Support to the Sulu-Sulawesi Seascape Project (Contract No. 81156987). Conservation International Philippines, Quezon City, Philippines. 36p

Cover: Green turtle, Tubbataha

Printed in the Philippines

Table of Contents

5	Messages
8	Acknowledgements
9	List of acronyms
	1
10	Safety Beyond Borders An MPA network for species protection
	2
14	Marine Turtles in the Philippines Species in focus
15	Ancient mariners
15	A precarious existence
16	Policies for protection
17	Research and studies
	3
20	Connecting for Conservation The Marine Turtle Protected Area Network (MTPAN) in the Philippines
21	The El Nido-Taytay Managed Resource Protected Area (ENTMRPA)
24	The Tubbataha Reefs Natural Park (TRNP)
26	The Turtle Islands Wildlife Sanctuary (TIWS)
29	Initiating the MTPAN formation
	4
30	A Bigger Picture From single MPAs to one network
30	Networking as conservation strategy
32	A network that works
	5
34	Local to Global The MTPAN in Philippine and international marine biodiversity conservation
36	References



© E. Miclat/Conservation International



The Philippines is an integral part of the Coral Triangle, an area in the Indo-West Pacific region, recognized as the global centre of marine biodiversity and a global priority for conservation.

As early as in 1948, policies to protect and conserve endangered and migratory species, like the marine turtles, have been formulated in the country. A landmark policy, Republic Act No. 9147 known as Wildlife Resources Conservation and Protection Act of 2001, further braces all protection and conservation laws on threatened wildlife and its derivatives for non-scientific and breeding purposes.

The initiatives to establish a network of marine protected areas (MPAs) targeting migratory, endangered species is a pioneering work in the Philippines. MPA networks are usually locally managed and target fisheries and link coastal ecosystems management. The MPA network for marine turtles, for instance, will involve for the first time, national protected areas and respective multi-sectoral Protected Area Management Boards. This national initiative will be challenging

for it would heighten efforts in meeting our commitments to CITES, CBD, Ramsar Convention and CMS and to regional cooperation such as TIHPA, CTI-CFF, and ASEAN.

While we venture into this groundbreaking work, we must not lose sight of the importance of connecting this network with neighboring countries to effectively protect marine turtles in their known habitats across the Sulu-Sulawesi Seascape, a priority seascape of the CTI-CFF.

It is my hope that with our continued partnership with local and national government agencies, NGOs and POs, the academe, private sector, and local communities, the vision of having transboundary networks can be realized for both endangered and migratory species.

Mabuhay!

ROY A. CIMATU
Secretary
Department of Environment
and Natural Resources



In the heart of the Coral Triangle lie the Sulu-Sulawesi Seas, home to various species of marine turtles. The marine turtles in the Sulu-Sulawesi Seascape, which is bordered by Indonesia, Malaysia and the Philippines, are under constant threat from poaching, entanglement in fishing gears, being caught as bycatch, and pollution for example plastic debris. These key indicator species of our marine environment's health are also susceptible to the effects of climate change such as ocean warming and acidification. Their feeding, breeding and nesting habitats are further in peril due to anthropogenic marine and coastal developments.

Mitigating threats to the marine turtles in the Sulu-Sulawesi Seas requires transboundary collaboration and coordinated actions between Indonesia, Malaysia and the Philippines. The transboundary network approach for protecting, conserving and revitalizing the marine turtle stocks would enable the regional management of their critical habitats and their migration routes across political and geographical borders. The first marine turtle protected area network in the Philippines is an example that can be replicated and up scaled to other areas for securing biodiversity in the Coral Triangle and beyond towards this end.

The Deutsche Internationale für Internationale Zusammenarbeit (GIZ) GmbH, on behalf of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, is very pleased to work with responsible government agencies, local government units, Conservation International, civil society organizations, and communities in the Philippines, Indonesia, and Malaysia to protect the turtles in the Sulu-Sulawesi Seas, under the Sulu-Sulawesi Seascape Project.

I particularly congratulate the project partners for their dedicated efforts to establish a network of protected areas for marine turtles across the three countries. This network is most essential because turtles know no political borders as they move around the seas.

We encourage all individuals of good will, and all related organizations, to support these efforts in our quest to shape a future worth living for all people.

DR. ANDREAS KALK
Resident Director (Philippines and Pacific)
Deutsche Gesellschaft für Internationale
Zusammenarbeit (GIZ) GmbH

The year 2017 marked a significant milestone in **Conservation International Philippines**. The year began with the formulation of our 10-year strategy harmonizing our terrestrial and marine initiatives that we call the **Highlands to Oceans (H2O) Strategy**. Human well-being is, and has always been, in the heart of our outlook. We work hard for a healthy planet because we understand and believe that *humans need nature to thrive*. Among others, our strong partnership with the DENR started since our inception almost three decades ago. Scores of initiatives from the terrestrial to the marine environments have been fruitful with our collaborations, further leading to policy enhancements, program development, and critical on-the-ground strategic interventions. Conservation progressed from small-scale projects to ambitious landscape- and seascape-level programs that secure benefits to both people and nature. The latter expanded the breadth of our work, thematically and geographically to Indonesia and Malaysia through

the transboundary cooperation in the Sulu-Sulawesi Seascape, and, to the region through the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security.

Place-based conservation networks have now become the norm for managing our interconnected systems. This publication, **A Sea of Safe Havens**, on the marine turtle protected area network is a testament to this thrust. Not only does it compel governments and institutions to act in synergy but also let the resource users and managers fathom the intricate dynamics involved in their conservation and management. The full suite of systems, human and nature, can only be adequately addressed methodically under the **Highlands to Oceans** framework.

ENRIQUE A. NUÑEZ, JR.
Country Executive Director
Conservation International
Philippines

Acknowledgements

Conservation International Philippines led the development of this publication as part of its support to the Department of Environment and Natural Resources-Biodiversity Management Bureau (DENR-BMB) in the implementation of the marine protected area network component of the Sulu-Sulawesi Seascape Project, a project funded by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and implemented through the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

Conservation International Philippines acknowledges additional inputs gathered and validations received from the DENR-BMB particularly its Coastal and Marine Division; the DENR Region 9; the Protected Area Management Boards (PAMBs) of the El Nido-Taytay Managed Resource Protected Area (ENTMRPA), Tubbataha Reefs Natural Park (TRNP), and Turtle Islands Wildlife Sanctuary (TIWS); the Palawan Council for Sustainable Development (PCSD), the Provincial Government of Palawan, and Western Philippines University, Palawan; and GIZ—in particular, the following individuals:

Department of Environment and Natural Resources
Nilda S. Baling, Coastal and Marine Division, Biodiversity Management Bureau
Pablo G. Delos Reyes, Jr., Coastal and Marine Division, Biodiversity Management Bureau
Marlynn M. Mendoza, Coastal and Marine Division, Biodiversity Management Bureau

Neneth T. Ordoño, Conservation and Development Division, DENR-Region 9
Jerika Dane B. Velasco, Coastal and Marine Division, Biodiversity Management Bureau

El Nido-Taytay Managed Resource Protected Area
Alexander E. Mancio, Protected Area Superintendent

Tubbataha Reefs Natural Park
Angelique M. Songco, Protected Area Superintendent

Turtle Islands Wildlife Sanctuary
Minda J. Bairulla, Protected Area Superintendent

Palawan Province
Noel E. Aquino, Environment and Natural Resource Office, Provincial Government of Palawan
Glenda M. Cadigal, Palawan Council for Sustainable Development Staff
Benjamin J. Gonzales, Western Philippines University
Edgardo C. Zabala, Jr., Palawan Provincial Government

Conservation International Philippines
Evangeline Florence B. Miclat
Davelyn Pastor-Rengel

GIZ
Marion Antonette A. Daclan
Joarlyn C. Morano

Special thanks are due Dir. Theresa Mundita Lim of DENR-BMB and Ms. Franca Sprong and Ms. Lena Kern of GIZ for valuable guidance; and the rest of the GIZ-CI Project Coordination Team members Jemimah Peñaranda and Cheryl Ventura for their dedication and excellent assistance.

List of acronyms

ADB	Asian Development Bank	LGU	local government unit
ASEAN	Association of Southeast Asian Nations	MEAT	Management Effectiveness Assessment Tool
BMUB	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety	METT	Management Effectiveness Tracking Tool
CBD	Convention on Biological Diversity	MNR	Ministry of Natural Resources
CI	Conservation International	MOA	Memorandum of Agreement
CITES	Convention on International Trade in Endangered Species of Flora and Fauna	MOU	Memorandum of Understanding
CMS	Convention on the Conservation of Migratory Species of Wild Animals	MPA	marine protected area
CT	Coral Triangle	MSN	MPA Support Network
CTI-CFF	Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security	MTPAN	Marine Turtle Protected Area Network
DENR	Department of Environment and Natural Resources	NEAT	Network Effectiveness Assessment Tool
DENR-BMB	Department of Environment and Natural Resources Biodiversity Management Bureau	NGO	non-government organization
ENTMRPA	El Nido-Taytay Managed Resource Protected Area	NIPAS	National Integrated Protected Area System
EO	Executive Order	PA	protected area
ETDF	Eco-Tourism Development Fund	PAMB	Protected Area Management Board
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit	PASu	Protected Area Superintendent
GMP	General Management Plan	PCP	Pawikan Conservation Project
ICDP	Integrated Conservation and Development Program	PCSD	Palawan Council for Sustainable Development
IEC	information, education, and communication	PKP	Palawan Knowledge Platform
IMO	International Maritime Organization	PSSA	Particularly Sensitive Sea Area
IOSEA	Indian Ocean-South East Asian	RETA	Regional Technical Assistance
IPAF	Integrated Protected Area Fund	SCREMP	Sustainable Coral Reef Ecosystem Management Program
IUCN	International Union for Conservation of Nature	SEP	Strategic Environmental Plan
		SSME	Sulu-Sulawesi Marine Ecoregion
		TIP	Turtle Islands Park
		TIHPA	Turtle Islands Heritage Protected Area
		TIWS	Turtle Islands Wildlife Sanctuary
		TMO	Tubbataha Management Office
		TRNP	Tubbataha Reefs Natural Park
		UNESCO	United Nations Educational, Scientific, and Cultural Organization
		WWF	World Wide Fund for Nature

**An MPA network
for species protection**

Safety Beyond Borders

The Philippines lies within the Coral Triangle, a region composed of six countries—Indonesia, Malaysia, the Philippines, Timor-Leste, Papua New Guinea, and the Solomon Islands—that make up what is considered the epicenter of global marine biodiversity (1). The Philippines has, in fact, been consistently acknowledged as a biodiversity hotspot, both marine and terrestrial. Being a “hottest hotspot,” however, also means that its natural environment is facing the highest levels of threats (2), prompting the need for various national and local conservation and management strategies.

Key among these strategies has turned out to be the establishment of marine protected areas (MPAs), an important, effective management tool against threats to marine biodiversity and economically important resources (3). Although studies on the potential benefits of MPAs to fisheries have been done, their essential role in biodiversity conservation, and in protecting important habitats and marine life populations—particularly endangered and migratory species—is also being recognized and appreciated, especially in the communities where they are located.

MPA networks, or systems of connected MPAs operating across large scales (4), also make possible the protection of natural processes, which sustain habitats and populations of species, and which operate outside the boundaries of single MPAs.

A marine turtle, for instance, needs a chain of habitats to complete its life cycle, habitats which can only be reached through migration. Single, stand-alone MPAs may provide protection only for a nesting beach or a feeding area, thus have limited conservation value. MPA networks, meanwhile, can protect all these critical habitats, including migratory routes,



Baguan Island, Turtle Islands, Tawi-Tawi



© Jürgen Freund

and offer better chances for a turtle to survive, reach maturity, and repopulate its own kind.

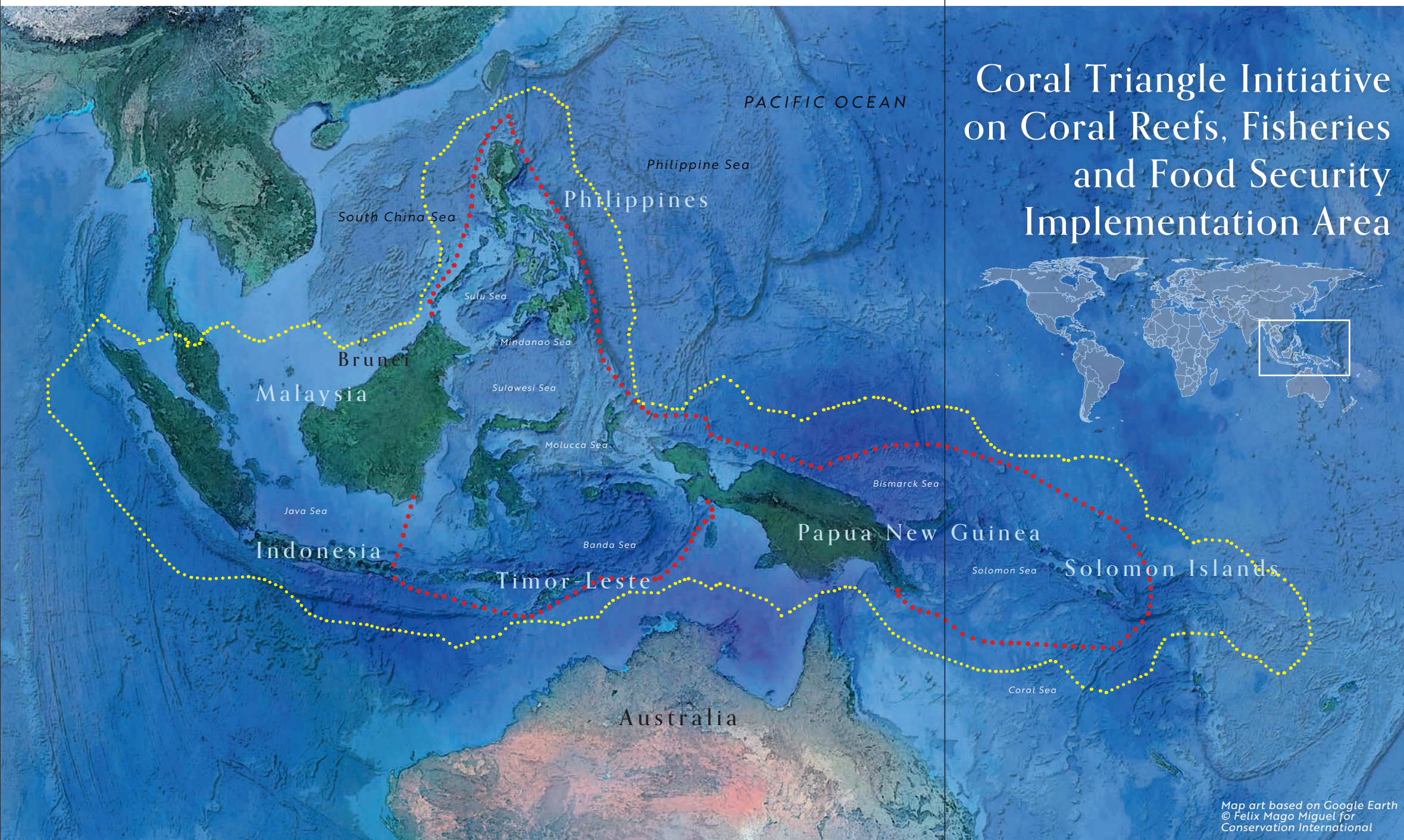
Ecological networks benefit an ecosystem by facilitating not only the conservation of species and habitats, but also by promoting sustainable use of natural resources by human communities, with reduced impacts on biodiversity (5). An ecological network can include large transboundary areas that require a similarly expansive conservation approach.

A key example is the Turtle Islands Heritage Protected Area (TIHPA), which consists of three islands in the Turtle Islands Park (TIP) of Malaysia and six islands in the Turtle Islands Wildlife Sanctuary (TIWS) in the Philippines. Established in 1996 to protect a system of important nesting areas through a collaborative agreement between Malaysia and the Philippines, it was the world’s first transboundary protected area for marine turtles. The scaling up of this network into a tri-national initiative, by including sites in Indonesia and additional sites in Malaysia



Turtle Islands, Tawi-Tawi

© DENR-Region 9



CTI-CFF Implementation Area

This boundary is based on the Exclusive Economic Zone (EEZ) of the CTI countries. EEZ source data from Flanders Marine Institute (VLIZ) 2011. CTI member countries include the following: Philippines, Malaysia, Indonesia, Timor-Leste, Papua New Guinea, and Solomon Islands.

Coral Triangle Scientific Boundary

Veron et al. 2009
Reference: www.coraltriangleinitiative.org

Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security Implementation Area

and Philippines, was proposed under the Sulu-Sulawesi Marine Ecoregion (SSME) Programme, which ran from 2006 to 2016 (6).

In 2009, the Tri-National Committee for the SSME adopted a Regional Action Plan for the Conservation of Sea Turtles that included the proposed network of sites, which included Bunaken National Park and Berau (where the Derawan Islands are located) in Indonesia; Tun Mustapha Park, Sugud Islands Marine Conservation Area, TIP, Tun Sakaran, and Sipadan Island in Malaysia; and TIWS, Balabac Straits Corridor, and El Nido-Taytay Managed Resource Protected Area (ENTMRPA) in the Philippines. Based on best available scientific information, turtle tag returns, and satellite tracking data, the inter-linkages of these sites were established for the migratory green turtles (*Chelonia mydas*).

Given that the SSME (now the Sulu-Sulawesi Seascape) became the first priority transboundary seascape recognized in the Regional Plan of Action of the Coral Triangle Initiative for Coral Reefs, Fisheries, and Food Security (CTI-CFF), the initiative to establish a network of MPAs for green turtles in the seascape is continued on this regional platform, following the completion of the tri-national cooperation in the SSME in 2016.

The Philippines is playing a critical role in initiating this truly transboundary MPA network for green turtles in the Sulu-Sulawesi Seascape and making it a reality. Within the country, efforts are underway to establish the Philippine part of this transboundary network, which covers four sites: the ENTMRPA, the Tubbataha Reefs Natural Park (TRNP), the TIWS and marine turtle habitats in the Municipality of Balabac in Palawan. These sites have been reported to share green turtles from the same population, and provide habitats for these animals at different stages in their life. Three of the proposed sites are already established protected areas under the National Integrated Protected Area System (NIPAS), while Balabac has yet to establish an MPA for turtle protection.

2

Species in Focus

Marine Turtles in the Philippines



© Nick Pilcher



© Nick Pilcher



© Conservation International

olive ridley turtle
(*Lepidochelys olivacea*)
Vulnerable, IUCN

Size
Adults: length 60-70 cm
Mass: up to 70 kg
Hatchlings: length ± 25 mm
Mass: 15-20 g
Reproduction
Reproduce every 1-3 years
Lay 1-3 clutches of eggs/season
Lay 90-130 eggs per clutch
Eggs weigh ± 30 g each
Incubation period ± 60 days

loggerhead turtle
(*Caretta caretta*)
Vulnerable, IUCN

Size
Adults: length 70-100 cm
Mass: up to 200 kg
Hatchlings: length ± 25 mm
Mass: 15-20 g
Reproduction
Reproduce every 2-4 years
Lay 2-5 clutches of eggs/season
Lay 80-120 eggs/ clutch
Eggs weigh 30-40 grams
Incubation period ± 60 days long
20-30 years to reach sexual maturity

green turtle
(*Chelonia mydas*)
Endangered, IUCN

Size
Adults: length 80-120 cm
Mass: up to 300 kg
Hatchlings: length 30-40 mm
Mass: 25-30 g
Reproduction
Reproduce every 2-4 years
Lay 2-5 clutches of eggs/season
Lay 80-120 eggs per clutch
eggs weigh ± 40-50 g
Incubation period ± 60 days
20-40 years to reach sexual maturity

Ancient mariners

The first records of marine turtles in the Philippines were from 1895, and listed four species. Today, five of the seven existing species of marine turtles are found in the Philippines: green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), olive ridley (*Lepidochelys olivacea*), loggerhead (*Caretta caretta*), and leatherback (*Dermochelys coriacea*) (7).

Green turtles are widely distributed, nesting in the Turtle and San Miguel Islands, both in Tawi-Tawi Province; Pitogo, Zamboanga del Sur; and two islands in Basilan, Languil, and Malamawi. Hawksbill turtles are also widely distributed, but have found a developmental habitat in Lagonoy Gulf (8). Olive ridleys have been sighted all over the country, with nesting sites in Subic Bay Freeport Zone; Morong, Bataan; Lian and San Juan, Batangas; and Puerto Princesa City, Palawan. A leatherback turtle has been found laying eggs in Rawis, Legaspi City, Albay (9).

A precarious existence

Marine turtles have long been threatened because of their economic importance. Both animals and eggs are harvested for food and trade. In 1909, an estimated 2,040 kg of turtle shells and shell products were exported to various countries (10); as recently as 1975-1980, 32,921 kg of raw hawksbill turtle shells were exported to Japan (11). Trade has significantly decreased in the following years with the passage of national laws carrying steeper penalties, as well as international laws such as the Convention on International Trade in Endangered Species of Flora and Fauna (CITES). In 2011, 14,220 green turtle nests were recorded in Baguan Island, breaking the previous record of 12,311 nests in 1995 (12).

Accidental deaths from entanglements in nets of trawlers and gill-net fishers; marine pollution; and disturbance or destruction of feeding and nesting grounds also threaten turtle populations (13). Then there are the ominous impacts of climate change: sea level rise leads



© Tet Lara

hawksbill turtle
(*Eretmochelys imbricata*)
Critically Endangered, IUCN

Size
Adults: length 75-90 cm
Mass: up to 150 kg
Hatchlings: length ± 30 mm
Mass: approximately 5 g
Reproduction
Reproduce every 2-4 years
Lay 2-5 clutches of eggs/season
Lay 120-200 eggs/clutch
Eggs weigh ± 25-30 g
Incubation period ±60 days long



© Nick Pilcher

leatherback turtle
(*Dermochelys coriacea*)
Critically Endangered, IUCN

Size
Adults: length 140-160 cm
Mass: 300-1000 kg
Hatchling: length ± 50 mm
Mass: 40-50 g
Reproduction
Reproduce every 2-4 years
Lay 4-7 clutches of eggs/season
Lay 50-90 eggs/clutch
Eggs weigh ± 80 g
Incubation period ± 60 days long

Source: www.seaturtlestatus.org, 2017

to erosion on nesting beaches; higher sand temperatures affect sex ratios or prevent eggs from hatching; and changes in ocean currents alter traditional migration paths (14).

Policies for protection

All marine turtle species are listed in Appendix 1 of CITES, prohibiting international trade of the animal and its products. The International Union for Conservation of Nature (IUCN) lists olive ridley and loggerhead turtles as Vulnerable, green turtles as Endangered, and the leatherback and hawksbill turtles as Critically Endangered. In the Philippines, national legislation to protect marine turtles was established as early as 1948, with the first Fisheries Administrative Order (FAO) regulating turtle egg collection. Since then, many other legislations to conserve marine turtles and manage their habitats in the country have followed (Table 1).

In 1979, Executive Order (EO) No. 542 created Task Force Pawikan under the Office of the President. In 1982, the Task Force was subsumed under the then Ministry of Natural Resources (MNR) as the Pawikan Conservation Project (PCP), which became instrumental in establishing several known nesting sites and turtle habitats as marine sanctuaries. To date, marine turtle conservation and habitat management are under the Biodiversity Management Bureau of the Department of Environment and Natural Resources (DENR-BMB).

It is viewed that international laws and regional cooperation may have helped influence policy development to conserve marine turtles and critical habitats in the Philippines (15). The establishment of marine turtle sanctuaries in 1982 came after the Philippines became party to the CITES in 1981. In 1992, the Philippines signed the Convention on Biological Diversity (CBD); the same year, NIPAS Act became a law. The NIPAS Act included the Turtle Islands Wildlife Sanctuary among the declared protected landscapes and seascapes in the country. In 1994, the Philippines became party to the Convention on the Conservation of Migratory Species of Wild Animals (CMS), the international treaty established to conserve terrestrial, avian, and marine migratory species.

On May 31, 1996, the Philippines signed the historic Memorandum of Agreement (MOA) with the Government of Malaysia that established the three Turtle Islands of Malaysia and the six

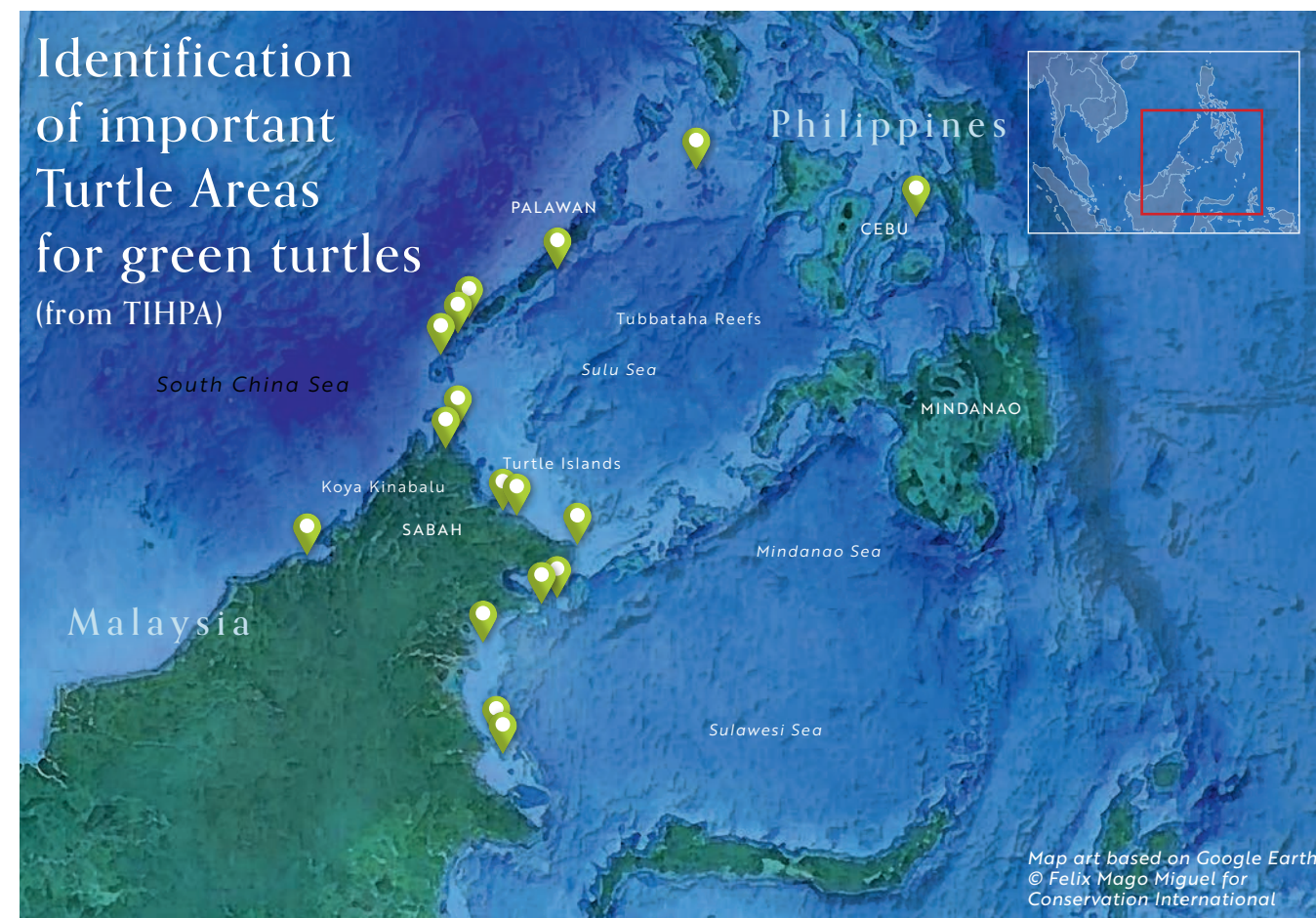


Turtle tagging, Turtle Islands, Philippines

Turtle Islands of the Philippines as the TIHPA. The Association of Southeast Asian Nations (ASEAN), in particular the Working Group on Nature Conservation, and the Philippines-Malaysia Joint Commission for Bilateral Cooperation provided the venues to discuss the establishment of TIHPA as the first transfrontier protected area for marine turtles in the world.

Under a Memorandum of Understanding (MOU) from 2006 to 2016 for the SSME, setting the stage for the establishment of a tri-national network of MPAs for green turtles was among

Identification of important Turtle Areas for green turtles (from TIHPA)



Source of information: Marine Research Foundation and GIZ, 2016

the priority conservation initiatives of Indonesia, Malaysia, and the Philippines. This initiative has been carried forward to the CTI-CFF, the six-country cooperation involving Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands, and Timor-Leste. Indonesia, Malaysia, and Philippines are also signatories to the Indian Ocean and Southeast Asian (IOSEA), MOU on the Conservation and Management of Marine Turtles and their Habitats, an intergovernmental cooperation of 35 signatory states which can also provide the regional platform for transboundary marine turtle conservation in the Sulu-Sulawesi Seascape (16).

Research and studies

From 1982 to 2007, 15,269 marine turtles were tagged throughout the Philippines, most of them from the TIWS. Turtle tagging is still being done for captured or rescued turtles, and in nesting beaches. Site-based turtle monitoring and conservation programs are

being implemented by concerned national agencies, local governments, and non-government organizations (NGOs). In terms of research data, the Wildlife Resources Division of the DENR-BMB centralizes all information generated by its regional offices and other institutions. At the local level, the Palawan Council for Sustainable Development (PCSD) maintains the Palawan Knowledge Platform (PKP) for Biodiversity and Sustainable Development. The PKP was launched in 2014 to provide information on Palawan's biological diversity and natural heritage.

Through the Sulu-Sulawesi Seascape Project of 2012-2018, commissioned by BMUB and implemented by CTI-CFF and GIZ in Indonesia, Malaysia, and the Philippines, the Marine Research Foundation tracks turtles using satellite telemetry to identify linked areas for green turtles, and to provide the science for expanding the network of MPAs in the seascape.



Turtle monitoring in Selingan Island, TIP, Malaysia

Table 1. Development of pertinent legislation for the conservation and management of marine turtles in Philippine waters

Year of Issuance	Title	Main Provisions/Notes
1948	Fisheries Administrative Order (FAO) No. 23: Regulation Establishing "Closed Season" for the Conservation of Turtle Eggs and Shells in the Turtle Islands	Closure of the Turtle Islands four months a year to turtle and egg harvesting
1951	FAO No. 29: Rules and regulations governing the gathering of aquatic turtle eggs	
1952	FAO No. 29-1: Amending Sections 8 and 9 of FAO No. 29	Granting of concessions for gathering turtle eggs in the Turtle Islands for P10,000
1954	FAO No. 36: To establish a closed season period for the gathering or killing of marine turtles, turtle eggs, or turtle shells	Section 2 amended in 1962 through FAO No. 68
1964	FAO No. 76: Regulations Governing the Collecting and Gathering of Marine Turtles	
1967	FAO No. 88: Regulations for the Conservation of Turtles, Eggs and Shells in the Philippines	Ban on the collection of marine turtles and eggs for five years
1972	General Administrative Order No. 68: Transferring Administration of Turtles to the Parks and Wildlife Office	Philippine Fisheries Commission loses Parks and Wildlife Office control of marine turtles, signaling the shift in government view of sea turtles and eggs from economic to ecological resource
1974	Bureau of Forestry Administrative Order No. 1: Regulations Governing the Collecting, Gathering and/or Disposing of Marine Turtles, Turtle Eggs and its By-Products	
1979	Executive Order (EO) No. 542: Creating Task Force Pawikan and Appropriating Funds Thereof	Provides a council under the Office of the President, and financial support to turtle conservation
	Ministry of Natural Resources (MNR) Administrative Order No. 12: Regulations for the Conservation of Marine Turtles in the Philippines	Non-issuance/renewal of permits for collection of marine turtles, eggs and by-products except in Region 9 & 12 where it can be sold to authorized government agencies, and ban on export
1980	Special Order No 201: Creation of an implementing organization of the Pawikan Task Force to implement Pawikan Conservation Program	Provision for the recruitment of personnel and setting up of a separate office for Task Force Pawikan
1982	MNR Administrative Order No. 6: Suspension of Permits on Marine Turtle Exploitation	Issuance of permits to collect, gather, utilize, possess, transport, remove, export and/or dispose marine turtles, eggs and by-products is suspended
	MNR Administrative Order No 8: Establishment of Certain Islands in the Provinces of Tawi-Tawi, Palawan and Antique as Marine Turtle Sanctuaries	Seven islands in the country, including Baguan in the Turtle Islands, are set aside as turtle sanctuaries
	MNR Administrative Order No 10: Deputizing the Governor, Vice-Governor of Tawi-Tawi and Mayor and Barangay Captains of Taganak as Conservation Officers	Use of local officials to enforce laws to support the Ministry of Natural Resources
	MNR Administrative Order No 33: Regulations Governing the Collection of Marine Turtle Eggs in Tawi-Tawi and Reiterating the Duties and Responsibilities of Deputy Conservation Officers and Game Wardens	Establishment of arrangement wherein 30% of the turtle eggs are for conservation, 10% for a Foundation, and 60% for exploitation

Year of Issuance	Title	Main Provisions/Notes
	MNR Administrative Order No. 34: To Declare the Municipality of Caluya as Marine Turtle Sanctuary	Caluya in Antique is set aside as a turtle sanctuary
1983	MNR Administrative Order No. 1: Deputizing Provincial Governors and Municipal Mayors in Areas Critical for Protection of Marine Turtles as Conservation Officers	Expansion of conservation effort by involving local executives
1984	MNR Administrative Order No. 518: Establishing Certain Areas of Northern Palawan as Marine Turtle Sanctuary and Promulgating Rules for Administration and Control Thereof	Portions of mainland El Nido and several islands opposite Bacuit Bay established as Marine Turtle Sanctuary and named El Nido Marine Turtle Sanctuary
1989	Department of Environment and Natural Resources (DENR) Special Order No. 884: Designating Regional Pawikan Conservation Project Field Action Officers to Carry out Nationwide Marine Turtle Conservation Program	Directs regional field officers to work in other areas where turtle conservation programs are being implemented
1991	DENR Administrative Order No. 14: Amending MNR AO No. 518	Provision to allow sustainable uses within the reserve to address livelihood opportunities for the communities was included, and the area was renamed as El Nido Marine Reserve
1992	Republic Act (RA) No. 7586: An Act Providing for the Establishment and Management of National Integrated Protected Areas Systems (NIPAS)	Establishment of protected areas for biodiversity conservation and sustainable development
1998	Presidential Proclamation (PP) No. 32: El Nido Managed Resource Protected Area	Declared El Nido Marine Reserve as PA under NIPAS to be known as El Nido Managed Resource Protected Area
1998	RA No. 8550: An Act Providing for the Development, Management and Conservation of the Fisheries and Aquatic Resources Integrating All Laws Pertinent Thereto, and for Other Purposes	Provision of penalties against the destruction/conversion of critical habitats, such as coral reefs and mangroves, gathering/collecting rare, endangered and threatened species including those listed in CITES, and obstruction of migratory paths
1999	Presidential Proclamation (PP) No. 171: Turtle Islands Wildlife Sanctuary	The six Philippine Turtle Islands are declared a wildlife sanctuary
2001	RA No. 9147: An Act Providing for the Conservation and Protection of Wildlife Resources and Their Habitats, Appropriating Funds Therefor and for Other Purposes	Prohibition of the collection of threatened wildlife and its derivatives for non-scientific and breeding purposes; institution of higher penalties
2010	RA No. 10097: An Act Establishing the Tubbataha Reefs Natural Park in the Province of Palawan as a Protected Area under the NIPAS Act (R.A. 7586) and the Strategic Environmental Plan (SEP) for Palawan Act (R.A. 7611), Providing for its Management and for Other Purposes	Establishment of the 97,030-hectare TRNP as a permanent PA under NIPAS
	EO No. 899: Authorizing the formation of the Ad Hoc Committee for the Implementation of the Philippine Action Plan on Enforcement of Environmental Law in Hotspots: Turtle Islands, Tawi-Tawi and Balabac, Palawan 2009-2013	Adopts the Philippine Action on Enforcement of Environmental Laws the two biodiversity hotspots and directed the Philippine Coast Guard to be the lead agency.

3

The Marine Turtle Protected Area Network (MTPAN) in the Philippines

Connecting for Conservation

Four sites in the Philippines have been identified to be part of the transboundary MPA network in the Sulu-Sulawesi Seascape. These are the El Nido-Taytay Managed Resource Protected Area (ENTMRPA), Tubbataha Reefs Natural Park (TRNP), and the Municipality of Balabac in Palawan, and the Turtle Islands Wildlife Sanctuary (TIWS) is in Tawi-Tawi Province.

Three of the sites—ENTMRPA, TRNP, and the TIWS—are established MPAs under the NIPAS Act (RA7586), and are thus governed by a Protected Area Management Board (PAMB). The DENR acts as chair of this board, and appoints a Protected Area Superintendent (PASu) to implement all policies in the protected area.

Balabac, meanwhile, is still in the process of establishing turtle MPAs. In view of this, only the three official and functional MPAs can be established into a network.



El Nido, Palawan



The El Nido-Taytay Managed Resource Protected Area (ENTMRPA)

ENTMRPA is located in the northwestern portion of mainland Palawan, straddling the municipalities of El Nido and Taytay. Bounded on the west by the West Philippine Sea and on the east by the Sulu Sea, the protected area (PA) has an area of 903.21 km² and covers 21 barangays.

People in El Nido depend greatly on the marine environment for livelihood. Fishing is year-round, while other sources of income are tourism-related industries, seasonal gathering of the nests of swiftlets (known locally as *balinsasayaw*), farming, construction work, and handicraft making.

Four species of marine turtles have been reported within the PA: hawksbill, green, olive ridley, and leatherback. Sightings occur year-round, while nesting behavior is usually observed from February to May (17). El Nido is identified as a critical developmental area for green and hawksbill turtles, and its eastern coast an

important nesting site for green, hawksbill, and olive ridley turtles (18).

El Nido was first declared a Marine Turtle Sanctuary in 1984, for which 36 km² were set aside. Protection of the marine portion, however, only began in 1991, when an administrative order expanded the area covered to 95 km², an area henceforth known as the El Nido Marine Reserve. In October 1998, Presidential Proclamation No. 32 declared El Nido a Managed Resource Protected Area; the following year, it became known as the ENTMRPA after three barangays in Taytay were included.

The ENTMRPA is being managed according to the NIPAS Act (RA 7586). A Protected Area Management Board (PAMB) handles policies, while a DENR-appointed PASu implements them. Initially, there was some confusion over whether the ENTMRPA was the responsibility of the DENR or the PCSD, as the latter is mandated

to implement the Strategic Environmental Plan (SEP) of the whole province. In 1998, a MOA between DENR and PCSD made the two bodies co-chairs of the PAMB. A General Management Plan (GMP) was conceptualized in 1995, and was updated through a series of stakeholder consultations in 2013.

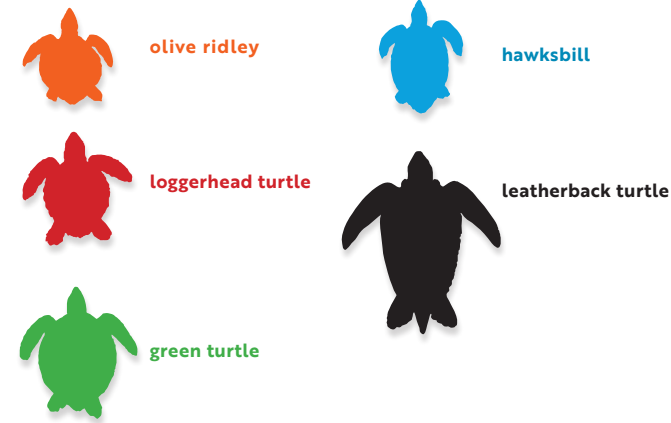
Aside from all the barangays, the indigenous people within the PA, the Tagbanua, are also represented in the PAMB and actively participate in board meetings. Local communities support PA management, although some board members believe that more livelihood assistance should be made available (19).

Funding for the ENTMRPA comes from the regular budget of the DENR, the Integrated Protected Area Fund (IPAF), and the Eco-Tourism Development Fund (ETDF), as allocated by the local government unit (LGU) for the conservation of coastal resources. The LGU also draws from a trust fund from the penalties and fines of violators of the Municipal Fishery Code.

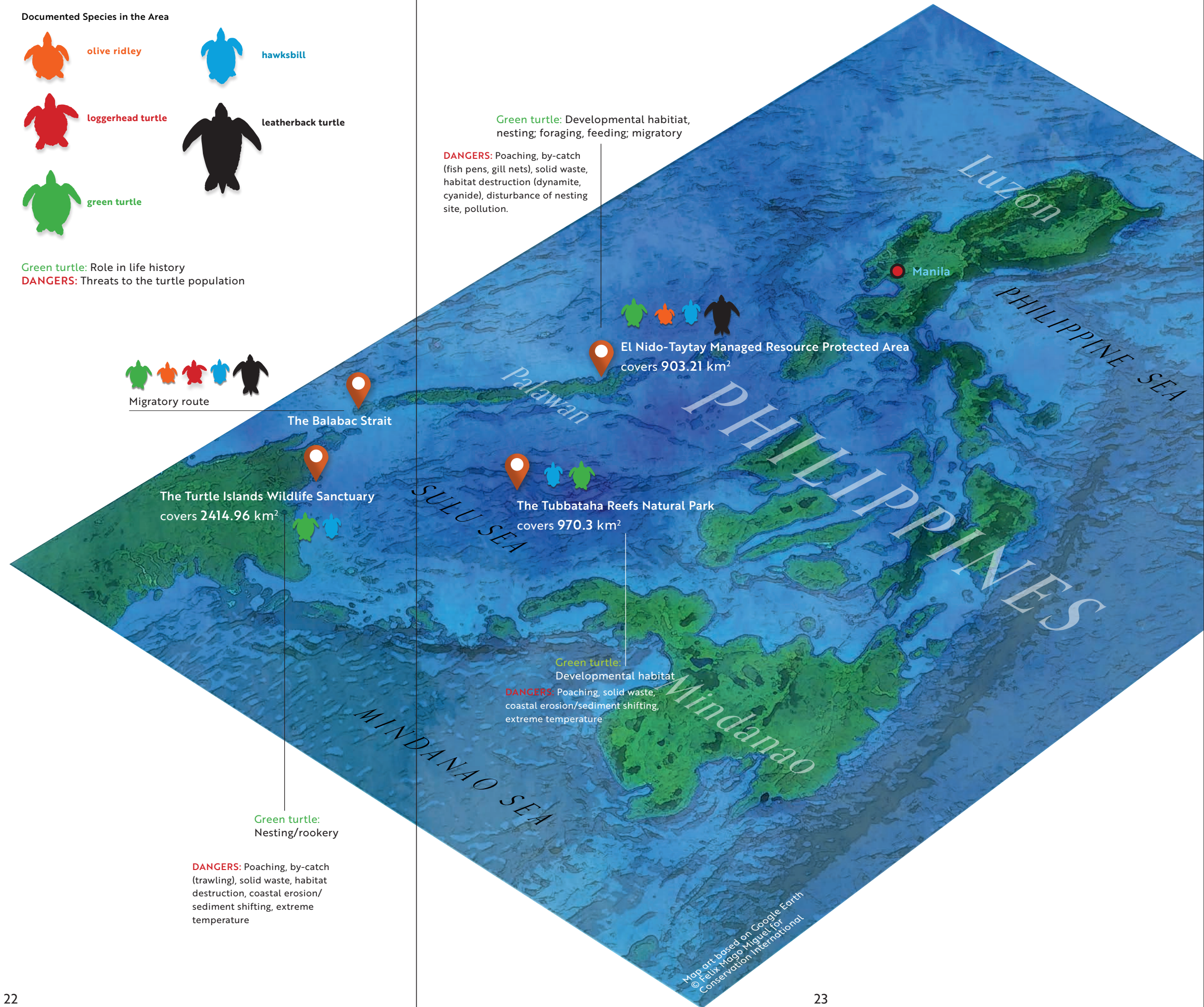
Environmental issues in the ENTMRPA include illegal poaching of timber and wildlife, cutting of forest and mangrove trees for fuel or charcoal, slash-and-burn farming, illegal occupancy of forestlands, illegal fishing, overfishing, agrochemical use, increased non-biodegradable waste from households and tourism establishments, wastewater from the public market, coastal development, and population pressure. Lack of trained personnel for enforcement and monitoring, and insufficient funds for management, compound the problem.

Eight programs have been outlined to address threats and achieve goals in the ENTMRPA: ecosystem management, law enforcement, sustainable livelihood, visitor management, research and monitoring, regional integration, institutional management, and sustainable financing. A special project, the Sustainable Coral Reef Ecosystem Management Program (SCREMP) of the DENR-BMB, recently provided additional funds for all PAs under the NIPAS for capacity building of regional personnel and for a marine biodiversity monitoring system (17).

Documented Species in the Area



Green turtle: Role in life history
DANGERS: Threats to the turtle population





Ranger Station, North Atoll, Tubbataha Reefs

The Tubbataha Reefs Natural Park (TRNP)

TRNP is in the middle of the Sulu Sea, about 150 km from Puerto Princesa City, Palawan. It is within the political boundaries of the Municipality of Cagayancillo, and is composed of the uninhabited North and South Atolls and the Jessie Beazley Reef. The park covers a total area of 970.3 km², with 100 km² of coral reefs and more than 870 km² of surrounding waters. The reefs host one of the most diverse populations of marine life in the country, and the beaches of the islets offer nesting areas for marine turtles.

Two of the five species of marine turtles found in the Philippines, green and hawksbill, can be found in the TRNP. Studies show that Tubbataha is a developmental and nesting habitat for green turtles, and a foraging area for hawksbills (20) as well as young green marine turtles from as far away as the Pacific Islands.

Before its establishment as an MPA, the park was under the political jurisdiction of Cagayancillo, whose residents considered Tubbataha a traditional fishing ground. Since

the establishment of Tubbataha as a no-take zone in 1988, the Tubbataha PAMB has provided the municipality with a 10 percent share in tourism collections to fund livelihood projects, to compensate for lost fishing income.

The TRNP was first established as the 332-km² Tubbataha National Marine Park in 1988. It was declared a UNESCO World Heritage Site in 1993, the only purely marine World Heritage Site in Southeast Asia. It was later expanded to include the Jessie Beazley Reef, and renamed the Tubbataha Reefs Natural Park. It is on the Ramsar List of Wetlands of International Importance; it is the last remaining intact seabird rookery in the country; it is an ASEAN Heritage Park; and it has been proposed as a Particularly Sensitive Sea Area (PSSA) under the International Maritime Organization (IMO).

In the early 1990s, patrols in Tubbataha managed to control illegal and destructive fishing, and helped kick an illegal seaweed farm out of the area. A Presidential Task Force was set up in 1995, initially headed by the DENR, but

later passed on to the Department of National Defense. The Tubbataha Management Office (TMO) was formally established in August 2001 through funds mobilized by WWF-Philippines, and is responsible for the day-to-day activities of the park. A PASu heads the TMO, and supervises administrative and research staff as well as a multi-agency enforcement team of marine park rangers from the Philippine Navy, the Philippine Coast Guard, the Municipality of Cagayancillo, and the TMO.

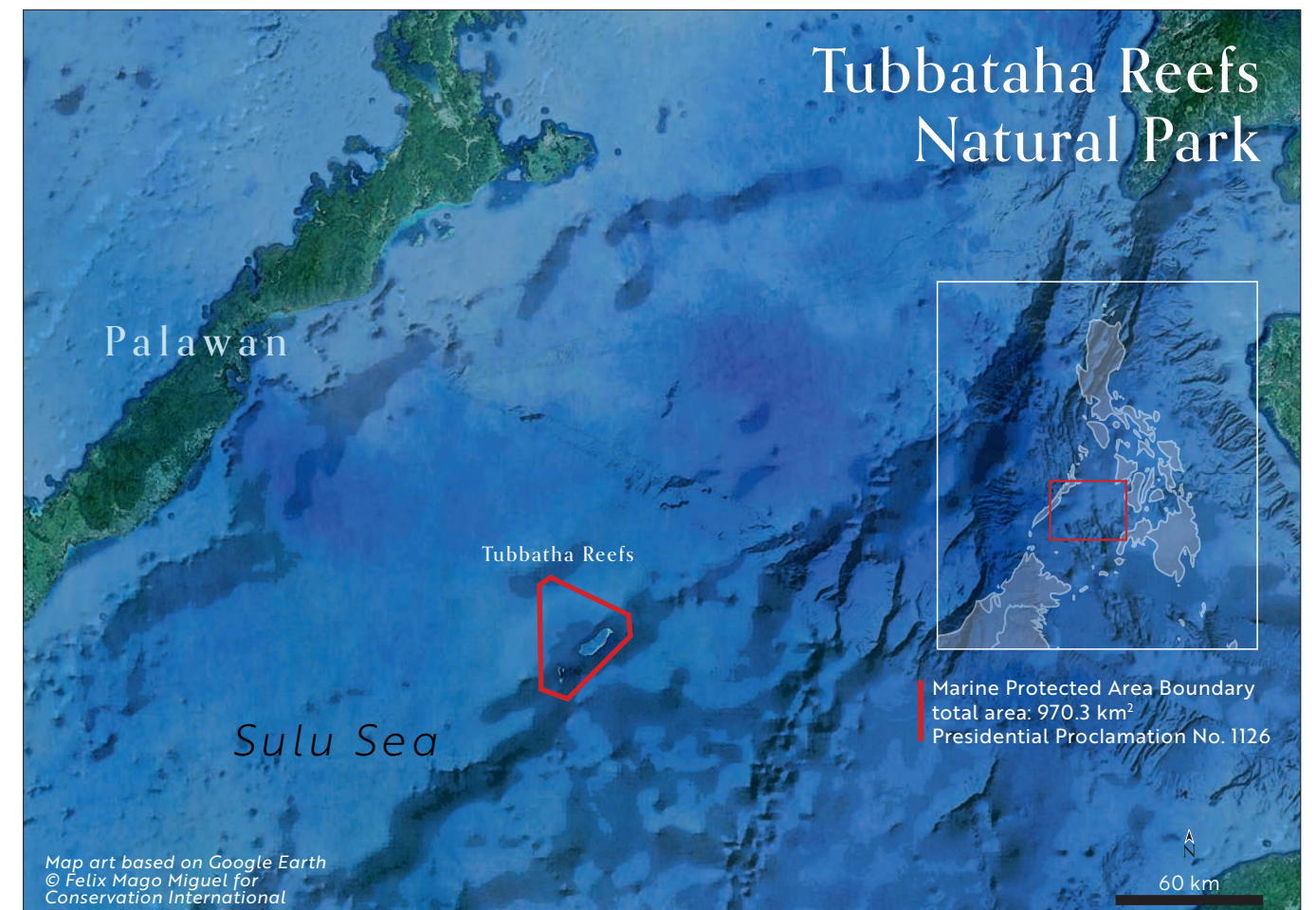
The bulk of funds for managing the park comes from tourism revenues. No regular budget is received from the government, aside from the service of Navy and Coast Guard personnel as rangers.

The management plan of the TRNP has been updated several times to include additional programs and strategies. The most recent TRNP GMP for 2011-2020 requires the Tubbataha PAMB to meet quarterly, while an Executive Committee meets monthly to address operational and administrative issues.



Turtle monitoring, Tubbataha Reefs

In the early 2000s, threats to the TRNP were destructive fishing using explosives and sodium cyanide; poaching by local and foreign vessels, particularly of marine turtles and their eggs, precious and common shells, and giant clams; and damage from fish trawling, long lining for tuna, and boat anchors (21). Current issues include accessibility due to its remote location





The Turtle Islands Wildlife Sanctuary (TIWS)

and seasonal access; increasing volume of marine debris; difficulty in engaging stakeholder participation and cultivating ownership because of its remote location; insufficient funds for financial and human resources; energy exploration; and threats from international shipping (22).

Four management programs will be pursued in the TRNP for long-term implementation: conservation management, conservation awareness, ecosystem research and monitoring, and sustainable resource management.

The program on ecosystem research and monitoring includes biological assessments, research, and data banking and sharing. Annual coral reef monitoring surveys have been conducted since the late 1990s, initially by external research groups, and later by the TMO research staff themselves. In 2010, TMO research staff and rangers were trained, and have since carried out regular monitoring of marine turtle populations themselves.

The Turtle Islands are in the Sulu Archipelago, under the political jurisdiction of the Municipality of the Turtle Islands in the Province of Tawi-Tawi. It consists of small islands Taganak, Baguan, Langaan, Boan, Lihiman, and Great Bakkungan and a rocky islet, with a total land area of approximately 3 km².

The Turtle Islands host two species of marine turtles, green and hawksbill, and are considered the most important nesting habitat of green turtles in the Philippines (23). In 2011, around 14,000 nesters were recorded, higher than the 12,000 nesters recorded in 1995 (24), with an average of nearly 2 million turtle eggs laid annually from 2010 to 2012 (25).

The sanctuary currently covers a total area of around 2,414.96 km², including its surrounding waters. Major sources of livelihood here are fishing, farming, labor, and sari-sari (small dry goods) stores. Fishing contributes around 62 percent of the average

total income. Turtle egg collection is also a revenue generator.

As early as the 1980s, the MNR, through the PCP, already implemented research and management activities to conserve marine turtles. The bulk of PCP's work is the management of Baguan Island Marine Turtle Sanctuary, and the protection of its surrounding waters and reefs.

In 1982, Baguan Island was declared a Marine Turtle Sanctuary, where egg collection was prohibited; collection was regulated in the other islands. Residents of four islands—Taganak, Lihiman, Langaan, and Bakkungan—were allowed to collect 60 percent of the total eggs produced; 30 percent were conserved, and the remaining 10 percent went to the Tawi-Tawi Marine Turtle Foundation.

The entire municipality was first declared a TIWS in 1999, due to its national and international significance as one of the few remaining major nesting areas of green turtles in Southeast Asia. The islands also became part

of the TIHPA, the world's first transboundary protected area for marine turtles, in 1996.

WWF-Philippines conducted a social analysis to identify conservation and development opportunities in the area, and to address long-term conservation needs. The result was the Integrated Conservation and Development Program (ICDP), implemented in 1997-2003, and which focused on livelihood, enforcement, health, and education. External assistance continued through the Sulu-Sulawesi Seascape Project-Sea Turtle Corridor Component of CI, which focused on improving MPA management.

The TIWS is governed by its PAMB, with a PASu responsible for day-to-day management. The TIWS PAMB is composed of 15 members, including representatives from environmental NGOs CI Philippines and WWF-Philippines, which develop projects to support management (26, 27). Because many PAMB members are not based on site, however, the board does not meet regularly.



Green turtle hatchling, Baguan Island, TIWS

The TIWS Management Plan has been prepared and is being updated to incorporate proposed ecotourism projects, as well as research and action plans for climate change adaptation based on vulnerability assessments.

The annual budget for the TIWS is only P80,000 (about US\$1,600), mostly used for PAMB meetings, community consultations, and maintaining the turtle hatcheries. It is not enough to support law enforcement activities (28). In 2013, the PAMB authorized the PASu to open an IPAF trust account.

There is a very good relationship between the protected area office and the local community, since the PASu lives in Taganak. The barangay chairman and people's organization officials represent local communities in the PAMB. Various livelihood support programs have also been implemented through the support of NGOs (29).

The issues and concerns identified in the TIWS are low fish catch, the result of habitat destruction, entry of commercial fishers, increasing fisher population, and poaching by both local and foreign fishers; destructive fishing practices using dynamite and cyanide;

commercial fishing, which is sometimes done too close to the coast, causing turtles to get entangled in the nets and damaging reefs; unregulated coastal development; increasing population due to uncontrolled emigration and natural birth; and lack of research, including studies on biological characteristics of marine turtles. Another imminent threat is sea level rise, which can cause degradation of nesting sites (23).

Insufficient technical and logistic capabilities, meager budgets, and irregular PAMB meetings add to the problem. Because of uncertain weather conditions, lack of transportation facilities, and insufficient funding, it is very difficult to organize a PAMB meeting.

The most serious threat to TIWS, however, particularly as a marine turtle conservation site, is the continued harvest of turtle eggs. Locals claim that it is a traditional source of livelihood, but a survey conducted in 1998 showed that only 11 percent of the population benefited annually from egg collection.

To address continued turtle egg collection, sustainable alternative livelihood programs are being implemented. The Taganak Women's



DENR Regional Director, Chair of TIWS PAMB, in discussion with a federation of 6 People Organizations, Taganak Island



Green turtle hatchery, Taganak Island

Buying Club was organized with help from CI-Philippines, to put up sari-sari stores, and make handicrafts and mat products. The proceeds were divided among the members with a portion set aside for community projects, such as a deep well that benefited two primary schools, in an area with limited running water (26). Fund generation from ecotourism, docking fees for commercial boats in Taganak port, and other sources contribute much-needed resources to the IPAF for better management of the TIWS.

Other conservation strategies are restoration and rehabilitation of degraded habitats; establishing appropriate tenures for residents to heighten involvement in resource management; community organization; and management zoning (24).

Initiating MTPAN formation

Because the three MPAs detailed above are already established, they form the initial component MPAs of the MTPAN in the Philippines. Efforts to establish MPAs in Balabac are being coordinated with the local government and stakeholders, assisted by the Asian Development

Bank's (ADB) Regional Technical Assistance (RETA) 7813 Project (2012-2017) and the BMUB-supported Sulu-Sulawesi Seascape Project (2012-2018) through GIZ, in partnership with DENR-BMB and CI Philippines. This initiative should continue, as Balabac Strait is a critical route for marine turtles, not only those from the Indonesian and Malaysian parts of the Sulu-Sulawesi Seascape, but also for turtles entering the Sulu Sea from Guam and the Andaman Sea (29).



Turtle souvenirs produced by Taganak women from plastic waste

4

From single MPAs to one network

A Bigger Picture

All three initial component MPAs of the proposed MTPAN are nationally legislated and managed under the NIPAS. Thus, the management systems are similar, with a multi-sectoral PAMB acting as overall supervisory body, and the PASu heading day-to-day operations. Primary source of funds for the MPAs is the IPAF, with contributions from the LGU and the national government, but funds are insufficient to support all MPA operations. All three component MPAs have a multi-year general management plan, albeit in various stages.

In 2013, the management effectiveness of nine NIPAS sites, including the three component MPAs, was assessed using the MPA Management Effectiveness Assessment Tool (MEAT) (30). Effectiveness was measured using nine major criteria: legitimization; a management plan; a management body; financing; law enforcement; monitoring and evaluation; information, education, and communication (IEC); community participation; and site development (31). The three MPAs underwent another MEAT assessment in 2014, and were also evaluated using the Management Effectiveness Tracking Tool (METT), an internationally accepted tool developed by WWF for the World Bank and Global Environmental Facility.

Results showed that the TRNP is the most advanced, well-managed, and effectively sustained MPA at Level 3, with a METT score of

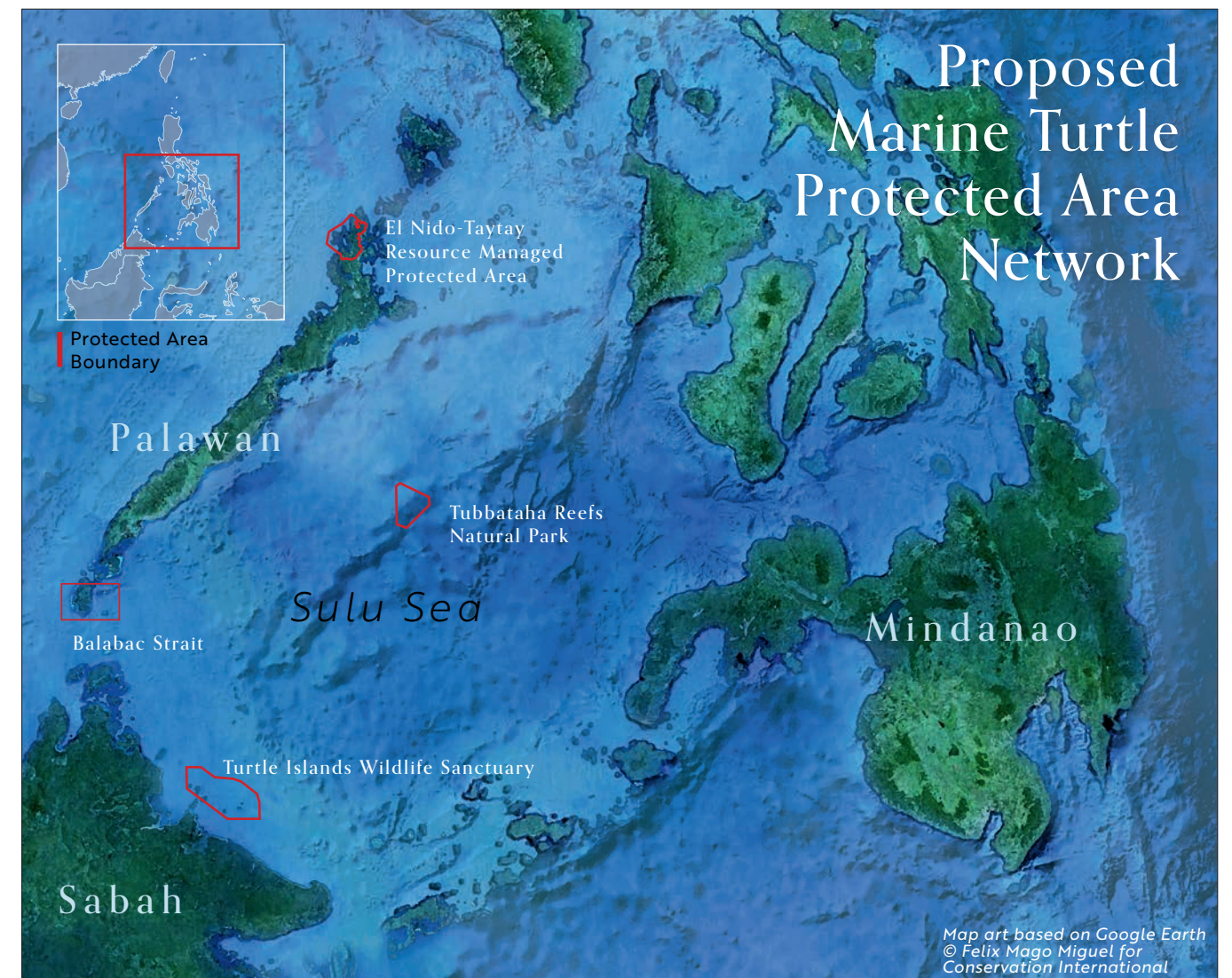
95 percent. The TIWS and ENTMRPA are both Level 1—they have a legal basis for establishment, the management body has been organized, a management plan has been adopted, an initial budget has been allocated, and management activities are taking place, particularly on enforcement (Table 2).

Networking as conservation strategy

There are considerations for establishing an ecological network of MPAs, in this case a network of linked habitats of green turtles.

Individual MPAs should already be established before they become part of a network. Such maturity ensures that they will not be distracted by network-level activities while carrying out their own independent operations. However, networking can also strengthen existing individual MPAs through shared learnings, resources, and capabilities, exchange of information, and increased opportunities for fund sourcing due to decreased transaction costs (32). The three MPAs can thus pursue the establishment of the network, with the TRNP as a model. Meanwhile, the TRNP can benefit from this collaboration through the maintenance of a broader ecological network for marine turtles.

The connectivity among the sites should be clearly identified. What actually connects them? This is particularly relevant when formulating shared goals. In this case, the need to protect



and conserve green turtles in Philippine waters is the rationale behind the proposed MTPAN.

The main goal of the framework for MPA networks in the Sulu-Sulawesi Seascape is to ensure the protection of sites critical to restoring and sustaining viable populations of species with special management needs (33). The framework defines three approaches to the management of MPA networks based on objectives: 1) a network for migratory species of special concern (in this case, marine turtles); 2) a network of MPAs for integrated coastal ecosystems (e.g. coral reefs, seagrass beds, mangrove forests); and 3) a network of MPAs for fisheries management.

The framework also presents sample criteria for MPA networks, based on internationally accepted parameters. Some of these criteria are habitat representation and heterogeneity, human threats and natural catastrophes, size of

MPA network, connectivity, vulnerable habitats, vulnerable life stages, and others. In summary, the criteria call for the protection of habitats that will cover the different life histories of the species of concern, the reduction of threats in these habitats and along migratory routes, and the identification of human and natural threats that can be more effectively addressed at the network level than on an individual MPA basis.

The proposed MTPAN must also consider connectivity with other critical areas. Turtle tracking studies have shown that green marine turtles also pass through the southeastern Palawan coast, for example, so collaboration with stakeholders and conservation and development programs in that area can be considered.

Each of the three component MPAs serves as an important habitat for at least one life stage of both green and hawksbill turtles, emphasizing the connection between these

areas and supporting the networking approach as a conservation strategy. The MTPAN will also contribute to three goals of the Regional Plan of Action of the CTI-CFF: Goal # 1 (priority seascapes designated and effectively managed), Goal # 3 (MPAs established and effectively managed), and Goal # 5 (threatened species status improving) (34).

In 2016, representatives from the component MPAs formulated a vision for the MTPAN: “healthy marine turtle populations in Philippine seas for human well-being,” and committed “to effectively protect marine turtles through a functional MPA network” (35). This shared vision is an important first step, and will serve as a basis for the development of appropriate management strategies and activities.

A network that works

As mentioned, an MPA should be effective in its own right before joining a network. Among the three network MPAs, TRNP is the most advanced, although both TIWS and ENTRMPA are making headway in improving enforcement and implementing monitoring and evaluation programs. More importantly, the PAMBs of all three MPAs have shown deep interest in being part of the proposed MTPAN by issuing resolutions to this effect.

The MPA Support Network (MSN) developed initial standards for the establishment and management of networks (36). These include: 1) a formalized agreement; 2) a management body; 3) budget allocation for at least one year; 4) a financial management system; and 5) initial joint activities.

The formal agreement can be a MOU or MOA, with the latter preferred for its legal dimension. Collaboration among LGUs, through a MOA, has a legal basis in the Philippines’ Local Government Code.

With the MPAs covered by NIPAS, the proposed MTPAN can pursue MOAs among the different PAMBs, especially since the respective LGUs already play a large role in MPA management through membership in the PAMBs. A detailed MOA can initiate discussions on network operations, and set realistic goals

and the bounds of the collaboration. A working group, composed of members appointed by concerned agencies for consistency, along with representatives from each MPA, can be organized to discuss and draft the MOA.

A network management body can have a combination of leaders and players, depending on the local situation. Based on the Network Effectiveness Assessment Tool (NEAT) pilot testing, active involvement of higher-level institutions is required for sustainability—for example, the municipal government should be active in a network of community- or barangay-based MPAs, and the provincial government in an alliance of municipal governments.

The NEAT, developed under MSN, is a self-assessment tool to evaluate the performance of inter-local government networks implementing joint coastal resource management efforts. Although it is still being refined, the results of its initial application have proven very useful for network managers to gauge their management effectiveness. The NEAT presents the minimum thresholds needed to establish a network.

For the proposed MTPAN, the management body should include the regional DENR offices, PCSD, and municipal LGUs of the three localities, as well as actual MPA managers and relevant stakeholder groups. Engaging the provincial LGUs of Palawan and Tawi-Tawi will be strategic for additional technical and financial assistance, and even political support. The actual set-up of the management body will depend on on-site experiences and consensus. As soon as this body is formed, the management planning process can begin.

Respective member PAMBs can make budget allocations in the early stages of network establishment. Eventually, such allocations and member contributions should be stipulated in the MOA. A clear and transparent financial management system is essential; the network can decide to put contributions in a common trust fund, or just set aside an amount for network activities. A common fund may prove useful when the network starts to receive external funding or donations.

Table 2. Status of management of the component MPAs of the MTPAN.

MPA Name	Management Effectiveness			Strength/s**	Major Gaps**
	MEAT (2013)*	MEAT (2014)**	METT (2014)**		
El Nido – Taytay Managed Resource Protected Area	Level 1 – Established	Level 1 – Established (Score = 55)	60%	Legal instrument in place; community participation; continuing capacity building of personnel; marine turtle monitoring being conducted; active PAMB members; with financial support from the LGU	No site development; lack of trained personnel, especially for enforcement and biophysical monitoring; IEC; M&E; finalization of management plan; insufficient funds;
Tubbataha Reefs Natural Park	Level 3 – Effectively Sustained	Level 3 – Effectively Sustained (Score = 81)	97 out 103 (95%); highest elements: context & planning (perfect scores)	RA as a legal basis; management plan being regularly updated; functional PAMB; presence of TMO with experienced and dedicated staff; regular M&E; IEC; enforcement system in place; strong leadership	Funds still insufficient to support whole MPA operations and capacity development; management prone to political influences; stakeholder ownership difficult to sustain due to remoteness and seasonal access; no security of tenure for staff
Turtle Islands Wildlife Sanctuary	Level 1 – Established	Level 1 – Established (Score = 50)	52 out 102 (51%); highest elements: context, planning & process	Legal instrument in place; PAMB organized; approved management plan; active community participation especially of women; IEC; potential for ecotourism	M&E; enforcement; irregular PAMB meetings; lack of technical and logistic capabilities; insufficient funds; lack of policy on user fees; PAMB members need to be more knowledgeable about duties and responsibilities

*CTI-CFF, 2013c (31)
 ** Includes workshop outputs during the Technical Workshop on the Review and Finalization of the Philippine MTPAN Concept, August 2016
 ^Dizon et al., 2013 (37)
 ^^DENR-BMB, 2014 (38)

Possible areas of cooperation for initial joint activities will depend on common issues. For instance, enforcement seems to be a shared concern among MPAs. Although distance will make joint patrolling difficult, the network can set up a joint reporting and intelligence-sharing system linked with

other national agencies. Other possible joint activities include IEC programs on marine turtles, harmonized laws and regulations, research and monitoring, capacity-building for MPA management groups and stakeholders, fund sourcing, and regular information exchange and interaction.

5

The MTPAN in Philippine and international marine biodiversity conservation

Local to Global

Historically, marine turtle conservation and management in the Philippines face many challenges in protecting the species, as seen in continued poaching, mortality from by-catch, egg collection, and degradation of critical habitats. The proposed MTPAN would be the most ambitious but extensive conservation effort yet for marine turtles in Philippine waters because of varying political, sociocultural, and economic dynamics in the component MPAs, and because protection of different key habitats for the animal's different life stages can be integrated. Individual MPAs can be strengthened, also improving site-based management. The MTPAN can provide important lessons for other areas in the country, especially for the protection of particular threatened species.

Beyond national efforts, the MTPAN will affirm the commitment of the Philippine government to international agreements on biodiversity conservation, particularly the CBD, CITES, the UNESCO World Heritage Convention, CMS, and the Ramsar Convention on Wetlands. In particular, it will contribute to Aichi Target 11 by conserving areas of particular importance for biodiversity and ecosystem services through effectively and equitably managed, ecologically representative, and well-connected systems of protected areas.

The MTPAN will support the Philippines' commitment to the Indian Ocean-South East Asian (IOSEA) MOU on marine turtles, to the Asean Cooperation on Environment, particularly in establishing a network of protected areas to conserve critical habitats, and to the CTI-CFF.

Finally, with its location within the Sulu-Sulawesi Seascape, the Philippine MTPAN will eventually form part of the proposed transboundary marine turtle protected area network with Indonesia and Malaysia.

Moving from individual MPAs to an effective network will need the full engagement of the leaders of the respective component MPAs and the countries involved, with support from external organizations. After all, the Sulu-Sulawesi Seascape is home to a global heritage, the endangered marine turtles. Here in the transboundary area can be found one of the few remaining major nesting grounds for green turtles in Southeast Asia; here can be found the single largest nesting population of green turtles in this region.

Humans and turtles have a common fate due to dependence on the same ecosystems. Current initiatives may not be enough, but networking can indeed help scale up efforts, optimize potential benefits—and ultimately make these oceans a safer haven for marine turtles.

Proposed transboundary marine turtle protected area network with Indonesia and Malaysia. (Bunaken National Park and Berau Marine Conservation Area (including the Derawan Island Group) in Indonesia; Sipadan Islands, Tun Sakaran Marine Park, Turtle Islands Park, Sugud Islands Marine Conservation Area, and Tun Mustapha Park in Malaysia; and four component sites in the Philippines.)



Map art based on Google Earth © Felix Mago Miguel for Conservation International

References

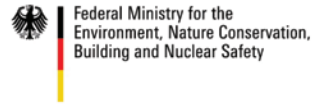
- [1] Veron JEN, DeVantier LM, Turak E, Green AL, Kininmoth S, Stafford-Smith M, Peterson N (2011) The coral triangle. In: Dubinsky Z, Stambler N (eds.) Coral reefs: an ecosystem in transition. Springer Science+Business Media, BV, pp. 47-55
- [2] Roberts CM, McClean CJ, Veron JEN, Hawkins JP, Allen GR, McAllister DE, Mittermeier CG, Schueler FW, Spalding M, Wells F, Vynne C, Werner TB (2002) Marine biodiversity hotspots and conservation priorities for tropical reefs. *Science* 295:1280-1284
- [3] Aliño PM, Palomar NE, Arceo HO, Uychiaoco AT (2002) Challenges and opportunities for marine protected area (MPA) management. In: Kasim Moosa M, Soemodihardjo S, Soegiarto A, Romimohtarto K, Nontji A, Soekarno, Suharsono (eds). Proceedings of the 9th International Coral Reef Symposium, October 2000. Ministry for the Environment, Indonesian Institute of Sciences, International Society for Reef Studies: Bali, Indonesia, p. 635-640
- [4] NOAA (2006) Module 2 - MPA Networks. http://sanctuaries.noaa.gov/management/pdfs/js_mentor_networks_mod2_curr.pdf. Retrieved 27 July 2017
- [5] Bennett G, Wit P (2001) The development and application of ecological networks: a review of proposals, plans and programmes. AIDEnvironment, Amsterdam, 132p Available at: http://www.szygy.nl/Documents/The_Development_and_Application_of_Ecological_Networks.pdf (Accessed 20 October 2014)
- [6] Trono RB, Cantos JAB (2002) Conserving migratory species through ecoregion conservation approach: the case of sea turtles in Sulu-Sulawesi Marine Ecoregion. *Tropical Coasts*, December 2002, pp 44-49
- [7] Gomez ED, Miclat EFB (2001) Marine turtles. In: Carpenter KE, Niem VH (eds) FAO Species identification guide: The Living Marine Resources of the Western Central Pacific. Volume 6 Bony fishes part 4 (Labridae and Latimeriidae), estuarine crocodiles, sea turtles, sea snakes and marine mammals. Rome, FAO, pp. 3973-3986.
- [8] De Veyra R and Ramirez T (1994), in Cruz R (2002) Marine turtle distribution in the Philippines In Proceedings of the Western Pacific Sea Turtle Cooperative Research and Management Workshop, 5-8 February 2002, Honolulu, Hawaii, USA. Honolulu, HI: Western Pacific Regional Fishery Management Council, pp. 57-65
- [9] PDI (Philippine Daily Inquirer) News (2013). <http://newsinfo.inquirer.net/445481/giant-turtle-lays-eggs-on-legazpi-city-shore>. Retrieved 30/09/2014
- [10] Taylor 1921, in Gomez ED (1979) A review of sea turtle publications in the Philippines. Joint SPC-NMFS Workshop on Marine Turtles in the Tropical Pacific Islands. Noumea, New Caledonia, 11-14 December 1979
- [11] Milliken, T, Tokunaga H (1987) The Japanese Sea Turtle Trade 1970-1986. A Special Report prepared by TRAFFIC(Japan) for the Center for Environmental Education, Washington D. C. 171 p.
- [12] CI (Conservation International) (2012) Sea turtle baby boom on Turtle Islands breaks 28-year record. <http://www.conservation.org/global/philippines/news/Pages/SeaTurtleBabyBoom.aspx>
- [13] Cruz R (2002) Marine turtle distribution in the Philippines In Proceedings of the Western Pacific Sea Turtle Cooperative Research and Management Workshop, 5-8 February 2002, Honolulu, Hawaii, USA. Honolulu, HI: Western Pacific Regional Fishery Management Council, pp. 57-65
- [14] Trono RB (2014) Sea turtles, the Turtle Islands, and some climate change impacts on sea turtles and their habitats. Oral presentation, SEARCA, Los Baños, Laguna, 30 January 2014
- [15] Miclat E, Nunez E (2016) The Philippines-Sabah Turtle Islands Heritage Protected Area. In: Mackelworth P (ed). *Marine Transboundary Conservation and Protected Areas*, Earthscan from Routledge London, pp. 132-147
- [16] Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and Southeast Asia. Concluded under the auspices of the Convention of Migratory Species of Wild Animals, Manila, 23 June 2001 and amended by consensus, 1 March 2009. Available from www.ioseaturtles.org. (Accessed 15 June 2017)
- [17] Management plan of the El Nido – Taytay Managed Resource Protected Area (Final Draft). 2013, 42p
- [18] Anda RD, Tabangay-Baldera JG (eds) (2004) Surublien: Strategies to Conserve Palawan's Biodiversity. Provincial Government of Palawan, Palawan Council for Sustainable Development Staff, Department of Environment and Natural Resources-MIMAROPA Region IV, Palawan NGO Network, Inc., and Conservation International Philippines, Puerto Princesa City, Philippines. 124p
- [19] DENR-BMB (August 2014). El Nido-Taytay Managed Resource Protected Area: Management Effectiveness Assessment Report for the GIZ-SSME Contract No. 2014-001 on MPA M&E Protocol in the Philippine SSME MTPAN under the Support to the Implementation of the SSME CAP Project supported by BMUB, 25 p.
- [20] Pilcher NJ (2010) Population abundance, structure and dynamics of marine turtles in the Tubbataha Reefs, Cagayancillo, Palawan, Philippines (Report). Tubbataha Management Office, Puerto Princesa City, Philippines
- [21] White AT, Ledesma MC, Ovenden M (2003) Tubbataha Reefs National Marine Park. In: Coral Reef Information Network of the Philippines (PhilReefs) (2003). *Philippine Coral Reefs through Time (2003): Workshop Proceedings*. Second of the Atlas of Philippine Coral Reefs Series. Coral Reef Information Network of the Philippines (PhilReefs), University of the Philippines Marine Science Institute, Quezon City, Philippines and the Marine Parks Center, Tokyo, Japan, pp 144-151
- [22] Management plan of the Tubbataha Reefs Natural Park & World Heritage Site 2011-2021, 31p
- [23] Palma JAM, Licuanan WY, Dumaup JNB, Cruz RD, Capili E, Apostol R, Biyo R (2003) Turtle Islands, Tawi-Tawi. In: Coral Reef Information Network of the Philippines (PhilReefs) (2003). *Philippine Coral Reefs through Time (2003): Workshop Proceedings*. Second of the Atlas of Philippine Coral Reefs Series. Coral Reef Information Network of the Philippines (PhilReefs), University of the Philippines Marine Science Institute, Quezon City, Philippines and the Marine Parks Center, Tokyo, Japan, pp 152-159
- [24] Management plan of the Turtle Islands Wildlife Sanctuary (Final Draft), 51p
- [25] CTI-CFF (Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security) (2013a) Improving lives and promoting conservation in the Turtle Islands. United States Agency for International Development Coral Triangle Support Partnership. 8p
- [26] CI Philippines (2013) Turtle tales: Conservation International in the Turtle Islands. A publication produced under the USAID Coral Triangle Support Partnership (CTSP).
- [27] WWF (World Wide Fund for Nature) (2005) Turtle Islands – resources and livelihoods under threat: a case study on the Philippines. WWF, Quezon City, Philippines. 41p
- [28] DENR-BMB (August 2014). Turtle Islands Wildlife Sanctuary: Management Effectiveness Assessment Report for the GIZ-SSME Contract No. 2014-001 on MPA M&E Protocol in the Philippine SSME MTPAN under the Support to the Implementation of the SSME CAP Project supported by BMUB, 27 p.
- [29] Cummings (2002) in Anda RD, Tabangay-Baldera JG (eds) (2004) Surublien: Strategies to Conserve Palawan's Biodiversity. Provincial Government of Palawan, Palawan Council for Sustainable Development Staff, Department of Environment and Natural Resources-MIMAROPA Region IV, Palawan NGO Network, Inc., and Conservation International Philippines, Puerto Princesa City, Philippines. 124p
- [30] Philippine MPA MEAT <http://mpasupportnetwork.org/meat/>
- [31] CTI-CFF (Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security) (2013b) Benchmarking MPA performance towards promoting effective management (Factsheet). United States Agency for International Development Coral Triangle Support Partnership. 10p
- [32] EcoGov Project (2011) Lessons from the Philippines: achieving synergies through marine protected area networks. Philippine Environmental Governance Project (EcoGov), Pasig City, Philippines, 35p
- [33] WWF-SSME Program (2004) Framework for a network of marine protected areas in the Sulu-Sulawesi Marine Ecoregion. WWF Sulu-Sulawesi Marine Ecoregion Conservation Program. Quezon City, Philippines. 48p
- [34] CTI-CFF (Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security) (2009) Regional Plan of Action, CTI-CFF. Interim Regional CTI Secretariat, Jakarta, Indonesia. Available at www.coraltriangleinitiative.org. (Accessed 7 January 2016)
- [35] Miclat, E.F.B. and Arceo, H.O. (Eds). 2017. Establishing the Sea Turtle Marine Protected Area (MPA) Network in the Philippines. Philippine Inputs to the Transboundary Sea Turtle MPA Network in the Sulu-Sulawesi Seascape - A Priority Seascape in the Coral Triangle Initiative Regional Plan of Action. GIZ-CI Sulu-Sulawesi Marine Ecoregion Project, Contract No: 81156987. Quezon City, Philippines.
- [36] Philippine MPA NEAT http://mpasupportnetwork.org/files/MPA-NEAT-v.dj_.pdf
- [37] Dizon EC, Geronimo RC, Quicho, R Jr (2013) Benchmarking the management effectiveness of nationally-managed marine protected areas in the Philippines and policy recommendations. Final Report for USAID Coral Triangle Support Partnership (CTSP) and Conservation International – Philippines. September 2013.
- [38] DENR-BMB (August 2014). Review of existing MPA M&E protocols and recommendations for the ST-MPAN assessment tools: Final report for the GIZ-SSME Contract No. 2014-001 on MPA M&E Protocol in the Philippine SSME MTPAN under the Support to the Implementation of the SSME CAP Project supported by BMUB, 34 p.



Department of Environment and Natural Resources



On behalf of



of the Federal Republic of Germany



Establishing the Marine Turtle Protected Area Network in the Philippines

Philippine Inputs to the Transboundary Marine Turtle Protected Area Network in the Sulu-Sulawesi Seascape, A Priority Seascape in the Coral Triangle Initiative Regional Plan of Action

A Sea of Safe Havens

DENR Biodiversity Management Bureau
Coastal and Marine Division
Tel.: +(63 2) 9246031 to 35 local 207
Email: cmd@bmb.gov.ph