



CBD



**Convention on
Biological Diversity**

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REGIONAL WORKSHOP TO FACILITATE THE
DESCRIPTION OF ECOLOGICALLY OR BIOLOGICALLY
SIGNIFICANT MARINE AREAS (EBSAs) IN THE SEAS
OF EAST ASIA, AND TRAINING SESSION ON EBSAs
Xiamen, China, 13-18 December 2015

**COMPILATION OF THE RELEVANT SCIENTIFIC INFORMATION SUBMITTED BY
PARTIES, OTHER GOVERNMENTS AND RELEVANT ORGANIZATIONS
IN SUPPORT OF THE WORKSHOP OBJECTIVES**

Note by the Executive Secretary

1. The Executive Secretary is circulating herewith a compilation¹ of relevant scientific information in support of the Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas in the Seas of East Asia, and Training Session on EBSAs. The scientific and technical preparation for this workshop was assisted by the Commonwealth Scientific and Industrial Research Organisation (CSIRO), as commissioned by the Secretariat of the Convention on Biological Diversity with financial resources provided by the European Commission.
2. The present compilation was prepared drawing on information submitted by Parties, organizations and workshop participants in response to notification 2015-093 (<https://www.cbd.int/doc/notifications/2015/ntf-2015-093-ebsa-ch-en.pdf>), dated 17 August 2015. Submissions were received from Cambodia, China, Japan, Malaysia, Thailand, Timor-Leste, Viet Nam, the Action Plan for the Protection and Development of the Marine Environment and Coastal Areas of the East Asian Seas Region (COBSEA), the Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Northwest Pacific Region (NOWPAP), the East Asian - Australasian Flyway Partnership (EAAF), and the World Wide Fund for Nature (WWF).
3. This compilation consists of the following: (a) scientific information submitted using the EBSA template (compiled in annex I), and (b) scientific information submitted in the form of scientific articles or reports (compiled in annex II). The main purpose of this compilation is to facilitate the workshop discussion on the description of areas meeting the EBSA criteria in the Seas of East Asia. It should be noted that, in preparing this compilation, neither the CBD Secretariat nor the technical support team from CSIRO has validated the scientific information or addressed the information gaps in the submissions. Workshop participants are expected to validate the scientific information, provide additional scientific information/analysis/interpretation, and refine the description of areas meeting the EBSA criteria, using this compilation as an initial basis for discussion during the workshop.

¹ The designations employed and the presentation of material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Annex I

Scientific Information submitted in support of the workshop objectives using EBSA templates
[Note: Annotations inserted by the CBD Secretariat regarding information gaps]

Template No.1

Abstract

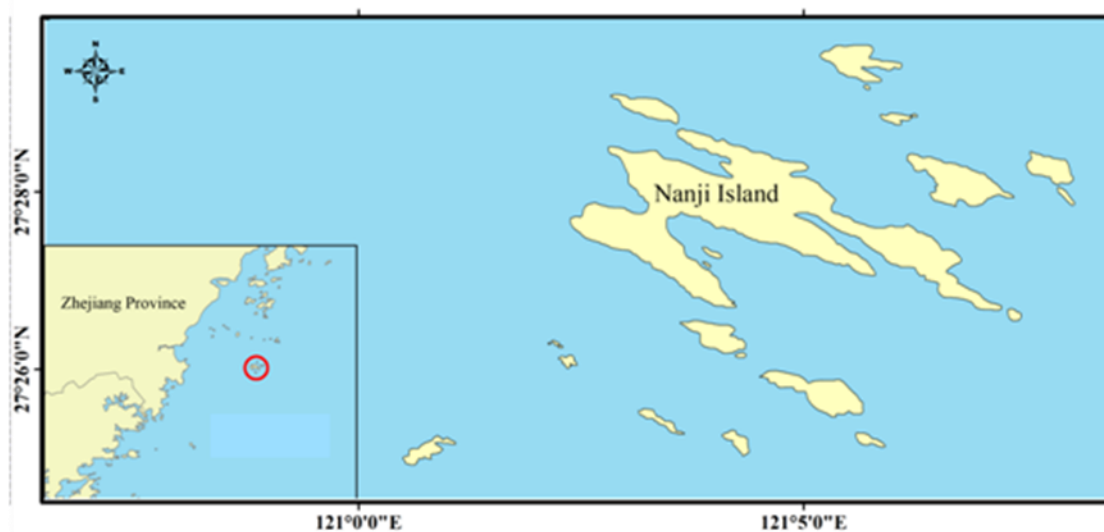
Nanji Islands Marine Reserve lies in the sea southeast of Zhejiang Province, China. It is known by its high diversity of marine life. Previous investigation showed that there were 421 species of shellfish and 174 species of macro-benthic algae which account for about 20 per cent of the total species number in China. Inside the Reserve, There were also 459 species of micro-algae, 397 species of fish, 257 species of crustaceans and 158 species of other marine creatures.

Introduction

In the reserve, the water depth ranges from 15 to 70 m. It has regular semidiurnal tide. The maximum tidal range is over 6m. The reserve focuses on the protection of the intertidal ecosystem, especially shellfish and algae.

Location

Nanji Islands Marine Reserve lies in the sea, southeast of Pingyang County, Zhejiang Province, China. It has a total area of 201.06k m², of which 11.13k m² is land. The geographical coordinates of the centre of Nanji Island are 121°05'E and 27°27'N.



Feature description of the proposed area

(This should include information about the characteristics of the feature to be proposed, e.g. in terms of physical description (water column feature, benthic feature, or both), biological communities, role in ecosystem function, and then refer to the data/information that is available to support the proposal and whether models are available in the absence of data. This needs to be supported where possible with maps, models, reference to analysis, or the level of research in the area)

Feature condition and future outlook of the proposed area

(Description of the current condition of the area – is this static, declining, improving, what are the particular vulnerabilities? Any planned research/programmes/investigations?)

Assessment of the area against CBD EBSA Criteria

(Discuss the area in relation to each of the CBD criteria and relate the best available science. Note that a proposed area for EBSA description may qualify on the basis of one or more of the criteria, and that the polygons of the EBSA need not be defined with exact precision. And modeling may be used to estimate the presence of EBSA attributes. Please note where there are significant information gaps)

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				X
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> Three endemic species in Phylum Ochrophyta, including <i>Sargassum nigrifoloides</i> , <i>Sargassum Capitatum</i> , <i>Giffordia Zhejiangensis</i> (Zeng & Lu, 1985; Zeng, 1999; Huang et. al., 2013; Wang, 1994). In the waters around Nanji, some species have a rare character of “rupture distribution”. It is the southern boundary of many cold water species as well as the northern boundary of some warm water species (Gao et. al, 1994; Xu & Jiang, 1994).					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.	X			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.	X			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.	X			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.	X			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.				X
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> In Nanji waters, there are 421 species of shellfish and 174 species of macro-benthic algae, which account for about 20% of the total species number of China. Twenty two species of shellfish are found only in Nanji. Inside the Reserve, there are also 459 species of micro-algae, 397 species of fish, 257 species of crustaceans and 158 species of other marine creatures (Fu, 2011; Gao et al., 1994 ; Zhu, 1998).					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.	X			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High
<i>Add relevant criteria</i>		X			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

References

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- Xu Zhimin, Jiang Jialun, 1994. Study on ecology and resources of marine algae in the intertidal zone, Nanji Archipelago. Donghai Marine Science, 12(2):29-43
- Zeng Chenkui, Lu Baoren, 1985. A new species in genus *Sargassum* from the East China Sea. Oceanologia et Limnologia Sinica, 16(3):169-175 (in Chinese with English abstract)

Zeng Chenkui. Flora Sinica, Ochrophyta, Fucales. Beijing, Science Press, 1999 (in Chinese)

Zhu Genhai, Wang Xu, Wang Chunsheng, Gao Aigen, 1998. Ecological studies on nanoalgae and microalgae in Nanji Island National Marine Nature Conservation Area I .Species composition and ecological characteristics. Donghai Marine Science,16(2):1-20

Maps and Figures

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Template No.2

Abstract

For a very long time, the deep-sea habitats were considered to be dead zones, where no life can survive. However, the discovery of cold seeps in deep sea bottom enhanced human's understanding and utilization of deep-sea biological resources. Cold seeps in the southwest Taiwan Basin are located on the northern slope of South China Sea, with an area of 12,000 square kilometers. The deep sea ecosystems of this marine area are unique not only for the deep sea communities composed of diverse bacteria, mussels, clams, hairy crabs and shrimps, but also for the supporting habitat formed mainly by calcite, aragonite, dolomite, pyrite and authigenic minerals, including siderite, barite, gypsum, and natural sulphur.

Introduction

Seabed seeps are usually located in sea areas nearby deep-sea spreading centers, board boundary, passive/active continental margins and forearc belts. Most of the seabed seeps were found in the Pacific subduction zone, along the margins of Alaska, Oregon, California, Central America, Peru, Japan and New Zealand. Moreover, cold seeps in the southwest Taiwan Basin are the only active cold seeps with diverse ecological systems found in the deep seabed of China. The sea area is in the Southwest Taiwan Basin on the northern slope of the South China Sea, with a depth of 2900m-3000m. Based on the autotrophic bacteria as the primary producers, the ecosystems in the deep-sea area are unique for the community structure of bacteria, mussels, clams, hairy crab and shrimp.

Location

(Indicate the geographic location of the area/feature. This should include a location map.)

The area (21°-22° N and 119°-120° E, 2900m-3000m depth) is located in the southwest Taiwan Basin on the northern slope of the South China Sea. It is under China's jurisdiction.

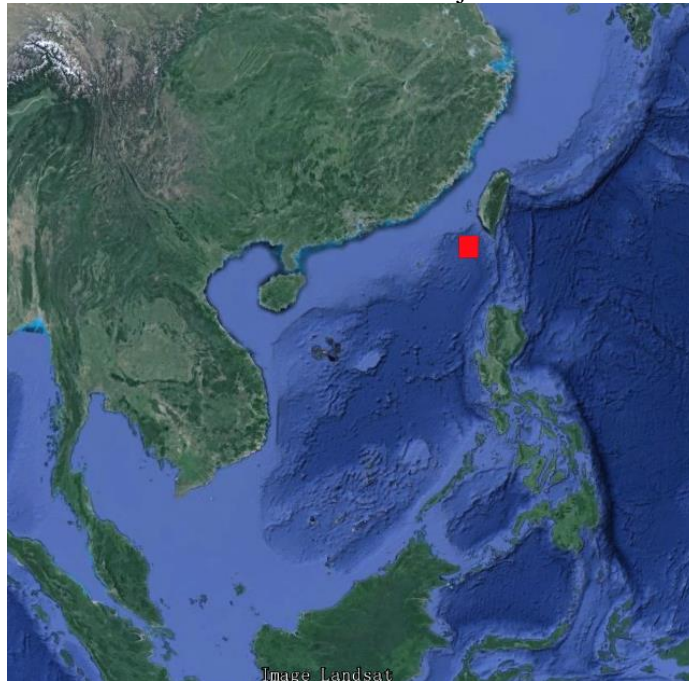


Fig.1 Sketch map of cold seeps in the southwest Taiwan Basin (red mark)

Feature description of the proposed area

(

The northern slope of the South China Sea extends in the southwest to northeast provides In recent years, unique cold- seep ecosystems were found in the seas of southwestern Taiwan on the northern slope of the

South China Sea. The ecosystem includes a unique carbonate habitat formed mainly by calcite, aragonite, dolomite, pyrite and authigenic minerals, including siderite, barite, gypsum, and natural sulphur, as well as the communities the habitat supported, namely bacteria, mussels, clams, hairy crab and shrimp. Carbon source and energy are provided by autotrophic organisms to sustain cold-seep biota, with autotrophic bacteria being the bottom level of the food chain. Moreover, the ecosystem has high biomass, especially at the mouth of cold seeps, where biomass generally reaches 1000-3000 g m⁻². The cold seeps have unique biodiversity, high biomass density and tube worms with 170-250 years of life expectancy, generating metabolites diversity and rich genetic resources. However, the deep-sea cold-seep ecosystem is very fragile and vulnerable to climate and sea-level changes, sediment moving, earthquake occurrence, water temperature and changes in the ocean currents changes.

Feature condition and future outlook of the proposed area

Located at the bottom of the deep sea, 3000 m below the surface, the cold seeps in the southwest Taiwan Basin are currently the subject of limited scientific investigation and without any influence from human activities. The unique biological habitat and seep ecosystems are intact. However, the development and distribution of seabed seeps is closely related to natural gas hydrate decomposition or/and the rise of seabed natural gas and petroleum along weak geological belt. Therefore, it is necessary to establish effective management mechanism to prevent habitat destruction or even the disappearance of the cold seep caused by disorderly exploitation of fossil fuels.

Assessment of the area against CBD EBSA Criteria [References and further explanations to be added to the table under each criterion]

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				✓
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> Cold seep habitats and the ecosystem it they supports are rare and scarce.					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.				✓
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> Carbon source and energy were provided by autotrophs, sustaining the food chain of cold-seep biota based on chemoautotrophic bacteria.					
Importance for threatened, endangered or declining species and/or	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.				✓

habitats					
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> Due to the primary producers of bacteria in cold seeps, a unique cold seep habitat was formed in this area. It is composed mainly by calcite, aragonite and dolomite and pyrite. Apart from that, there are also carbonate rocks which contained authigenic minerals such as siderite, barite, gypsum, natural sulphur, etc.					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.				✓
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> Climate warming or cooling, rise or fall of sea level, sediment moving, earthquake occurrence, changes of water temperature and the ocean currents will all influence the eruption of cold seeps. As a result of which, the whole deep-sea cold seep ecosystem will be influenced.					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.				✓
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> The ecosystem has high biomass, especially at the mouth of cold seeps, where biomass generally reached 1000-3000 g m ⁻² .					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.		✓		
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> Lower biodiversity.					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.				✓
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> cHuman-induced disturbance is currently limited to scientific investigation.					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High
<i>Add relevant criteria</i>	None				
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

References

(e.g. relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to other relevant material, models, etc.)

Yong Zhang, Xin Su, Fang Chen, et al. Microbial diversity in cold seep sediments from the northern South China Sea. *Geoscience Frontiers*. 2012, 3(3):301-316.

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- Luo Min, Wang Hongbin, Yang Shengxiong, et al. Research advancement of natural gas hydrate in South China Sea. *Bulletin of Mineralogy, Petrology and Geochemistry*. 2013, 32(1):56-69.
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Maps and Figures

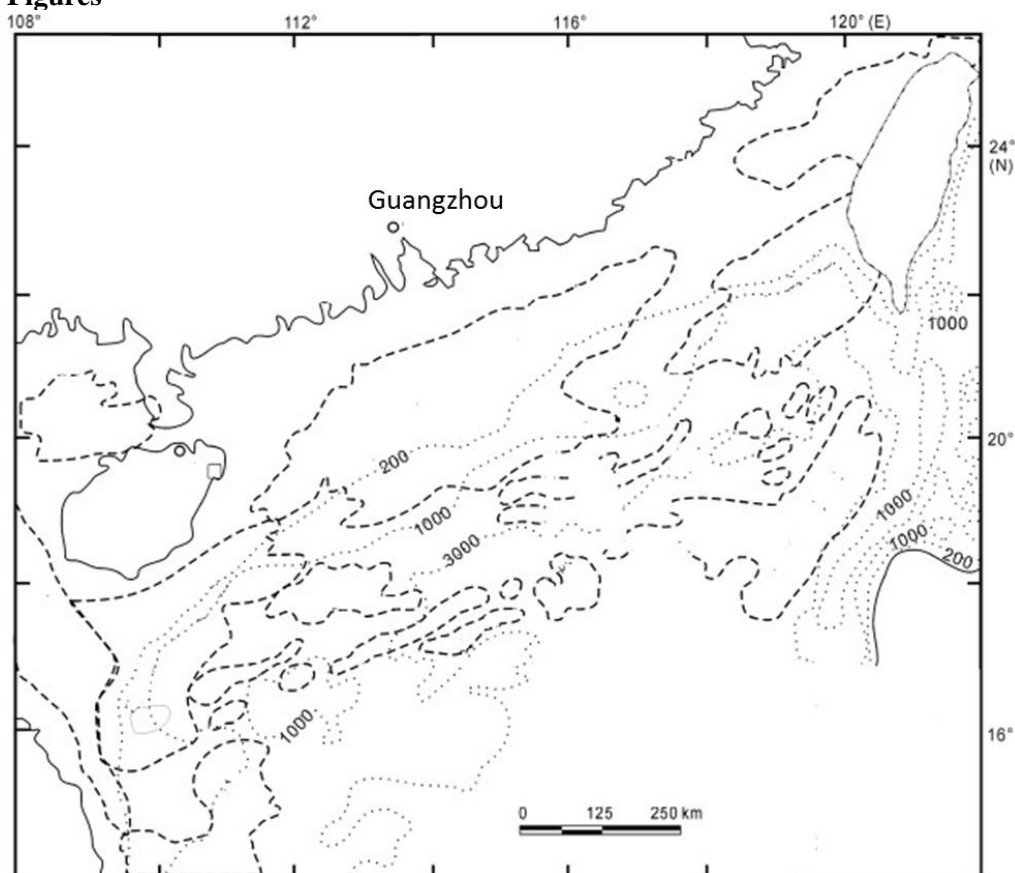


Figure 2. Topographic map of the Northern South China Sea

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All the information and materials above were taken from the public literature.

Template No. 3

Abstract

Koh Rong Marine National Park is the largest of the five islands off the coast of Cambodia in the Gulf of Thailand. The Koh Rong NP's terrain is predominantly hilly, 316 metres in height, and provides fresh water for countless creeks and estuaries, forming a number of seasonal waterfalls, covered by forest and wilderness. It encompasses four distinct villages, inhabited mostly by fishers and small-scale crop farmers. The island has recently become a tourist attraction. The island has about 43 kilometres of delicate beaches with no fewer than 23 beaches of varying length and coloration. Due to its rich biodiversity value the Ministry of Environment of Cambodia recently designated it as the country's first marine national park, among the other protected area systems in Cambodia. The island was expected to be subjected to increased pressure from local uses and tourism development activities, along with the increasing population. With this rationale, it is important to manage the resources and conserve its biodiversity and beauty.

Introduction

There is no data and comprehensive information on Cambodia's newly established Koh Rong Marine National Park. Koh Rong MNP is designated because Cambodia dedicates over 26 per cent of its land as a protected area system, excluding marine areas.

The Koh Rong MNP will encompass approximately 400 km² around the Koh Rong Archipelago, which lies 20 km off the coastal town of Sihanoukville, Cambodia in the Gulf of Thailand. It is the continuation of coastal Botum Sakor National Park, in a line of several islands. It covers about 43 km of delicate beaches with no fewer than 23 beaches of varying length and coloration. The Koh Rong NP's terrain is predominantly hilly, 316 metres in height and provides fresh water for countless creeks and estuaries, forming a number of seasonal waterfalls, covered by palm and rain forests and wilderness.

Bays, protruding capes and sandstone rock formations contribute to the island's landscape. The southern coastline—exposed to the weather and open sea—is particularly spectacular, whereas the eastern coast, which faces towards the land, is characterized by a sequence of smooth hills, gently sloping towards the numerous crescent-shaped beaches, inlets and bays. Several small islets and many reefs provide an abundance of natural environments for a great variety of marine life. The center of the island is a flat “belt” of sediments that joins the two hilly massifs of the south-east and north-west.

Of the four islands, Koh Rong is the most inhabited island, with four villages. At the moment, around 60 to 80 per cent of people in nearby communities are engaged in fishing or related activities. There is no remarkable infrastructure or permanent building on the island. Ensuring the sustainability of fisheries and other valuable marine habitats and threatened species, while pursuing other development objectives, such as tourism, is a primary conservation objective in the management of the island.

Location

Koh Rong Marine National Park, Cambodia's first such park, is located off the coast of Cambodia, in the Gulf of Thailand, between Koh Kong and Sihanoukville Provinces at 10°35'7.49"N, 103°17'55.36"E. Koh Rong MNP will encompass approximately 400 km² around the Koh Rong Archipelago, which lies 20 km off the coastal town of Sihanoukville. It is the marine extension of the coastal Botum Sakor National Park in a line of several islands.

Feature description of the proposed area

Koh Rong is among the few island in Cambodia and has special environment features to it. The island is known as a famous diving site to coral reefs. The average depth of the island seems to be shallow. Hammerhead sharks can be seen in abundance throughout the year in depths of 25-60 meters. There is no report of any dangerous shark over years. Since Koh Rong is a relatively new discovered island to tourism the island acts as a sanctuary for the juvenile fishes to grow in safety area, for this reason the island is a home for large number of reef fish and frequent visits by their predators. Due to its rich biodiversity value, the Ministry of Environment commits to establish as first marine protected areas. Of course, even no ground survey, it concludes that the various type of fisheries includes snapper fisheries, lobster fishery, sea cucumber harvesting, bait fishery etc. Locals and tourists use these resources for different livelihood and personal interest. The demand for these resources would be increasing as the tourism sector boom and with the increasing local residences. For this reason it is important that the island shall be managed their resources and conserved its beauty for the generation to come.

Feature condition and future outlook of the proposed area

(Description of the current condition of the area – is this static, declining, improving, what are the particular vulnerabilities? Any planned research/programmes/investigations?)

Rapid assessment was conducted the opinion of local communities, tour operators and local authorities including line agencies regarding key concerns. The concerns in the survey are based on conditions, situation, how and for what purpose of the natural resources are being utilized and managed and the view and perspectives regarding the conservation and protection of the biodiversity and habitats, and the conservation efforts and initiatives in the island. However, the rich biodiversity and local livelihood associated to the habitats and resources were also addressed in the assessment.

Assessment of the area against CBD EBSA Criteria [References and further explanations to be added under each criterion]

(Discuss the area in relation to each of the CBD criteria and relate the best available science. Note that a proposed area for EBSA description may qualify on the basis of one or more of the criteria, and that the polygons of the EBSA need not be defined with exact precision. And modeling may be used to estimate the presence of EBSA attributes. Please note where there are significant information gaps)

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities,	X			

	and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.	X			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.			X	
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.			X	
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.	X			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.	X			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.	X			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

Sharing experiences and information applying other criteria (Optional)

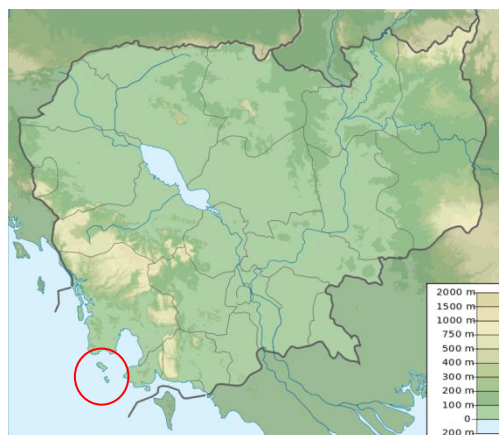
Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High

Add relevant criteria					
Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)					

References [To be inserted]

(e.g. relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to other relevant material, models, etc.)

Maps and Figures [Sources to be inserted]



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Template No. 4

Abstract

The coastal area of the Upper Gulf of Thailand is an important marine ecosystem. The area also has very high biodiversity, especially various marine and coastal resources, for example, mangrove forests, benthos, phytoplankton and zooplankton. Other organisms are fish and birds, including mangrove birds and migratory sea birds. Marine endangered species, such as hawksbill turtles, green turtles, Irrawaddy dolphins, finless porpoises, humpback dolphins and Bryde's whales, can also be found. The coastal area of the Upper Gulf of Thailand serves as feeding ground, mating ground and nursing ground of Bryde's whales. The area meets the EBSA criteria due to its abundant marine ecosystem and diverse resources.

Introduction

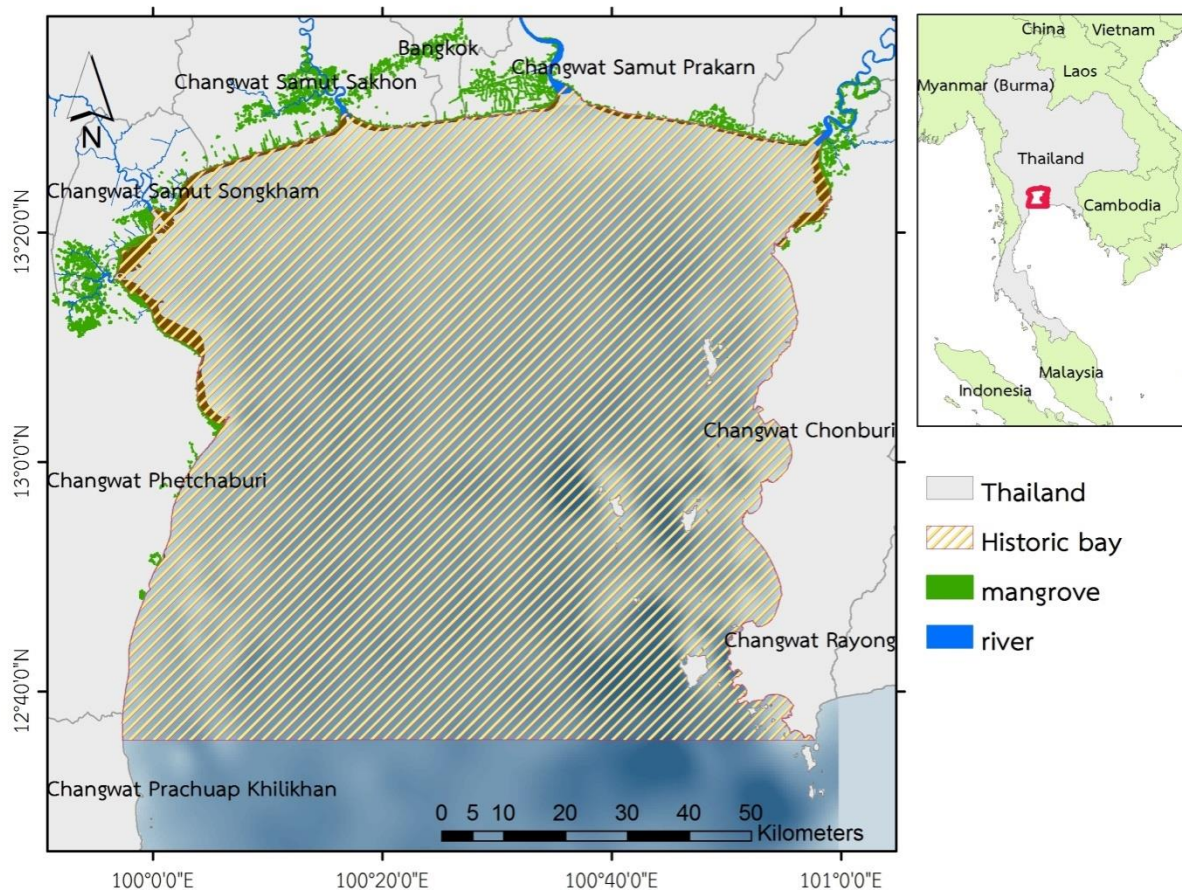
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The Upper Gulf of Thailand consists of important marine and coastal resources. The area covers the coasts of Chonburi, Chacheangsao, Samut Prakarn, Bangkok, Samut Sakorn, Samut Songkram and Phetchaburi provinces. The muddy coastlines are caused by an accumulation of clay around estuaries. The area has high biodiversity comprising mangroves, angle's wings in Samut Sakorn province, razor clams in Samut Songkram province and blood cockles in Petchaburi province [insert scientific names of species, including whales]. The razor clams site has been registered as Ramsar site on 5 July 2000. The Western side of the Inner Gulf of Thailand also covers Phan Thai Norasing non-hunting area on the coast of Samut Sakorn province, which was declared on 8 September 2011.

The Upper Gulf of Thailand is an important habitat of marine mammals such as Irrawaddy dolphins, finless porpoises, humpback dolphins and Bryde's whales. Bryde's whales, a large marine mammal, can be found along the coast of Thailand. They are protected animals under Wild Animal Reservation and Protection Act, BE 2535. According to the data from a photo identification study from the Department of Marine and Coastal Resources, the population of Bryde's whales in Thailand is about 50, which is a very small population. The habitat and mating grounds of Bryde's whales are threatened. The whales exploit the Inner Gulf of Thailand for feeding and nursing calves. They can be found in the Upper Gulf of Thailand from April until the end of November every year. Bryde's whales in this area feed on shorthard anchovy, Hardenberg's anchovy, Indian ilisha and White sardine.

Location

The entire area covers 9,529.84 km², along 398 km of the coastline. The centroid of the area is N13° 2' 39.994", E100° 27' 50.783.



Feature description of the proposed area [References to be inserted in text]

The Upper Gulf of Thailand is an important habitat of Bryde's whales especially from April to November, when the whales migrate into the area for feeding, mating and nursing calves. Other endangered marine species can also be found, such as hawksbill turtles, green turtles, Irrawaddy dolphins, finless porpoises and humpback dolphins. Moreover, Kram Island, located in the Upper Gulf of Thailand provides an egg-laying ground for hawksbill turtles and green turtles. Kram Island is under the protection of the Royal Thai Navy.

The Upper Gulf of Thailand consists of mangrove beaches and mangrove forests with high biodiversity of plant and benthos species [INSERT SPECIES]. Mangrove beaches and mangrove forests are habitat of birds, both residential species and migratory species [INSERT SPECIES]. Various residential birds include little cormorants, great cormorants, terns, herons and little egrets. Migratory species migrate into the area during winter. Rare species of migratory bird species include spoon-billed sandpipers and pied avocets. Mangrove forests also provide egg-laying and nursing grounds for many marine organisms. [INSERT SCIENTIFIC NAMES OF SPECIES, WHERE POSSIBLE]

Feature condition and future outlook of the proposed area

The Upper Gulf of Thailand is an important food source for both wild marine organisms [INSERT SPECIES NAMES AND REFERENCES] and aquaculture. At the moment, the Department of Fisheries has temporarily closed the Gulf. The use of certain fishing gears is prohibited from June to July to protect and restore marine species. The prohibited gears are seine, trawl and push net.

Assessment of the area against CBD EBSA Criteria [References and further explanations to be added under each criterion]

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				X
The Upper Gulf of Thailand is an important area for feeding, mating and nursing calf for Bryde’s whales. Each year, Bryde’s whales migrate into the Gulf from April to November. Moreover, Kram Island is also an egg-laying ground of hawksbill turtles and green turtles.					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.				X
The area consists of high biodiversity of marine species, especially shoals of small fish which is the food of Bryde’s whales. Additionally, mangrove forests extend along the coastline. Naturally occurring angel’s wings, razor clams and cockles are present here.					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.				X
Many endangered marine animals can be found in the Upper Gulf of Thailand (e.g., hawksbill turtles, green turtles, Irrawaddy dolphins, finless porpoises and Bryde’s whales). The area is particularly important as feeding ground, mating ground and nursing ground for Bryde’s whales in Thailand.					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.				X
Further study is required [Check rating, in consequence]					

Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.			x	
Mangrove forest ecosystem provides egg-laying and nursing grounds for marine species before growing into an adult stage. Therefore, this is an essential ecosystem in the food web.					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.			x	
The Upper Gulf of Thailand has high productivity and considered as the main fishery site in terms of local fishery, commercial fishery and aquaculture. There are diverse species (eg., angel's wings, razor clams, cockles), migratory birds and marine mammals (Irrawaddy dolphins, finless porpoises, humpback dolphins and Bryde's whales).					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.	x			
The Upper Gulf of Thailand is important for local fishery, commercial fishery and aquaculture. Other coastal developments also occur in the area. These human activities cause impacts on the ecosystem.					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High
<i>Add relevant criteria</i>	<i>none</i>				
<i>Explanation for ranking</i>					

References

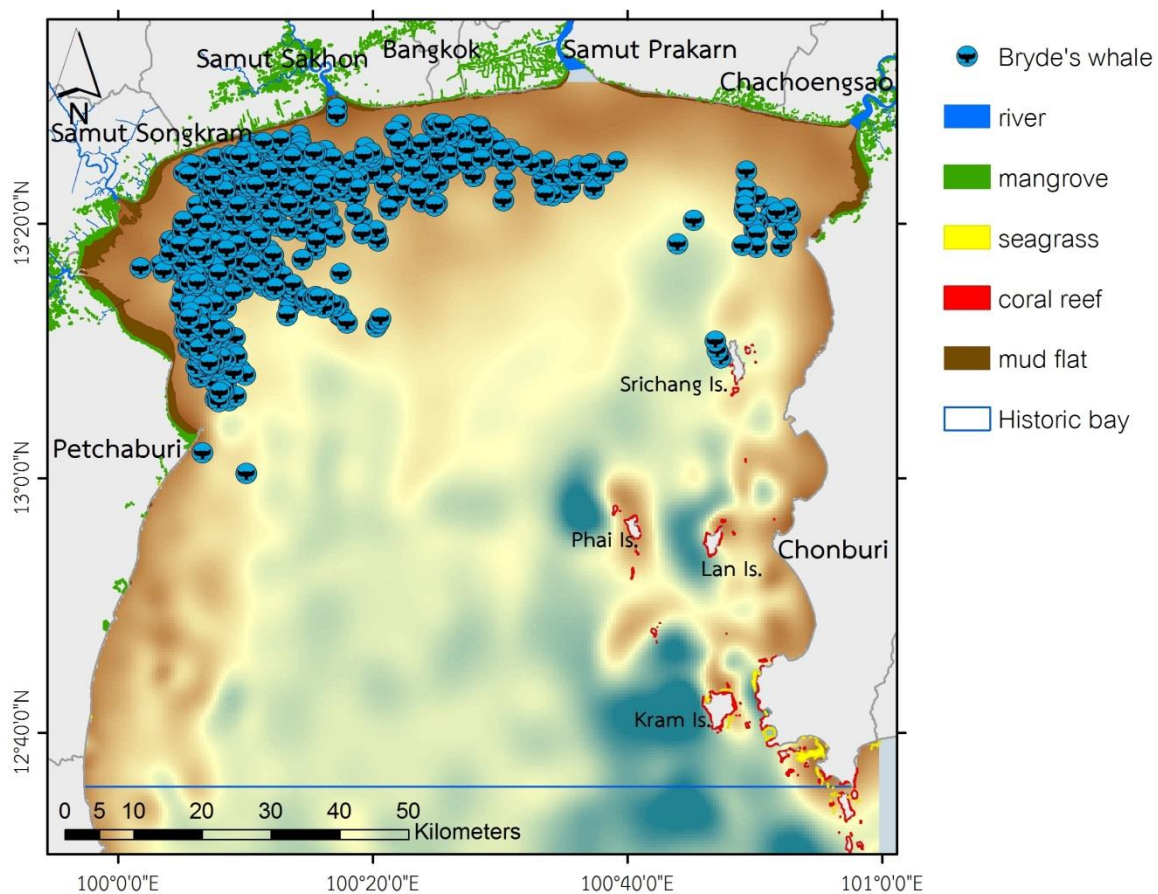
Adulyanukosol, K., S. Thongsukdee, T. Prempree and S. Passada. 2012. Bryde's whales in Thailand. Department of Marine and Coastal Resources. 195 pp.

Cherdsukjai, P., S. Thongsukdee, K. Adulyanukosol, S. Passada and T. Prempree. 2015. Population Size of Bryde's whale (*Balaenoptera edeni*) in the Upper Gulf of Thailand, Estimated by Mark and Recapture Method. Proceedings of the Design Symposium on Conservation of Ecosystem Volume 3 (the 14th SEASTAR2000 workshop) 3: 1-5.

Thongsukdee, S., K. Adulyanukosol, S. Passada and T. Prempree. 2014. A study of Bryde's whale in the Upper Gulf of Thailand. The 1st Design Symposium on Conservation of Ecosystem (SEASTAR2000). 1: 26-31.

Thongsukdee, S., K. Adulyanukosol, S. Passada and T. Prempree. 2013. Distribution, Abundance and Nursing Behaviour of Bryde's whale in the Upper Gulf of Thailand. Proceedings of Marine Science Conference 2012. 3, 354-363. (in Thai)

Maps and Figures



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Template No. 5

Abstract

The coral reefs in Pulau Redang are among the best on the East coast of Malaysia and are generally in good condition. A study by Reef Check Malaysia in 2014 shows that the reefs around Redang islands are considered to be in “Good” condition, with live coral cover of 58.13 per cent, which is slightly above the average (56.38 per cent) for reefs within the Sunda Shelf region. The diversity of fish and invertebrates is average. The main threats to the coral reefs in Redang Island appear to be the growth of the tourism industry and related development, such as resorts and infrastructure. Redang has an average of 100,000 of visitors annually. The island is a popular resort destination, with a more upmarket image than nearby Perhentian Island. Diving and snorkelling are the main tourist activities. There are 10 medium-large size resorts, located mainly on Pasir Panjang. Based on recent marine biological studies, Redang Island is believed to be the seed-source for most of the marine biodiversity of the eastern part of Peninsular Malaysia.

Introduction

Redang Island is located in the South China Sea, about 45 kilometres or 24.28 nautical miles to the northeast of Kuala Terengganu. The island can be reached via Merang jetty, which is about 12 nautical miles (or 22.2 km) southwest of the island. Redang Island has a surface area of about 2,483.58 hectares (NRE & JPBD, 2006) — the largest of nine islands within the Redang Island archipelago. The other eight islands are:

- i. Pinang Island
- ii. Lima Island
- iii. Paku Besar Island
- iv. Paku Kecil Island
- v. Kerengga Besar Island
- vi. Kerengga Kecil Island
- vii. Ekor Tebu Island
- viii. Ling Island

The waters surrounding these islands were gazetted as Marine Parks under the Establishment of Marine Parks Malaysia Order 1994 under the Fisheries Act 1985 (Amended 1991). The Redang Island Marine Park waters cover an area of about 12,750 hectares (DMPM, 2009).

The land and water is managed as an integrated ecosystem with co-operation between the Federal and State Governments, whereby the land is gazetted as a Forest Reserve. Development on the private lands is managed through proper planning using the environmental guidelines established by the state government to reduce the adverse environmental impact to the ecosystem of the island.

About two hundred families reside in the village on the main island of Redang. Agriculture is carried out mainly on the flat land of the Redang River Valley with fruit trees lining the hill slopes. The remnants of what were formerly coconut and pepper plantations still exist on Pulau Redang today. The islanders are mainly fishers. Some, however, supplement their income by collecting edible birds' nests from the swiftlet colonies located in the caves along the north-eastern coast.

Location

Redang Island is located in the South China Sea, about 45 kilometres or 24.28 nautical miles to the northeast of Kuala Terengganu. Redang Island has a surface area of about 2,483.58 hectares (NRE & JPBD, 2006) — the largest of nine islands within the Redang Island archipelago. The archipelago area is approximately within the coordinates of 5° 43' 28.92"N, 102° 59' 04.53"E and 5° 49' 10.49"N, 103° 03' 02.82"E.

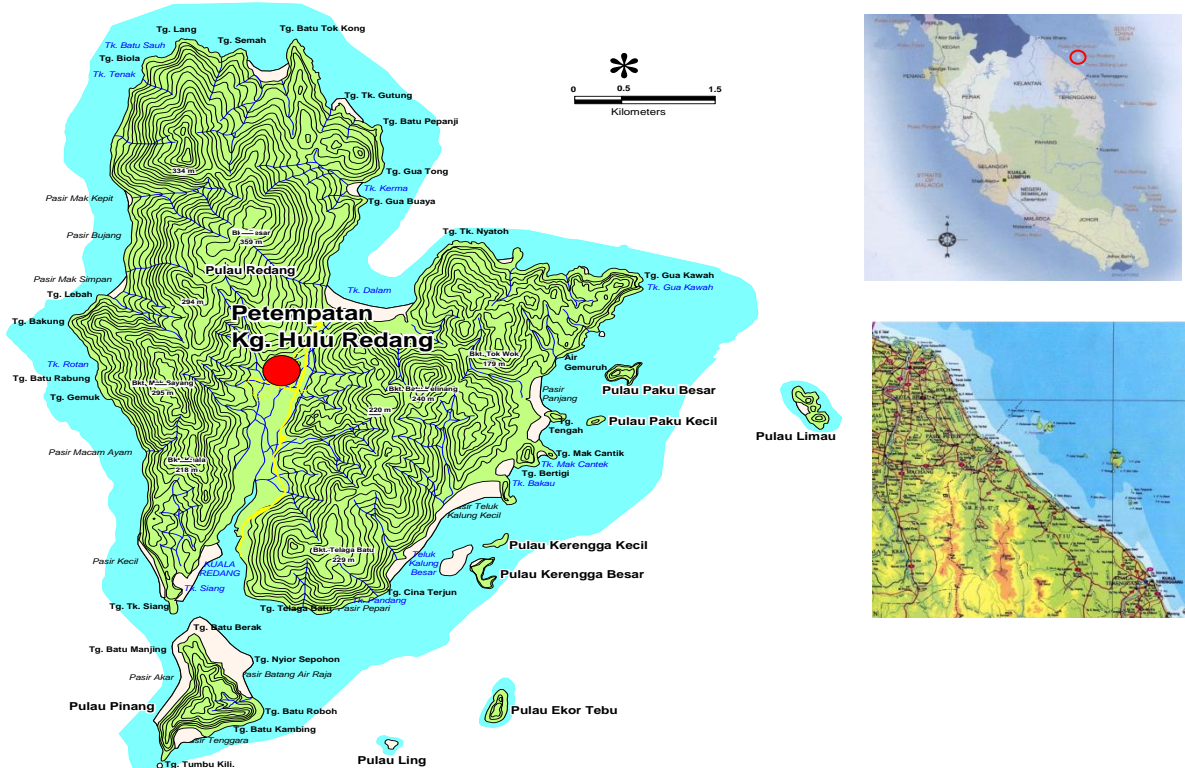


Figure 1: Pulau Redang Archipelago [insert source]

Feature description of the proposed area

Marine Biodiversity

The Pulau Redang Marine Park has long been recognized for its natural values and outstanding marine biodiversity and a wide range of habitat types. The marine park also has cultural, social and economic importance to the community.

The waters of Redang Island lie within the Indo-Pacific Region. The diversity of marine fauna of the Indo-pacific region far exceeds that even of other tropical regions. It has many families that are not found elsewhere. It contains about 500 species of reef-building corals, over 1000 species of bivalves and about 3000 species of fish. Redang Island and its associated islets have fringed coral reefs superior to any in Peninsular Malaysia and ranking with some of the best in the world.

Green (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricata*) turtles are two species nesting in the beaches of Redang Island.

The Climate

The climate of the archipelago is dominated by the north-east monsoon, which blows from November to March, producing a wetter season in these months than during the rest of the year. Rain, however, is frequent throughout the year with short dry spells from April to September. Drainage is provided by the main river of Sungai Redang and several small streams

Water Quality

Redang Island is active in the tourism industry and receives more one hundred thousand tourists annually. However, the waters' nutrient parameters (e.g., $\text{PO}_4^{-3}\text{-P}$, $\text{NH}_3\text{-N}$, $\text{NO}_2^{-}\text{-N}$ and $\text{NO}_3^{-}\text{-N}$) complied with class 1 water and are in compliance with Malaysia Marine Water Quality Criteria and Standard, regulated by the Department of Environment, Malaysia (Marine Biodiversity Scientific Expedition report 2012). [insert complete reference in list]

Island	PO_4 ($\mu\text{g/L}$)	NH_3 ($\mu\text{g/L}$)	NO_2 ($\mu\text{g/L}$)	NO_3 ($\mu\text{g/L}$)
Redang	1.591 (0.000 - 5.303)	23.686 (0.000 - 47.372)	0.621 (0.041 - 4.436)	70.780 (21.904 - 114.151)
DOE Malaysia	Class I - 5 Class II- 75 Class III- 670	Class I – 35 Class II- 70 Class III- 320	Class I - 10 Class II- 55 Class III- 1000	Class I - 10 Class II- 60 Class III- 1000
Pulau Redang (Law <i>et.al.</i> , 2001)	2.849 - 9.911	0.938 - 3.263	0.098 - 9.254	2.871 - 18.237

Table 1: Status of nutrients in waters of Redang Island in Terengganu

Note:

Malaysia Marine Water Quality Criteria and Standard: Class 1- Preservation, Marine Protected areas, Marine Parks; **Class2** - Marine Life, Fisheries, Coral Reefs, Recreational and Mari culture; **Class 3** - Ports, Oil & Gas Fields. (Source: Department of Environment Malaysia, 2012)

Substrates

A reef check study REFERENCE? conducted in 2014 found that the reefs around Redang Island are considered to be in “Good” condition, with live coral cover of 58.13 per cent, slightly above the average (56.38 per cent) for reefs within the Sunda Shelf region. The level of rubble has decreased compared to 2013 (11.35 per cent), however it was still relatively high. Low level of the algae and silt indicates that sewage pollution and sedimentation are not a problem for now. REFERENCE?

Fish

Based on the Marine Biodiversity Expedition report (2012), a total of 138 fish species were recorded at Pulau Redang with small sized species being dominant, of which the families Pomacentridae and Labridae were the most represented. The observation at 3 m depth showed that fish density ranged from 362 to 4,892 individuals/500m² and at 10 metre depth, the density of fishes ranged from 803 to 2,755 individuals/500m².

Reef Health

In 2014, a total of 12 coral reef sites were surveyed by the Reef Check Malaysia team in Redang Island, and it was reported that 25 per cent of the sites were in excellent condition, while 33 per cent were in good condition. Forty-two per cent of the sites were in fair condition. No reefs were in poor condition.

Status Level Percentage of Sites for Redang in 2014

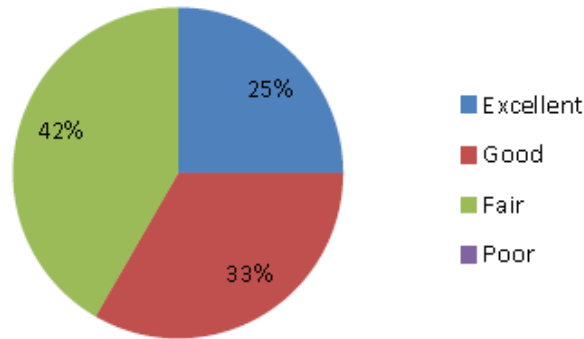


Figure 2: Status Level Percentage of sites for Redang in 2014 [insert source]

According to the Coral Reef Health Criteria (REFERENCE: Chou *et al*, 1994), the reefs around Redang islands are considered to be in “Good” condition, with live coral coverage of 58.13 per cent (hard coral + soft coral) and slightly above the average (56.38 per cent) for reefs within the Sunda Shelf region.

Percentage of live coral cover	Ratings
0-25	Poor
26-50	Fair
51-75	Good
76-100	Excellent

Table 2: Coral Reef Health Criteria developed by Chou *et al*, 1994. [insert full reference in list of references]

TEV Value

Based on TEV study on 2012,[full reference to be inserted] the results indicate that the aesthetic value of coral reefs contributes nearly 75 per cent to the TEV, followed by contributions towards captured fisheries of 24 per cent. Other components only contribute the remaining 1 per cent of total economic value per year. This study found that the economic value is around RM 354 million (USD 113 million) per year. In the next 20 year period, TEV for Pulau Redang Marine Park is estimated to be nearly RM 3.4 billion (USD 1.1 billion) with 10 per cent discount rate.

COMPONENT OF TEV		Economic Value per Year (RM)	PV (20-year period, =10%) (RM)
Capture fisheries		85,682,000.00	815,141,166.64
Tourism		538,545.00	5,123,482.17
Research & education		(2,800,000.00)	(26,637,978.42)
Aesthetic (coral reef)		265,510,297.54	2,525,949,133.93
Biological Support			
	Turtle	403,240.50	3,836,254.19
	Bird (nest swift lets)	500,000.00	4,756,781.86
Coastal protection		1,032,018.82	9,818,176.85
Carbon sequestration		1,013,254.85	9,639,664.54
Bequest value	min WTP	2,077,090.00	19,760,528.07
	ave WTP	2,492,508.00	23,712,633.68
TOTAL	LOWER BOUND	353,956,446.71	3,367,387,209.83
	UPPER BOUND	354,371,864.71	3,371,339,315.45

Table 3: Economic Values of Pulau Redang Marine Park [source to be inserted]

Feature condition and future outlook of the proposed area

Malaysia's Department of Marine Parks prepared a zoning plan for Redang Island Marine Park to ensure the conservation of biodiversity and maintenance of ecological processes, with appropriate provision for ecologically sustainable use. The zones are classified into four zoning categories, based on intended or designated usage of the area. They are:

- i. General use
- ii. Habitat protection and preservation
- iii. Conservation
- iv. Tourism and recreation

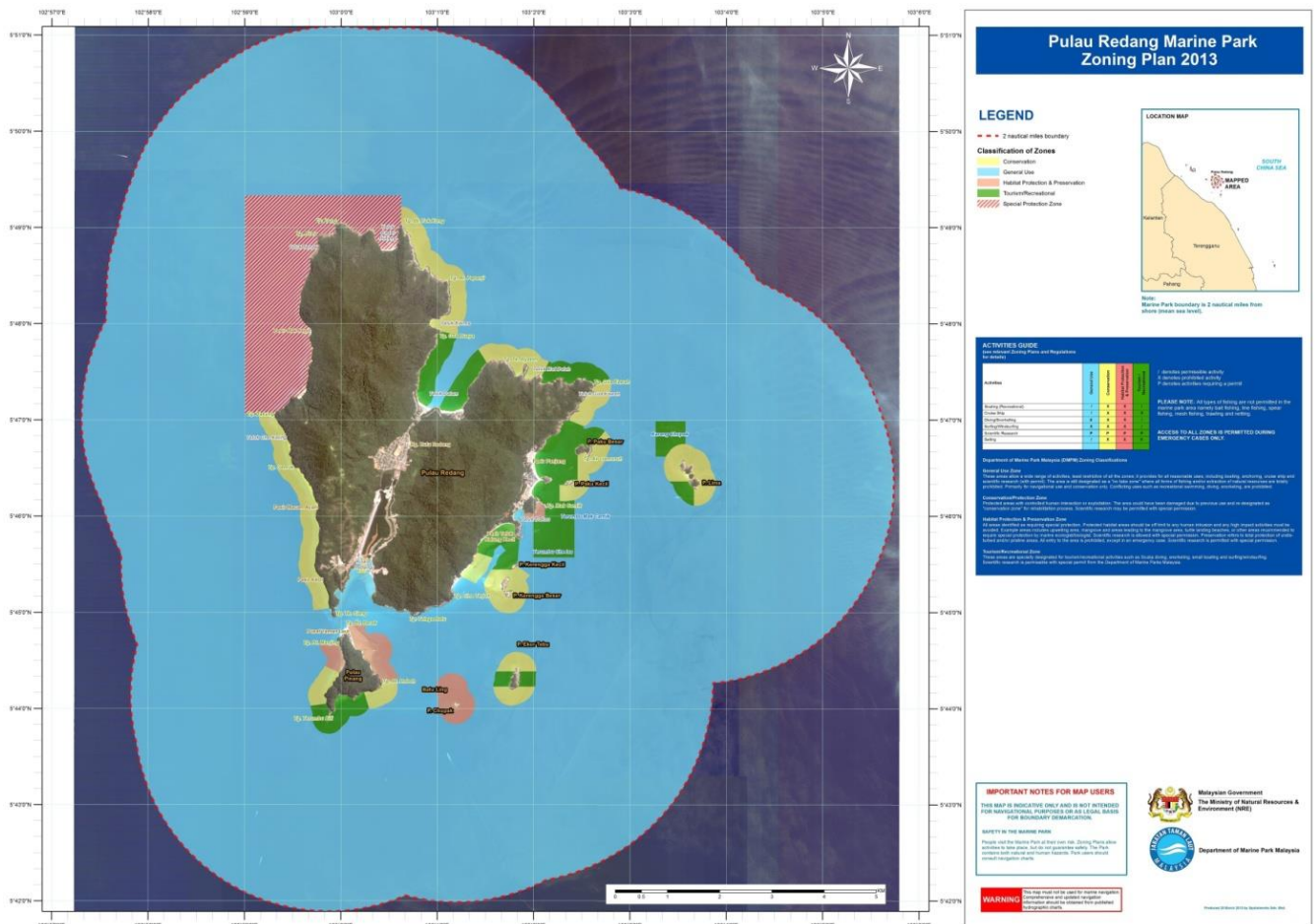


Figure 3: Zoning map for Pulau Redang [Insert source]

Assessment of the area against CBD EBSA Criteria [References to be added]

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No informat ion	Low	Medi um	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				X
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Off the north coast of the islet of P. Ling (southeast of Redang Island) two enormous coral heads of					

<p>Porites sp. are major attractions to divers. The larger of the two is 40m in circumference and 10m in height and has a cave at the base over 2m in height. The formations are probably over 100 years old and represent the largest coral structures in the east coast of Peninsular Malaysia.[Insert Reference] The area offers a fairly diverse underwater environment and exciting seascapes with branching, tabulated, foliaceous, massive, sub massive and encrusting types of hard corals, soft corals, sponges, tunicates, sea anemones and gorgonians. Fish life is abundant. [Insert reference]</p>					
<p>Special importance for life-history stages of species</p>	<p>Areas that is required for a population to survive and thrive.</p>				<p>X</p>
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>This area contains breeding, nursery and feeding grounds for many species of fish and other animals, [insert species names] while the beaches offer nesting sites for the hawksbill turtle (<i>Eretmochelys imbricata</i>) and the endangered green turtle (<i>Chelonia mydas</i>). There are four turtle nesting sites on the Redang Island Archipelago. Waters and beaches Northwest of the island have been zoned as “Special Protection” as they are the main turtle landing sites and are closed to the public. [Insert reference]</p>					
<p>Importance for threatened, endangered or declining species and/or habitats</p>	<p>Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.</p>				<p>X</p>
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>This area is a turtle landing beach / baby shark area and has thus been demarcated as a “Special Protection Zone” :</p> <ul style="list-style-type: none"> • From Tanjung (Tg.) Bakung to Tg. Batu Tok Kong (including Teluk Cagar Hutang, Tg. Lang, Teluk Batu Sauh, Teluk Tenak, Pasir Mak Kepit, Pasir Bujang, Pasir Mak Simpan and Tg. Lebah); • Teluk Mak Cantek to south of Tg. Bertigi (near Teluk Bakau); • Pasir Akar to Tg. Batu Manjing area, Tg. Batu Berak to Tg. Batu Roboh (including the areas of Pusat Taman Laut Pulau Redang, Tg. Nyior Sepohon and Pasir Batang Air Raja) in Pulau Pinang; • Entire Chupak Island and Batu Ling. <p>Note: <i>Tanjung</i> = Cape; <i>Teluk</i> = Bay</p> <p>High Coral Resilience Area such as Teluk Cagar Hutang is also part of a Habitat Protection & Preservation zone (Reef Check Malaysia, December 2012).</p> <p>Mangrove forest - Kuala Pulau Redang area (mangrove area; except the estuary);</p>					
<p>Vulnerability, fragility, sensitivity, or slow</p>	<p>Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or</p>				<p>X</p>

recovery	by natural events) or with slow recovery.				
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
<p>This area contains a turtle landing beach / baby shark area and has thus been demarcated as a “Special Protection Zone”:</p> <ul style="list-style-type: none"> • From Tg. Bakung to Tg. Batu Tok Kong (including Teluk Cagar Hutang, Tg. Lang, Teluk Batu Sauh, Teluk Tenak, Pasir Mak Kepit, Pasir Bujang, Pasir Mak Simpan and Tg. Lebah); • Teluk Mak Cantek to south of Tg. Bertigi (near Teluk Bakau); • Pasir Akar to Tg. Batu Manjing area, Tg. Batu Berak to Tg. Batu Roboh (including the areas of Pusat Taman Laut Pulau Redang, Tg. Nyior Sepohon and Pasir Batang Air Raja) in Pulau Pinang; • Entire Pulau Chupak and Batu Ling. <p>High Coral Resilience Area such as Teluk Cagar Hutang is also part of a Habitat Protection & Preservation zone (Reef Check Malaysia, December 2012).</p> <p>Mangrove forest - Kuala Pulau Redang area (mangrove area; except the estuary);</p>					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.				X
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
<p>Provides major breeding, nursery and feeding grounds for many species of fish and other animals. [REFERENCES AND DETAILS TO JUSTIFY RANKING]</p>					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.				X
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
<p>Contains about 500 species of reef-building corals, over 1000 species of bivalves and about 3000 species of fish. [REFERENCE AND DETAILS TO JUSTIFY RANKING]</p>					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.			X	
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
<p>The main island of P. Redang is inhabited by about 200 families of islanders who fish the waters around the islands.</p> <p>The island is a popular resort destination, with a more upmarket image than nearby Perhentian. Diving and snorkelling are the main tourist activities. There are 10 medium-large size resorts, mainly on Pasir Panjang. Most resorts have an in-house dive operator. There is no mains electricity, water is supplied by pipeline from the mainland and each resort has its own sewage treatment facility. The island is served by an airport as well as boat services.[INSERT COMMENT ON NATURALNESS]</p>					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High
<i>Add relevant criteria</i>					
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

References [COMPLETE REFERENCES TO BE ADDED, INCLUDING ALL THOSE MENTIONED IN TEXT]

www.dmpm.nre.gov.my

Pulau Redang Marine Park Management Plan

Pulau Redang Marine Park – Brochure

Pulau Redang Marine Park Management Effectiveness and Total Economic Value

Reef Check Survey 2014

Marine Biodiversity Scientific Expedition 2012

+Chou *et al*, 1994

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Template no. 6.

Abstract (*in less than 150 words*)

[INSERT ABSTRACT]

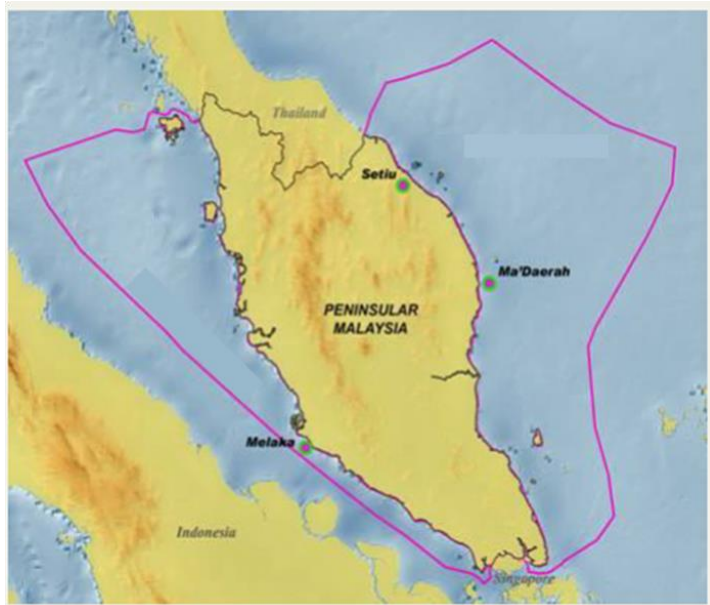
Introduction

Malaysia harbours 4 species of marine turtles, namely leatherback, green turtle, hawksbill turtle and olive ridley, but the turtle population are threatened by fishermen by-catch, decades of turtle egg consumption, coastal development and unsustainable tourism practices (Chan, 2006). No nesting of leatherback turtle has been recorded since 2011, while it used to have around 10.000 nest per year during 1950s (Department Fisheries Malaysia, 2015).

There are two predominant species of marine turtles in Malaysia; greens (*Chelonia mydas*) and hawksbills (*Eretmochelys imbricata*). Malacca (Melaka) currently has the largest nesting population in Peninsular Malaysia, while Ma' Daerah in Terengganu records one of the largest population of nesting greens on mainland Peninsular Malaysia. Satellite tracking study was conducted by WWF-Malaysia from 2006-2013 for these two sites to identify the migration route for the turtles and it's interesting habitat.

Location [Include information about the location of the area being described. Latitude and longitude can be provided as well. Indication of the size of the area can also be helpful.]

(Indicate the geographic location of the area/feature. This should include a location map.)



Feature description of the proposed area [TO BE INSERTED]

(This should include information about the characteristics of the feature to be proposed, e.g. in terms of physical description (water column feature, benthic feature, or both), biological communities, role in ecosystem function, and then refer to the data/information that is available to support the proposal and whether models are available in the absence of data. This needs to be supported where possible with maps, models, reference to analysis, or the level of research in the area)

Feature condition and future outlook of the proposed area [TO BE INSERTED]

(Description of the current condition of the area – is this static, declining, improving, what are the particular vulnerabilities? Any planned research/programmes/investigations?)

Terengganu once hosted the largest rookery of leatherbacks in the world but the leatherback is now considered as functionally extinct in Terengganu (WWF-Malaysia, 2009). However, the state still holds the highest nesting densities of green turtles for Peninsular Malaysia with annual records of between 2,000 to 2,500 nests. Furthermore, Melaka has the highest nesting densities of hawksbill turtles in Peninsular Malaysia with annual records of between 400 to 600 nests.

Assessment of the area against CBD EBSA Criteria

(Discuss the area in relation to each of the CBD criteria and relate the best available science. Note that a proposed area for EBSA description may qualify on the basis of one or more of the criteria, and that the polygons of the EBSA need not be defined with exact precision. And modeling may be used to estimate the presence of EBSA attributes. Please note where there are significant information gaps)

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				x
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> [This section should explain how the area is unique or rare.]</p> <p>Status (IUCN): Endangered - Olive ridley & green turtles Critically endangered - hawksbill and leatherback turtles</p> <p>Population: Leatherback turtles - declined by more than 99% Olive ridley turtles - declined by more than 95% Green turtles - Some populations in Malaysia appear to be stable currently. However compared to population numbers prior to 1970, large populations in Terengganu & Sarawak have decreased significantly (more than two folds) Hawksbill turtles - Large populations remain only in Sabah & Malacca. Both populations appear to be stabilising. However it should be noted that historical nesting data in Malacca extended to 1990, which is quite recent and too short term to surmise on population trend (Liew 2002). [BE SURE FULL REFERENCE INSERTED IN LIST AT END]</p> <p>(Source: Liew, H.C. Proceedings of the Western Pacific Sea Turtle Cooperative Research & Management Workshop, 2002)</p>					
Special importance for life-history	Areas that are required for a population to survive and thrive.			x	

stages of species					
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
<p>All the adult female hawksbill turtles in the Malacca study [CLARIFY AND INSERT REFERENCE] appeared to have migrated to the specific geographical area south of the Strait of Malacca Six out of the eight turtles were documented residing in the region and identifying the entire southern part of the Strait of Malacca as a migratory corridor for the hawksbills.</p> <p>As for the satellite tracking study in Ma' Daerah[CLARIFY AND INSERT REFERENCE], all four greens transmitted signals for a relatively very short period of time (less than 30 days). Intel, which was tracked migrating south of Peninsular Malaysia, travelled the furthest of the four and was last detected moving in waters within the Riau Archipelago (Lau 2009).</p>					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.	x			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.			x	
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
<p>The nesting ground and adjacent area in Terengganu is very crucial for green turtle population in the South East Asia Region. (Please see Map 6 and 7 for the location for the nesting ground in Northern Terengganu and Southern Terengganu).</p> <p>This is supported by a study by Luschi (1996) showing that female turtles might be displaced 11-284 km from her nesting ground according to the direction-recording data – loggers and satellite.</p> <p>Another satellite tracking study also showed that the male and female green turtles remained within 30km from the nesting ground during the breeding and inter-nesting periods. Then, after the breeding season, the turtles migrated at least 1900km to 4 different foraging grounds, namely Vietnam, Indonesia, Peninsular and Borneo Malaysia (Van der Merwe et al. 2009).</p>					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.	x			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.	x			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.	x			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High
<i>Add relevant criteria</i>					
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

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(e.g. relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to other relevant material, models, etc.)

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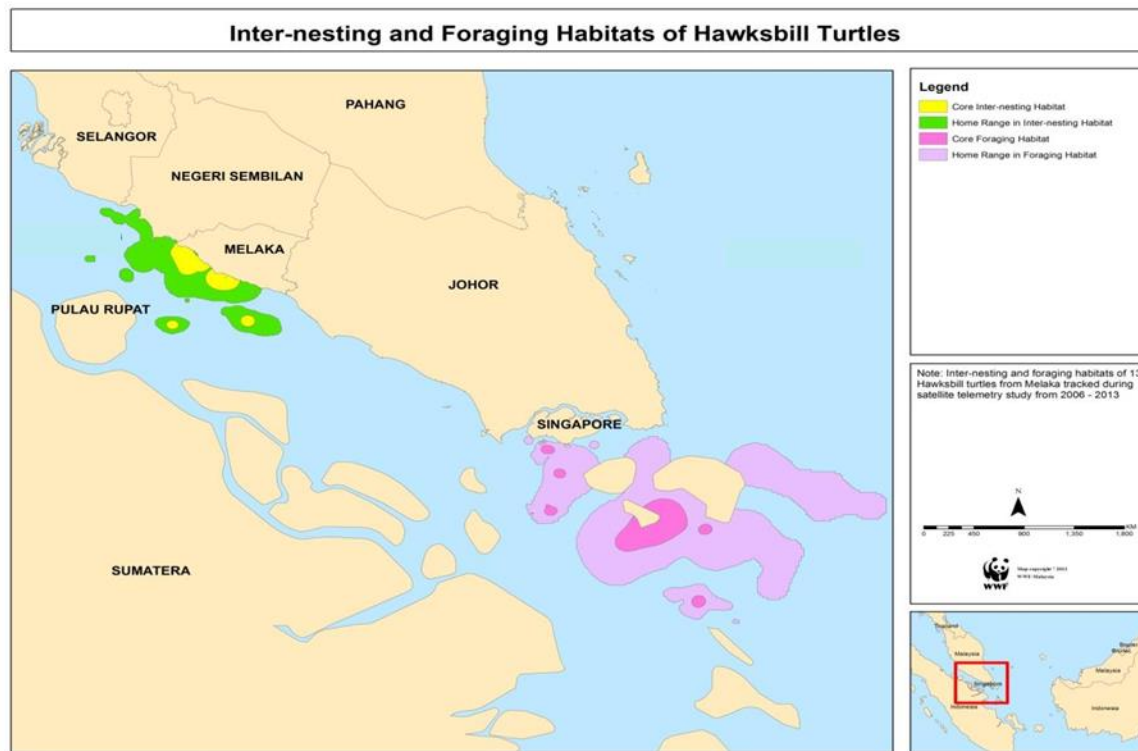
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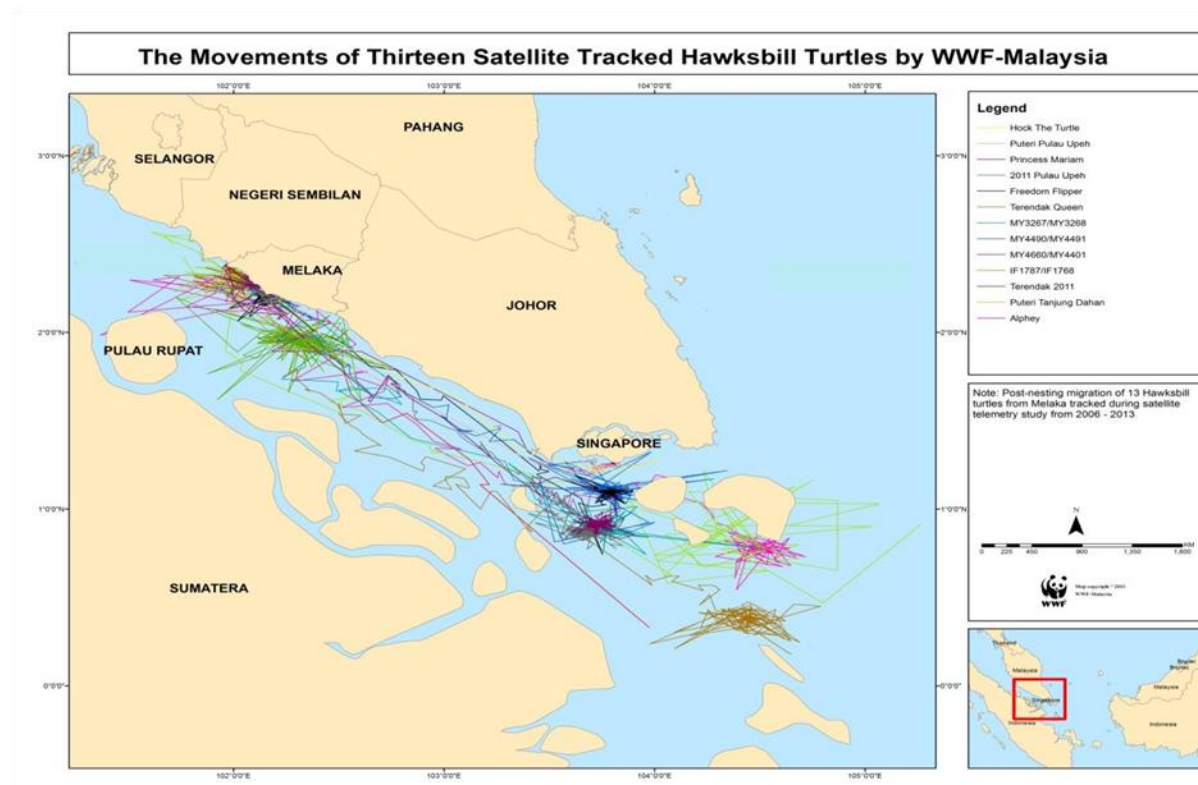
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Maps and Figures



Map 1 - The regional importance of the two populations from Melaka [INSERT SOURCE AND ENSURE IN LIST OF REFERENCES]

- Melaka nesting population migrated to Riau Archipelago of Indonesia and considered as foraging site for Melaka's Hawksbills. Satellite telemetry study of Melaka's hawksbill turtles (2006 – 2013)



Map 2 : The regional importance of the two populations from Melaka [INSERT SOURCE AND ENSURE IN LIST OF REFERENCES]

- Melaka nesting population migrated to Riau Archipelago of Indonesia and considered as foraging site for Melaka’s Hawksbills. Satellite telemetry study of Melaka’s hawksbill turtles (2006 - 2013)

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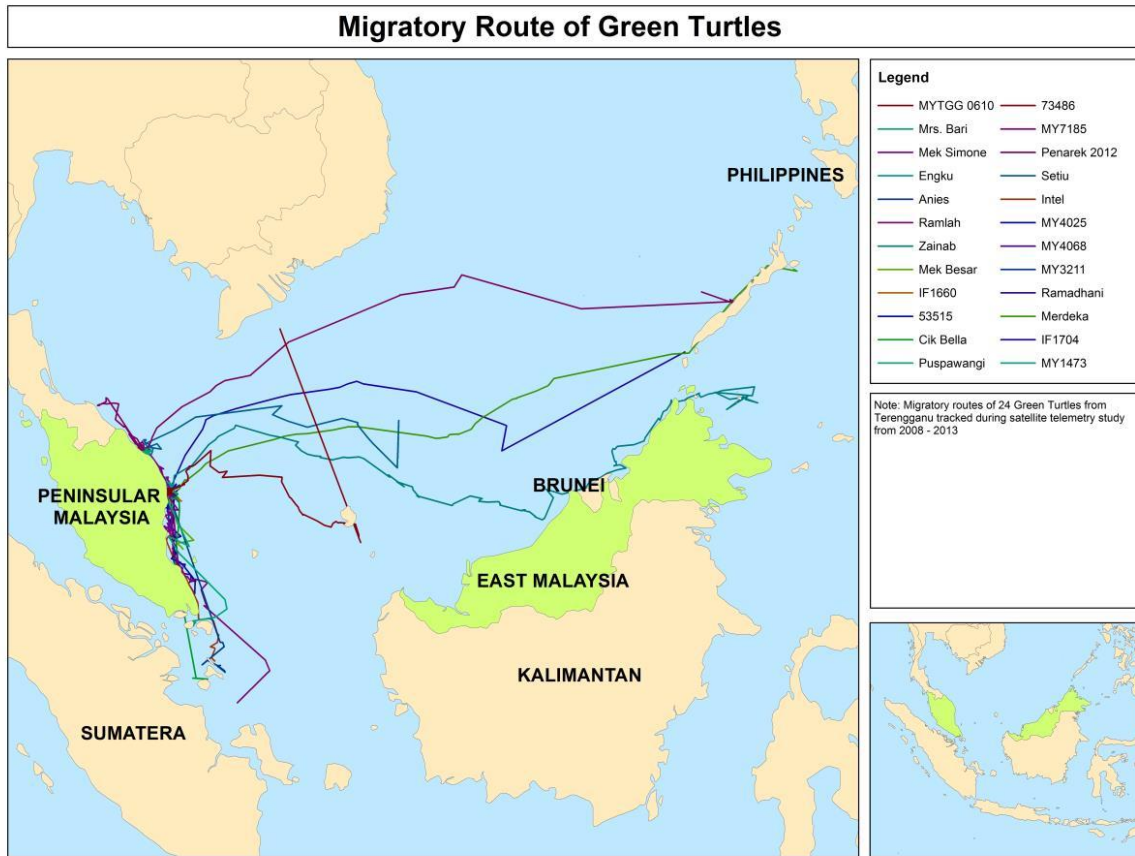


Figure 3. 24 Green turtles were attached with satellite telemetry. [INSERT SOURCE AND ENSURE IN LIST OF REFERENCES]

The regional importance of the population from Terengganu.

- Terengganu nesting population migrated to South of Philippines and the Riau Archipelago of Indonesia. These two are foraging sites.

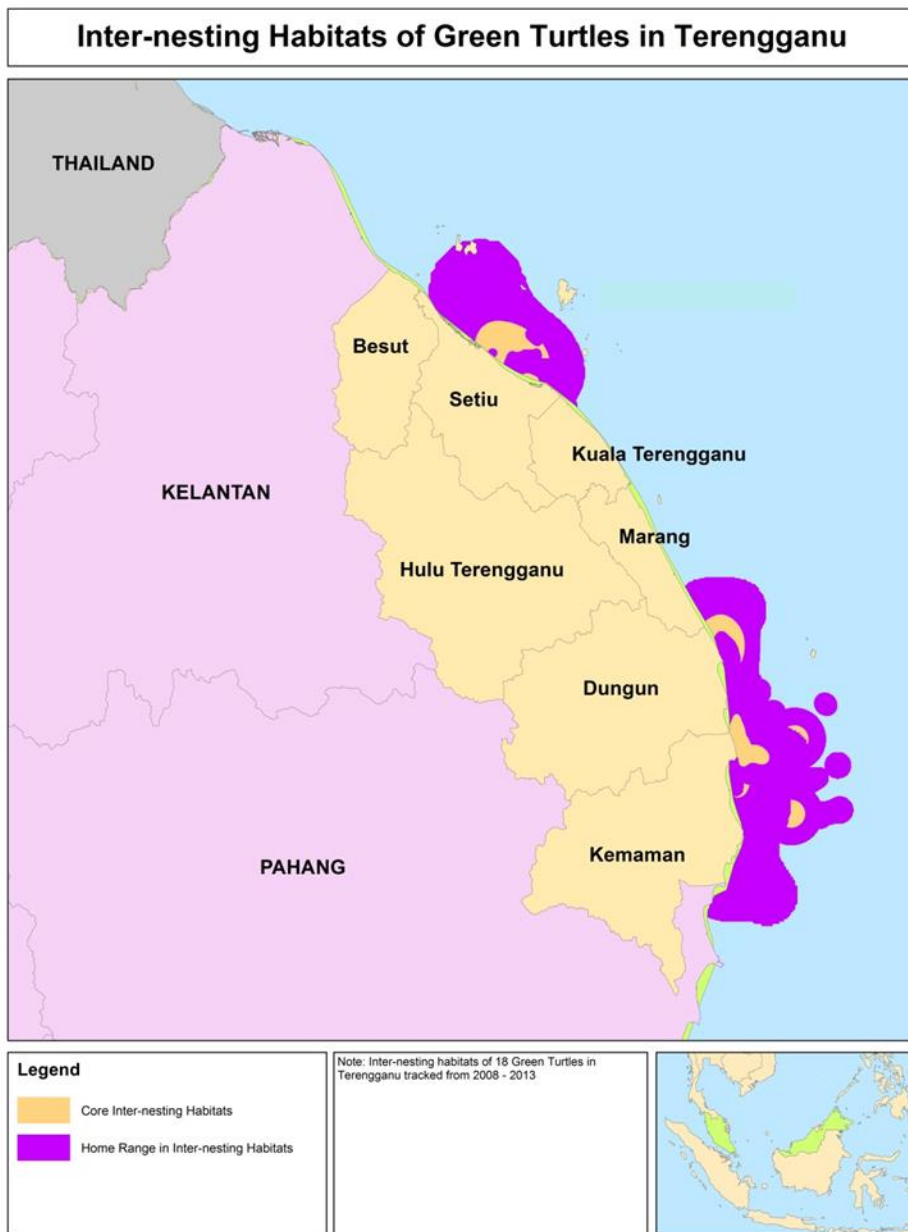


Figure 4. Inter-nesting habitat for the green turtles in Terengganu [INSERT SOURCE AND ENSURE IN LIST OF REFERENCES]

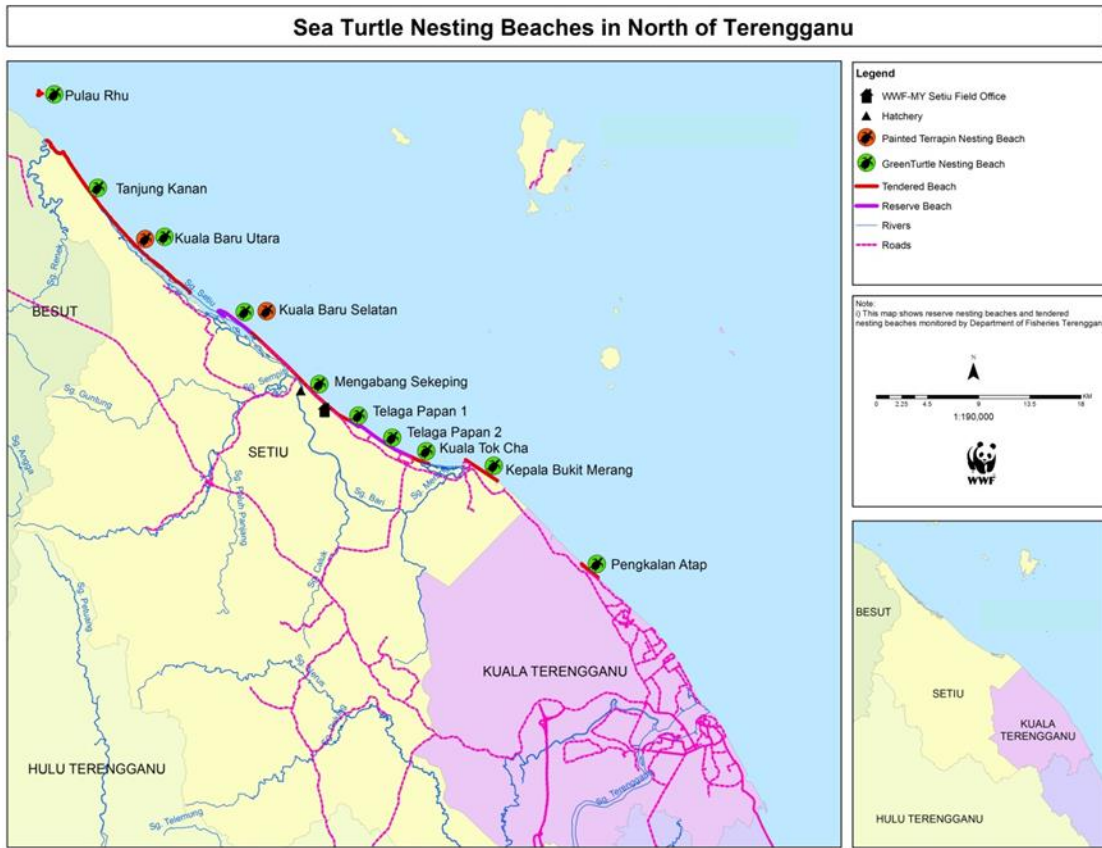


Figure 5. Sea turtle nesting beaches in North of Terengganu [INSERT SOURCE AND ENSURE IN LIST OF REFERENCES]



FIGURE 6. Sea turtle nesting beaches in South of Terengganu [INSERT SOURCE AND ENSURE IN LIST OF REFERENCES]

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Template No. 7

Abstract

The coral reefs in Tioman Marine Park are some of the best on the east coast of Malaysia and are generally in good condition. A study conducted in 2014 showed that the area's coral was in good condition, with 60 per cent live coral cover, 26 per cent in excellent condition and 37 per cent in good condition. The diversity of fish and invertebrates is average, and they are generally in low abundance. The main threats to coral reefs in Tioman Marine Park appears to be growth in tourism and related development, such as resorts and infrastructure. Tioman has the largest number of visitors annually of all east coast islands. Although development pressure in recent years has been low due to the greater popularity of other marine parks, more resorts have been built in the last two years, indicating that Tioman is again becoming a target for growth. With its biological diversity, Tioman is believed to be the seed-source for most of the marine biodiversity of the eastern part of Malaysia.

Introduction

The Tioman Marine Park archipelago consists of nine islands, which are the largest of the 42 marine park islands of Peninsular Malaysia. Located at 104° 11' E longitude and 02° 47' N latitude, the islands is 19km in length and 11km wide and has 25,115 hectares of sea area. Tioman Marine Park archipelago consists of nine island which is Tioman, Tulai, Chebeh, Labas, Sepoi, Seri Buat, Sembilang, Tokong Bahara and Jahat Island. This islands was established as Marine Park in 1994 for resources conservation, protection, management for the environment and also for awareness and education. The Tioman Marine Park is considered as sensitive area under the environment Quality Act 1974 (Act 127). All development project on island surrounded need an approved before work could commence. The topography of Tioman is unique with many beautiful features like the twin mountain peaks of Nenek Semukut a mesmerizing geological feature for sailor from ashore. The highest point is Mount Kajang at 1030 metres high from sea level, nestles deep at the heart of the islands. Most of the islands eastern shores are rugged with rocky outcrop inaccessible to boat landings. The terrestrial flora in particularly closely resembles that of Borneo rather than mainland Peninsular Malaysia. This therefore indicates that during the last ice age, Tioman island was probably connected to booth Peninsular Malaysia and Borneo (Ng et al.1999).

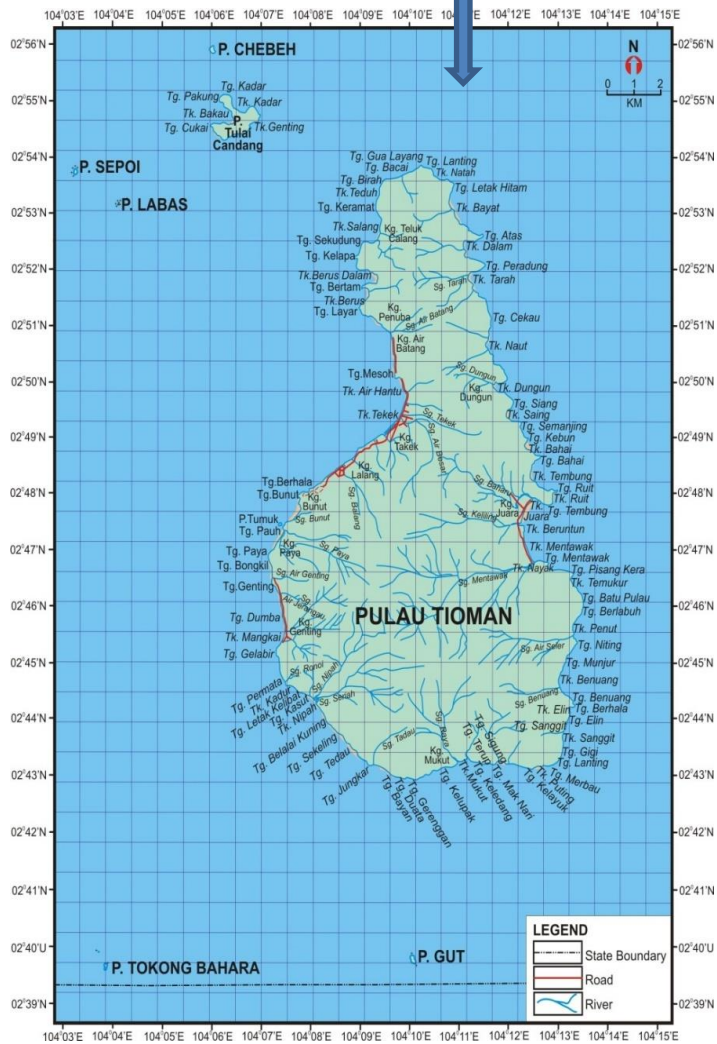
The island is bestowed with a wide range of ecotype. Mangrove forests (0m) are usually distributed in narrow belts along the coastline; coastal vegetation (0-80m) forms a narrow zone between the mangroves forests and the lower reaches of lowland dipterocarp forest; lowland dipterocarp forest (usually 80-300m) occurs on the alluvial slopes between coastal vegetation and hill dipterocarp forest; hill dipterocarp forest (300-950m) is situated immediately above and adjacent to the lowland dipterocarp forest which it is continuous; and ridge forest (hilltop summits between 950-1035m) occurs on summits where mosses, ferns, lichens and bryophytes dominate (Razali & Latiff,1999, Grismer, 2005).

It is situated at the edge of 2nd highest coral biodiversity hotspot in the world and can be consider that no other area on the East Coast of the peninsular ia as important for conserving corals as Harbone et al. (2000) had reported that it has the highest coral diversity compared to all other marine park on the East Coast. sea grass meadow would provide

Location

(Indicate the geographic location of the area/feature. This should include a location map.)

Located at 104° 11' E longitude and 02° 47' N latitude, the island is 19km in length and 11km wide and has 25,115 hectares of sea area.



[Maps need title and source. Note also that the first map is confusing, with the list of 7 areas—it is unclear as to what this refers to.]

Feature description of the proposed area

Marine Biodiversity

Coral reefs and inter-tidal habitats are abundant and serve among the main attractions that support its ecotourism industry. The marine area was gazetted as a marine park to protect its biodiversity. A total of 326 species of coral reef fish from 55 families were observed from coral reefs in Tioman Marine Park, based on the three studies.

55 macro invertebrate species were recorded by Kee Alfian et al (2005) including 3 *Tridacna* species and sea cucumbers that are commercial or medical importance.

Ahman & Rusea (1994) provided an inventory of 53 species of macro algae from 33 genera. Among these, 24 were new records. The diversity comprised 39.6% Rhodophyta, 35.8% Chlorophyta and 24.5 Phaeophyta, representing one-third of Malaysia's seaweed species richness.

Green (*Chelonia mydas*) and Hawksbill (*Eretmochelys imbricata*) turtle are two species nesting in some part in Tioman beaches (specific)

Tioman island subtidal seagrass meadow would provide good refuge for dugong traveling between islands on the east coast of Peninsular Malaysia.

Some rare and important species were observed such as the Black Stripe Coris (*Coris pictoides*), two rare and undescribed gobies (Gobiidae) *Amblyeleotris* sp. and the rare perch *parapercis* sp. in addition seventeen species that are categorized by Veron & Stafford-Smith (2000) to be rare worldwide were found in Tioman.

The Climate

The climate of the island group is typically hot and humid all year around. The temperature usually reaches 30⁰ C or more during the day. Humidity is generally about 90%. The monsoon season is between Novembers until March. During this time there is heavily rainfall and the surrounding seas are rough, making the island almost inaccessible by boat.

Coastal Water Quality

A study 16 different study sites were selected in the coastal water around the Tioman island in 2012 (marine biodiversity expedition report 2012). The overall mean values of different water quality recorded in the all sampling stations were temperature 27.98 ± 0.40 oC, pH 8.34 ± 0.02, dissolved oxygen 6.92 ± 0.43 (mg/l), salinity 33.54 ± 0.11pss, TSS 0.39 ± 0.03 g/L, nitrate 0.85 ± 0.55µM, phosphate 0.16 ± 0.09 µM, silicate 2.62 ± 0.076 µM. The water temperature was more or less constant with a very narrow range of 27.2⁰ C (station 9) – 28.5⁰ C (station 5). Statistical analysis gave evidence that different anthropogenic activity affecting some of the water quality parameters. For example, temperature, dissolved oxygen, transparency, salinity and ammonia were significantly affected by anthropogenic activity, while anthropogenic activity had no significant effects on pH, total suspended solids, nitrate and phosphate. Significantly lower water temperature was observed in stations, which are located near residential area than in stations, which are characterized only by snorkeling activity and followed by the stations with no human activity. The possible reason of lower water temperature in the stations near residential area might be due to more agitation of water by human activity (both residential and snorkeling activities). Mixing of surface and bottom water through human activity can also explain why oxygen concentration was higher and water transparency was lower in stations with human activity than in other stations. Nitrate and

phosphate were higher in stations with human activity than in station with snorkeling activity and following by the stations with no human activity. The possible reason of highest nitrate and phosphate in the stations near residential area might be due to organic and inorganic waste, which are normally discharged from residential area. The organic and inorganic waste are normally very rich in nitrogen and phosphorous and increase nitrate and phosphate concentration of water after bacterial decomposition (Rahman et al.2008a; Rahman et al., 2008b; Rahman et al., 2008c)

Substrates

A study in 2012 [INSERT REFERENCE] was conducted to map the substrate coverage details of the survey areas based on data acquisition (image and profile of seabed). A total of 24,194 signals were sent and recorded using single frequency echo sounder throughout the substrate data acquisition for all twelve predetermined sites. Twelve types of substrates were identified and classified. The percentage substrates is shown in figure below.

The results indicate that sand is the most common substrate (45.65%) followed by mixed coral (20.86%) and branching coral (13.26%), while coral rubble has the lowest percentage of signal (0.38%) followed by boulder coral (0.43%).

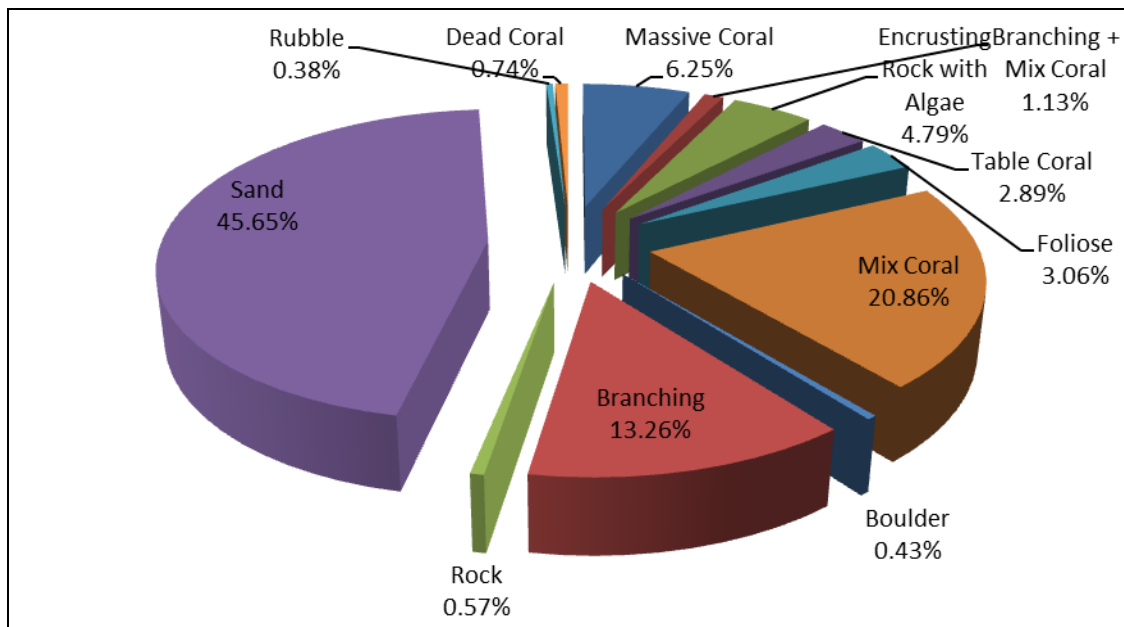


Figure 1: Percentage number of signals for substrate distribution around Tioman Island for all twelve sites.

[INSERT SOURCE]

Fish

All indicator fish were observed except for barramundi cod. However, although diversity is wide, abundances are low. Butterflyfish recorded the highest abundance in Tioman, follow by snapper and parrotfish. The number of butterflyfish in Tioman is the highest recorded in all states. Other indicators were recorded in very low numbers. Of all states surveyed, only Pahang and Sabah recorded both humphead wrasse and bumphead parrotfish, prized food fish and targeted for the live food fish market. [INSERT REFERENCE]

Reef Health

In 2014, the condition of live coral cover in Tioman Island Archipelago was good, with a 60 per cent mean of live coral. [INSERT REFERENCE] Thus, though the coral cover was still high in this area, Kg Genting and Soyak Island exhibited relatively high percentages of dead coral. Moreover, based on field observations, the high sedimentation in Teluk Juara also resulted in poor coral cover. The strong current from the open sea might be the reason, but evidence indicated that the other two sites (Teluk Bayat and Teluk Benuang), which also face the open sea, have good coral cover. Therefore, it is speculated that anthropogenic release and boat activities from Kg Juara might increase the sedimentation, which is smothering the coral in this area. Renggis Island, which is located near Kg Tekek, has among the highest percentage of coral cover. It is assumed that the effluent from this village might be carried away by the strong current between Renggis Island and Kg Tekek, resulting in good coral condition in this area.

Percentage of live coral cover	Rating
0-25	Poor
26-50	Fair
51-75	Good
76-100	Excellent

[INSERT CAPTION AND SOURCE]

Mangrove Diversity

A total of 22 mangrove species were found across the Tioman island and Tulai islands, including exclusive [ENDEMIC?] and non-exclusive species. Out of 22 mangrove species, 15 were exclusive and seven were non-exclusive. Species from the genera *Avicennia*, *Rhizophora*, *Sonneratia* and *Bruguiera* were found in almost every station. However, in Kg. Nipah, *Nypa fruticans* was dominant and other species were only observed behind the *Nypa fruticans* belt. The natural physical properties of Kg. Nipah protected the coastline, and the vast freshwater discharge from upstream has reduced the salinity of the water, thus creating a suitable habitat for *Nypa fruticans*.

No	Family	Species	Life-form	Type*
1	Avicenniaceae	<i>Avicennia sp</i>	Tree	E
2	Combretaceae	<i>Lumnitzera racemosa</i>	Shrub/tree	E
3	Combretaceae	<i>Terminalia cattappa</i>	Tree	NE
4	Leguminosae	<i>Mitelia pinnate</i>	Tree	NE
5	Leguminosae	<i>Aganope heptaphylla</i>	Tree	NE
6	Malvaceae	<i>Hibiscus tiliaceus</i>	Tree	NE
7	Malvaceae	<i>Thespecia populnae</i>	Tree	NE
8	Meliaceae	<i>Xylocarpus granutum</i>	Tree	E
9	Myrsinaceae	<i>Aegiceras sp</i>	Shrub	E
10	Palmae	<i>Nypa fruticans</i>	Palm	E
11	Palmae	<i>Oncosperma tigillarum</i>	Palm	NE
12	Pteridaceae	<i>Acrosticum aureum</i>	Fern	NE
13	Rhizophoraceae	<i>Rhizophora apiculata</i>	Tree	E
14	Rhizophoraceae	<i>Rhizophora mucronata</i>	Tree	E
15	Rhizophoraceae	<i>Rhizophora stylosa</i>	Tree	E
16	Rhizophoraceae	<i>Bruguiera cylindrica</i>	Tree	E
17	Rhizophoraceae	<i>Bruguiera gymnorrhiza</i>	Tree	E
18	Rhizophoraceae	<i>Bruguiera sexangular</i>	Tree	E
19	Rhizophoraceae	<i>Cerios sp.</i>	Tree	E
20	Sonneratiaceae	<i>Sonneratia alba</i>	Tree	E

21	Sonneratiaceae	<i>Sonneratia ovate</i>	Tree	E
22	Sterculiaceae	<i>Heritiera globosa</i>	Tree	E

*E = exclusive[ENDEMIC?] species, NE = non-exclusive, source; Aston and Macintosh 2002; Lokman 2004 [INSERT FULL REFERENCE IN LIST OF REFERENCES]

Phytoplankton

Tioman Island has high diversity of phytoplankton, with a total of 121 species having been identified. The dominant species was from the family of Rhizosoleniaceae, followed by family Chaetocerotaceae. [INSERT REFERENCE]

Species division	Species name
Diatoms (Bacillariophyta)	
Biddulphiales	
Biddulphiineae	Chaetocerotaceae Ralfs in Prichard 1861
	<i>Bacteriastrum comosum</i>
	<i>Bacteriastrum delicatulum</i>
	<i>Bacteriastrum hyalinum</i>
	<i>Bacteriastrum varians</i>
	<i>Chaetoceros aequatorialis</i>
	<i>Chaetoceros affinis</i>
	<i>Chaetoceros compressum</i>
	<i>Chaetoceros constrictum</i>
	<i>Chaetoceros curvisetus</i>
	<i>Chaetoceros danicus</i>
	<i>Chaetoceros decipiens</i>
	<i>Chaetoceros distans</i>
	<i>Chaetoceros furcellatus</i>
	<i>Chaetoceros lacinosum</i>
	<i>Chaetoceros laeve</i>
	<i>Chaetoceros lauderii</i>
	<i>Chaetoceros lorenzianum</i>
	<i>Chaetoceros paradoxum</i>
	<i>Chaetoceros peruvianus</i>
	<i>Chaetoceros pseudocurvisetum</i>
	<i>Chaetoceros radians</i>
	<i>Chaetoceros similis</i>
	<i>Chaetoceros</i> sp.
	Eupodiscaceae Kützing 1849
	<i>Odontella sinensis</i>
	<i>Odontella mobilensis</i>
	Hemiaulaceae Jouse, Kisselev & Poretsky 1949
	<i>Cerataulina bicornis</i>
	<i>Cerataulina pelagica</i>
	<i>Eucampia cornuta</i>
	<i>Eucampia zodiacus</i> f. <i>zodiacus</i>
	<i>Hemialus hauckii</i>
	<i>Hemialus indicus</i>
	<i>Hemialus membranaceus</i>
	<i>Hemialus sinensis</i>

	<i>Pseudoguinaridia recta</i>
	Lithodesmiaceae Peragallo 1897-1908 emend. Simonsen 1979
	<i>Ditylum brightwellii</i>
Coscinodiscineae	Asterolampraceae H.L. Smith 1872 emend. Gombos 1980
	<i>Asteromphalus cleveanus</i>
	Coscinodiscaceae Kutzing 1844
	<i>Coscinodiscus concinnus</i>
	<i>Coscinodiscus excentricus</i>
	<i>Coscinodiscus gigas</i>
	<i>Coscinodiscus lineatus</i>
	<i>Coscinodiscus</i> sp.
	<i>Coscinodiscus subtilis</i>
	Leptocylindraceae Lebour 1930
	<i>Corethron criophilum</i>
	<i>Leptocylindrus danicus</i>
	<i>Leptocylindrus minimus</i>
	Thalassiosiraceae Lebour 1930 emend. Hasle 1973
	<i>Lauderia annulata</i>
	<i>Skeletonema menzellii</i>
	<i>Skeletonema costatum</i>
Rhizosoleniineae	Rhizosoleniaceae De Toni 1863
	<i>Dactyliosolen antarcticus</i>
	<i>Dactyliosolen fragilissimus</i>
	<i>Dactyliosolen phuketensis</i>
	<i>Guinardia cylindrus</i>
	<i>Guinardia delicatula</i>
	<i>Guinardia flaccida</i>
	<i>Guinardia striata</i>
	<i>Pseudosolenia calcar-avis</i>
	<i>Proboscia alata</i>
	<i>Proboscia truncata</i>
	<i>Rhizosolenia arafurensis</i>
	<i>Rhizosolenia bergonii</i>
	<i>Rhizosolenia crassa</i>
	<i>Rhizosolenia curvata</i>
	<i>Rhizosolenia debyana</i>
	<i>Rhizosolenia formosa</i>
	<i>Rhizosolenia hebetata</i> f. <i>semispina</i>
	<i>Rhizosolenia hebetata</i> f. <i>hebetata</i>
	<i>Rhizosolenia hyaline</i>
	<i>Rhizosolenia imbricata</i>
	<i>Rhizosolenia setigera</i>
	<i>Rhizosolenia stouterforthii</i>
	<i>Rhizosolenia striata</i>
	<i>Rhizosolenia styliformis</i>

Bacillariales

Bacillariineae

Bacillariaceae Ehrenberg 1831

*Bacillaria paradoxa**Nitzschia closterium**Nitzschia longissima**Nitzschia sicula**Pseudo-nitzschia* sp

Naviculaceae Kutzing 1844

*Diploneis didyma**Diploneis smithii**Amphora* sp.*Ephemera planamembranacea**Haslea trompii**Haslea wawrikan**Membraneis challengerii**Meuniera membranacea**Navicula elongatulum**Navicula distans**Navicula glacialis**Navicula lyra**Navicula pelagi**Navicula transitrans**Navicula* sp.*Pinnularia acuminata**Pinnularia bogotensis**Pleurosigma elongatum**Pleurosigma naviculaceum**Pleurosigma normanii**Pleurosigma salinarum*

Fragilariineae

Thalassionemataceae F.E. Round in Round et al., 1990

*Lioloma elongatum**Lioloma pacificum**Thalassionema bacillare**Thalassionema javanicum**Thalassionema nitzschioides*

Diatoms (Bacillariophyta)

Cymbellales

Gomphonemataceae

Gomphonema parvulum

Dinoflagellates (Dinophyta)

Dinophysiales

Dinophysiaceae

*Dinophysis caudata**Dinophysis miles*

Gonyaulacales

Ceratiaceae Lindemann 1928

*Ceratium declinatum**Ceratium furca**Ceratium fusus**Ceratium trichoceros**Ceratium tripos*

Goniodomataceae

Alexandrium sp.*Schuetiella mitra*

Noctilucales	Noctilucaceae Kent 1881 <i>Noctiluca scintillans</i>
Peridinales	Oxyphysaceae <i>Oxytoxum</i> sp. Protopteridiniaceae F.J.R. Taylor 1987 <i>Protopteridinium pellucidum</i> <i>Protopteridinium</i> sp.
Prorocentrales	Prorocentraceae Stein 1883 <i>Prorocentrum sigmoides</i> <i>Prorocentrum</i> sp.
Cyanobacteria	
Nostocales	Nostocaceae <i>Anabaena</i> sp. Phormidiaceae <i>Trichodesmium</i> sp.

[TITLE AND SOURCE TO INSERT]

Feature condition and future outlook of the proposed area

The management effectiveness assessment tool (MEAT) was used in 2013 to evaluate the effectiveness of management by authorities in Tioman. The resulting score of 3 out of 4 indicated that the management was sustainable. [INSERT REFERENCE]

It was determined that coral in the area had been damaged by bleaching and illegal anchoring by boats, and action was taken by the Department of Marine Parks to restore the coral.

New dive sites, such as sunken ships, were introduced to divert divers from diving at the natural reef.

Habitat mapping in Seri Buat and Sembilang island was carried out in 2015 in order to get the baseline data of the Tioman archipelago.

Assessment of the area against CBD EBSA Criteria [REFERENCES AND FURTHER EXPLANATIONS TO BE ADDED]

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				X
Multi ecosystem, biodiversity, mangrove, megafauna, limestone pinnacle, volcanic rock. [PLEASE CLARIFY] Some rare and important species have been observed in Tioman, such as the blackstripe coris (<i>Coris pictoides</i>), two rare and undescribed gobies (Gobiidae), [INSERT SPECIES NAMES] <i>Amblyeleotris</i> sp. and the rare perch <i>parapercis</i> sp., in addition to 17 species that are categorized by Veron & Stafford-Smith (2000) [ENSURE THIS REFERENCE IS ADDED TO REFERENCE LIST to be rare worldwide. [ADDITIONAL REFERENCES?]					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.				X

Breeding, nursery and feeding grounds for many species of fish and other animals, while the beaches offer nesting sites for the hawksbill turtle (<i>Eretmochelys imbricata</i>) and the endangered green turtle (<i>Chelonia mydas</i>). Four sea turtle nesting beaches [INSERT SPECIES NAMES] The seagrass meadow is visited by grazing dugongs (<i>dugong dugon</i>)[INSERT REFERENCES]					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.				X
There are turtle landing beaches at Seri Buat, Sembilang, Tioman and Tulai Island Renggis North, Renggis South and Soyak North recorded the highest resilience scores for coral reef[INSERT REFERENCE AND MORE DETAILS] A management plan was developed to protect the special preservation areas in Tioman.					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.				X
Number of visitors is high as the island developed for tourism - vulnerable to human threats Reef Check Malaysia (2011) reported that much of the dead coral in Tioman Island may due to the mass bleaching event occurred in 2010. [This section should refer to the inherent vulnerability of the area].					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.				X
<i>High diversity on coral and mangrove</i> [Species names, reference. There is not enough content here to justify a “high” score. Can you provide more detail?]					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.				X
A total of 326 species of coral reef fish from 55 families were observed from coral reefs in Tioman Marine Park, based on the three studies.[WHICH STUDIES? PROVIDE REFERENCE] 55 macro invertebrate species were recorded by Kee Alfian et al. (2005) [INSERT FULL REFERENCE IN LIST] including three <i>Tridacna</i> species and sea cucumbers that are of commercial or medical importance. Ahman and Rusea (1994) [INSERT FULL REFERENCE IN LIST] provided an inventory of 53 species of macro algae from 33 genera. Among these, 24 were new records. The diversity comprised 39.6% Rhodophyta, 35.8% Chlorophyta and 24.5 % Phaeophyta, representing one-third of Malaysia’s seaweed species richness. Green (<i>Chelonia mydas</i>) and hawksbill (<i>Eretmochelys imbricata</i>) turtles nest on some of the beaches of Tioman Island (specific) [CLARIFY?] The subtidal seagrass meadows of Tioman Island would provide good refuge for dugong (<i>dugong dugon</i>) traveling between islands on the east coast of Peninsular Malaysia. [HAVE THEY BEEN OBSERVED HERE? PLEASE CLARIFY]					

Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.			X	
There are seven villages occupied by the local communities of Pulau Tioman: Kg. Tekek, Kg. Ayer Batang, Kg. Salang, Kg. Juara, Kg. Mukut, Kg. Nipah, Kg. Paya and Kg. Genting. The population size is estimated at 3900. Out of 9 islands in the archipelago, only Tioman is populated. More than 20 chalets/resorts operate in Tioman Island. [COMMENT ON NATURALNESS?]					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High
<i>Add relevant criteria</i>					
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

References

(e.g. relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to other relevant material, models, etc.)

Summary OF Status of Coral Reefs in Malaysia 2014
 Marine Biodiversity Expedition Report 2012 Volume 4
 Coral Reef Resilience – Rapid Assessment of the Coral Reefs of the Marine Parks of Redang, Tioman and Sibutu-Tinggi, Malaysia
 Natural History of The Tioman Groups of Islands
 Coral Cay Conservation
 Reef Check Malaysia 2011? Please add and provide full reference. Several others are missing also.
 [INSERT COMPLETE REFERENCES AND ENSURE THAT ALL MENTIONED IN TEXT ARE INSERTED HERE]

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Template No. 8

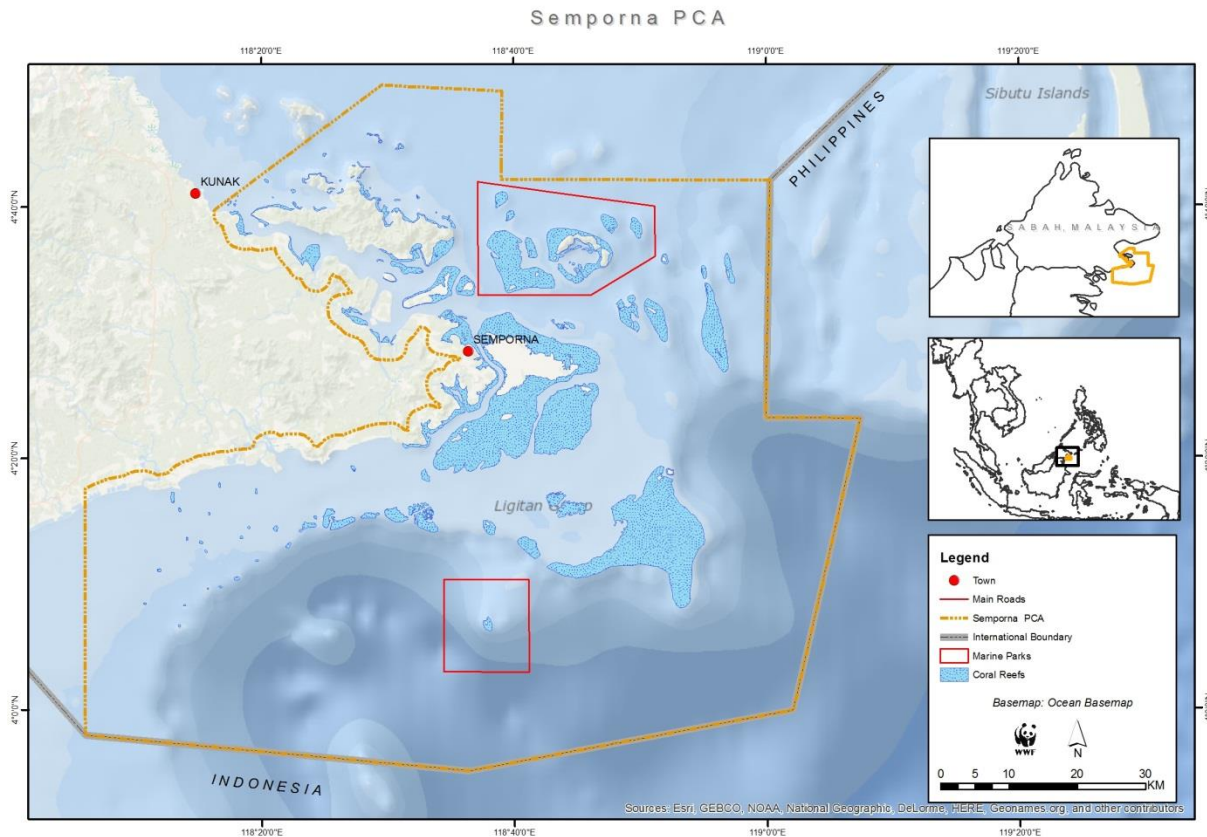
Abstract

The Semporna Priority Conservation Area (PCA) is one of the Globally Significant PCAs in Malaysia within the Sulu-Sulawesi Marine Ecoregion (SSME). It has Malaysia's largest concentration of coral reefs linked to complex habitats, including mangroves and seagrass beds, and is home to 400 species of hard corals, 650 species of fish, endangered green and hawksbill turtles, and contains migratory routes for whale sharks and manta rays. The SSME is located at the apex of the Coral Triangle.

Introduction

Semporna Priority Conservation Area (PCA) is part of the Sulu-Sulawesi Marine Ecoregion (SSME) an area encompassing the three countries of Malaysia, Indonesia and the Philippines; an area amounting to over 1,000,000 square kilometers of both land and sea. This eco-region contains a wealth of biodiversity that includes over 650 species of reef fishes (including the endangered humphead wrasse), 400 species of both hard and soft corals, 400 species of marine algae, and 5 out of the 7 marine turtle species that exist in the world. SSME is located at the apex of the Coral Triangle, which the centre of the world's marine biodiversity hotspot.

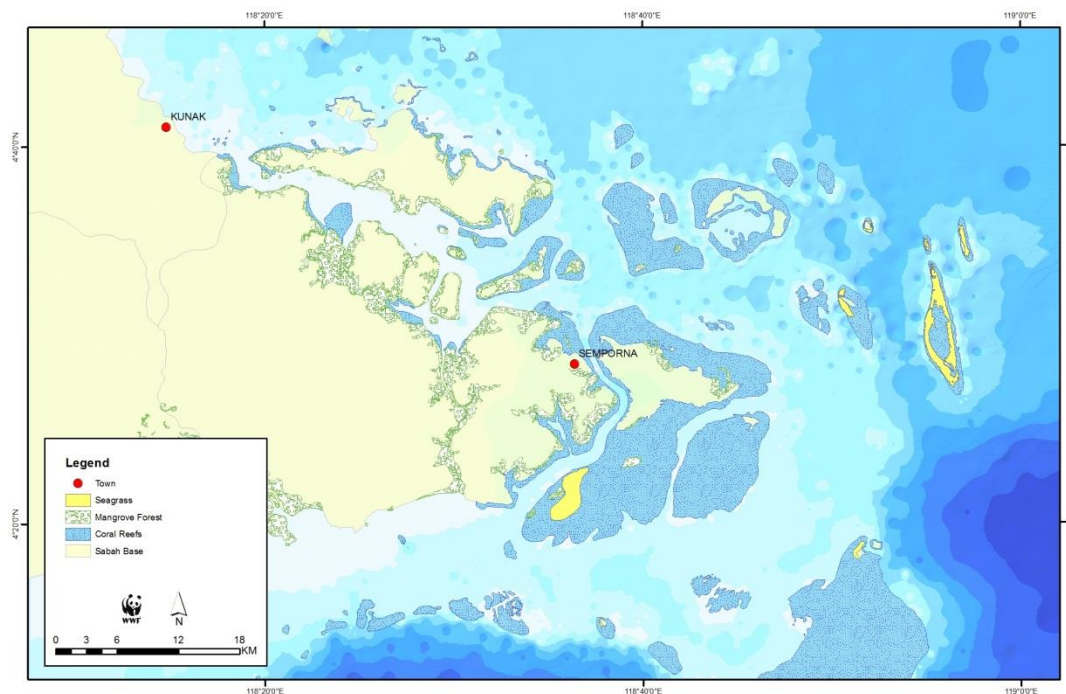
In year 2010, the Semporna Marine Ecological Expedition (SMEE) was conducted to document the biodiversity and reef status in Semporna PCA (Kessem *et al.*, 2011). A total of 44 species of mushroom coral (Fungiidae), 31 Agariciidae and 15 Euphyllidae were recorded in Waheed & Hoeksema (2013). Semporna waters harbour high species richness of coral, rich mix of reef types, and also had the highest concentration of reefs in Malaysia. Semporna PCA is considered a multiple use area. Presently, the protected areas within Semporna PCA are Tun Sakaran Marine Park (35,000 ha) and Sipadan Island Park (16,800 ha), which are managed by Sabah Parks. These two parks represent less than 7 per cent of the total area of the PCA; the remaining 93 per cent of the PCA has no form of formal protection, usually associated with park or protected status.



Map 1 : The boundary of Semporna Priority Conservation Area.[Source to be inserted]

Location

The Semporna Priority Conservation Area is located at the southeast corner of the Malaysian state of Sabah on the island of Borneo. It lies at the western margin of the Sulawesi Sea within the Sulu Sulawesi Marine Ecoregion and the Coral Triangle. It covers approximately 7680km² of water areas with 670 km² of coral reefs, 240km² mangrove forests (including the mangrove on island) and only 10.83km² of seagrass beds (as in the map below)



Map 2: The Distribution of Benthic Habitat for Semporna Priority Conservation Area.[Source to be inserted]

Feature description of the proposed area

The Semporna reefs consist of five major geomorphological reef types, which include lagoonal reefs inside a proto-atoll, fringing reefs, continental patch reefs, a barrier reef and a reef capping an oceanic island (Kassem et al., 2011; Waheed & Hoeksema, 2013). Furthermore, some new species were discovered, among which at least two shrimps and possibly a number of gall crabs (van der Meij & Hoeksema, 2012).

Feature condition and future outlook of the proposed area

The reef status of the Semporna was over-exploited and stressed by fishing activities (Ho & Kassem 2009), especially destructive fishing. Destructive fishing, which includes blast and cyanide fishing, threatens 85 percent of Malaysia’s reefs (Burke et al., 2012). Blast fishing, also known as fish bombing, is highly irreversible (Fox et al., 2003) and poses the highest threat to the near shore reefs of Sabah (Burke et al., 2012). Hence, the enforcement authorities are working together to curb this issue.

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few			x	

	locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p><i>Lithophyllon ranjithi</i> (Ditlev et Al., 1999) is an endangered reef building coral that is found within a highly restricted range around northeast Borneo. Colonies form plate like structures which protrude away from the edge of steep rocky substrate like ledges. Little is known about this species' ecology as it is still relatively new to science, having only been discovered in 2003. This species has a highly limited distribution, found within just a 243km² area around northeast Borneo.</p> <p>The population trend of this specific species is unknown. Southeast Asia however contains the highest proportion of threatened reefs in the world (95%) and almost half of its reefs are highly or very highly threatened. It is estimated that coral cover is being lost at a rate of between 1-2% annually in the Indo-pacific. From these data it is inferred that this species is declining</p> <p>http://www.edgeofexistence.org/coral_reef/species_info.php?id=1882</p> <p>Hoeksema, B., Rogers, A. & Quibilan, M. 2008. <i>Lithophyllon ranjithi</i>. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <www.iucnredlist.org>. [Reference to be added at the end, and "Hoeksema 2008" retained here]</p>					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.	x			
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p>					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.				x
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>The status of marine turtles in the north-east Semporna Priority Conservation Area was evaluated and updated by Jolis & Kassem (2011) and Jolis (2014; see maps below). As Semporna PCA harbours 10.83km² of seagrass bed , it is not surprising to find 50-100 turtles [insert species name] during aerial surveys conducted by the Tropical Research and Conservation Centre (2012) [INSERT IN REFERENCE LIST] within 2 islands from Northeast Semporna (Pom Pom and Pandanan islands).</p> <p>Globally threatened reptiles (IUCN, 2002): Critical: hawksbill turtle (<i>Eretmochelys imbricata</i>); endangered: green turtle (<i>Chelonia mydas</i>)</p>					
Vulnerability, fragility,	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that				x

sensitivity, or slow recovery	are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.				
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Coral vulnerability assessment in Sabah (Burke, 2003) was done based on the depth, embayment, fetch, and proximity to land and pollution sources, and this report found that the 50% of corals in Semporna are in categories of high and very high. These reefs that are near the land are also prone to coastal development, where the other half of the reefs (further away from mainland) are threatened by destructive fishing (Burke, 2003)					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.				
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents) [RANKING TO BE INSERTED]</i>					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.				
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents) [RANKING TO BE INSERTED]</i>					
The coral reefs and marine life surrounding the island is well known for its rich diversity globally (Wood, 1987; Wong, 1991; Nichols and Stachels, 1999). [ENSURE THAT ALL REFERENCES APPEAR IN THE LIST AT END OF TEMPLATE] [INSERT REFERENCE IN LIST AT END OF TEMPLATE] High richness of reef-dwelling and pelagic fish found Semporna area during the SMEE expedition 2011 (Kassem <i>et al.</i> , 2011). A total of 690 species from 265 genera and 72 families were found during roving surveys and rotenone stations. Another 78 species were recorded during the wet market survey, make a total of 768 species for the entire expedition. It is predicted the Semporna reef fish may reach 966 species, which enable Semporna to be recognized as the top 5 sites in the Coral Triangle for fish richness.					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.	x			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High

<i>Add relevant criteria</i>					
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

References [ENSURE THAT THIS LIST CONTAINS ALL REFERENCES CITED IN TEXT ABOVE]

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Maps and Figures

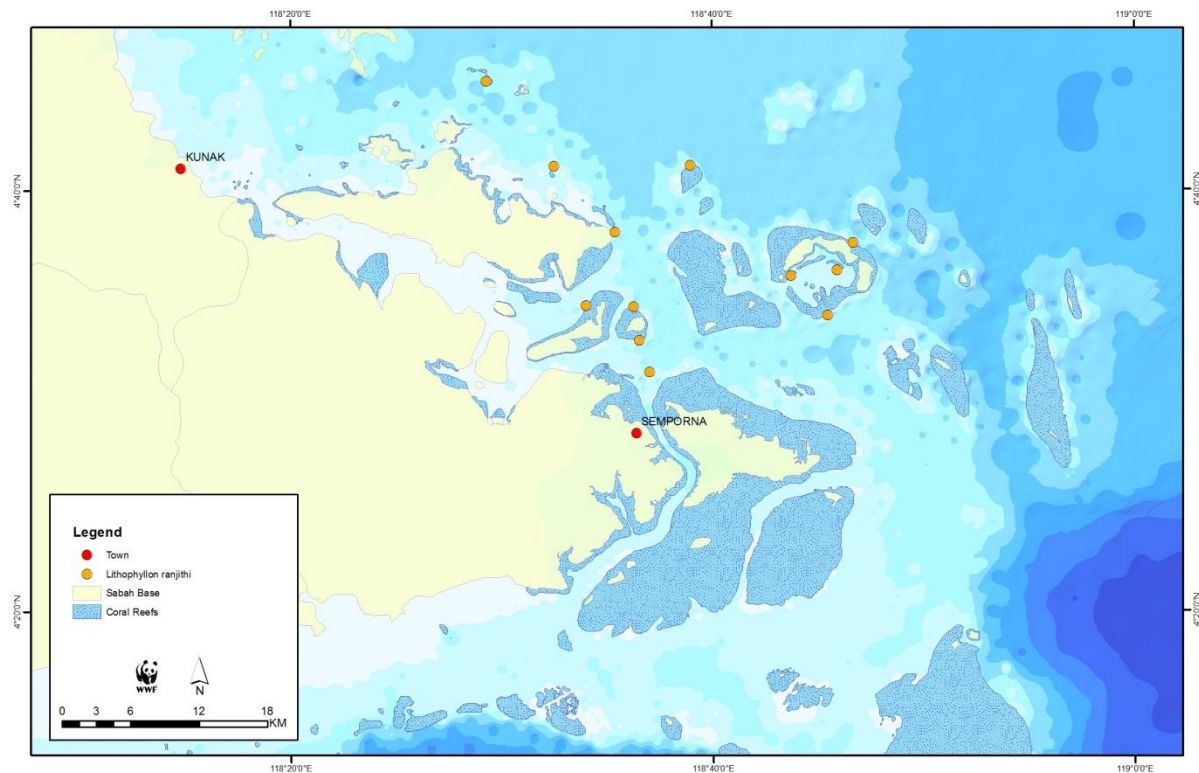


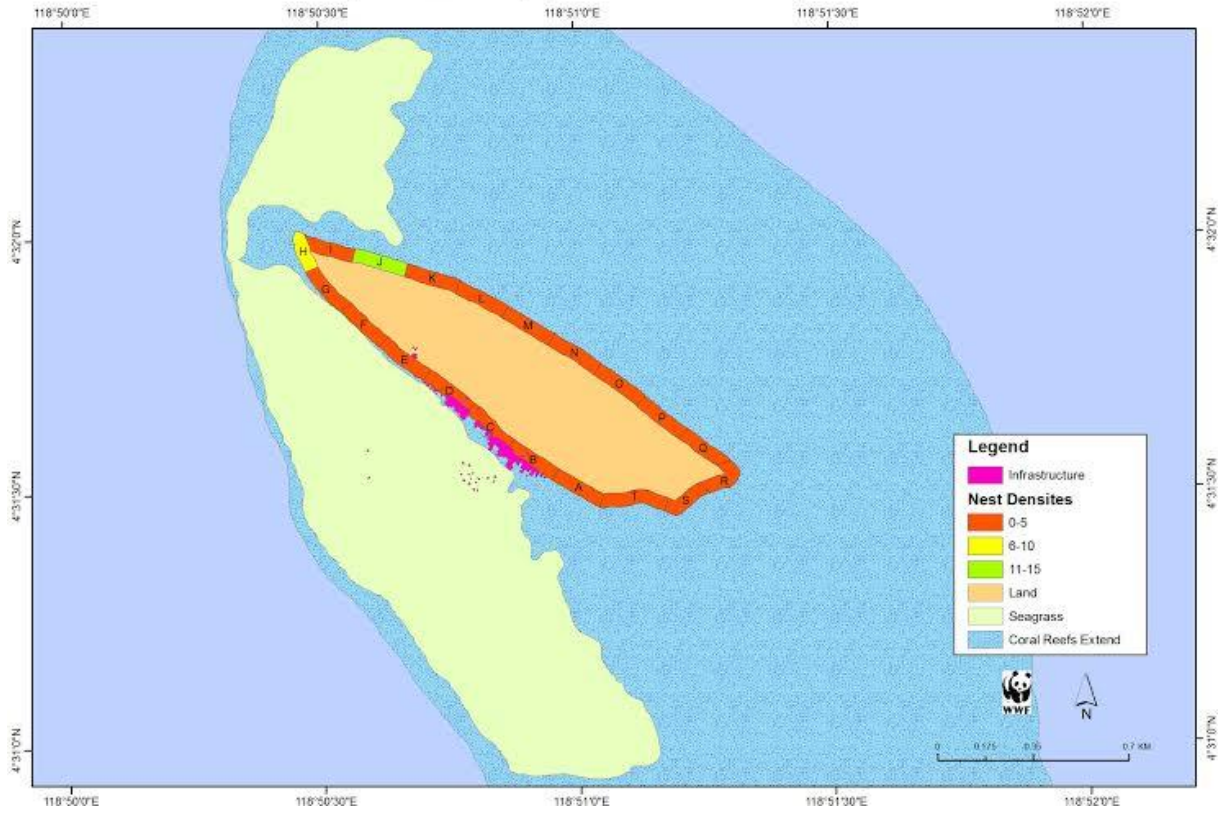
Figure 3: Distribution of endangered coral species (*Lithophyllon ranjithi*) in Semporna PCA [INSERT SOURCE]

Figure 4 a,b,c,d,e,f : The six maps for the seagrass bed and turtles nesting distribution of six islands in northeast Semporna Priority Conservation Area (WWF-Malaysia) [INSERT FULL SOURCE]

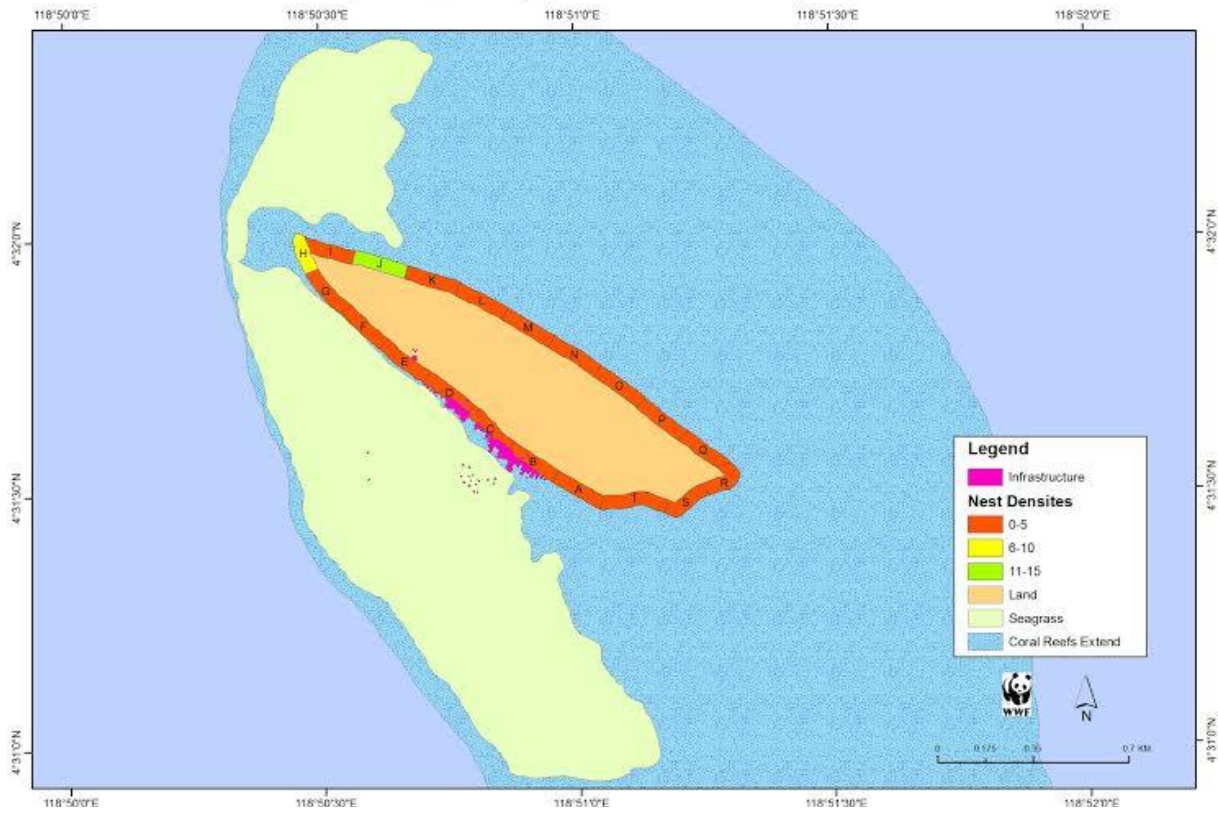
Seagrass and nesting spatial distribution at Boheyuan Island



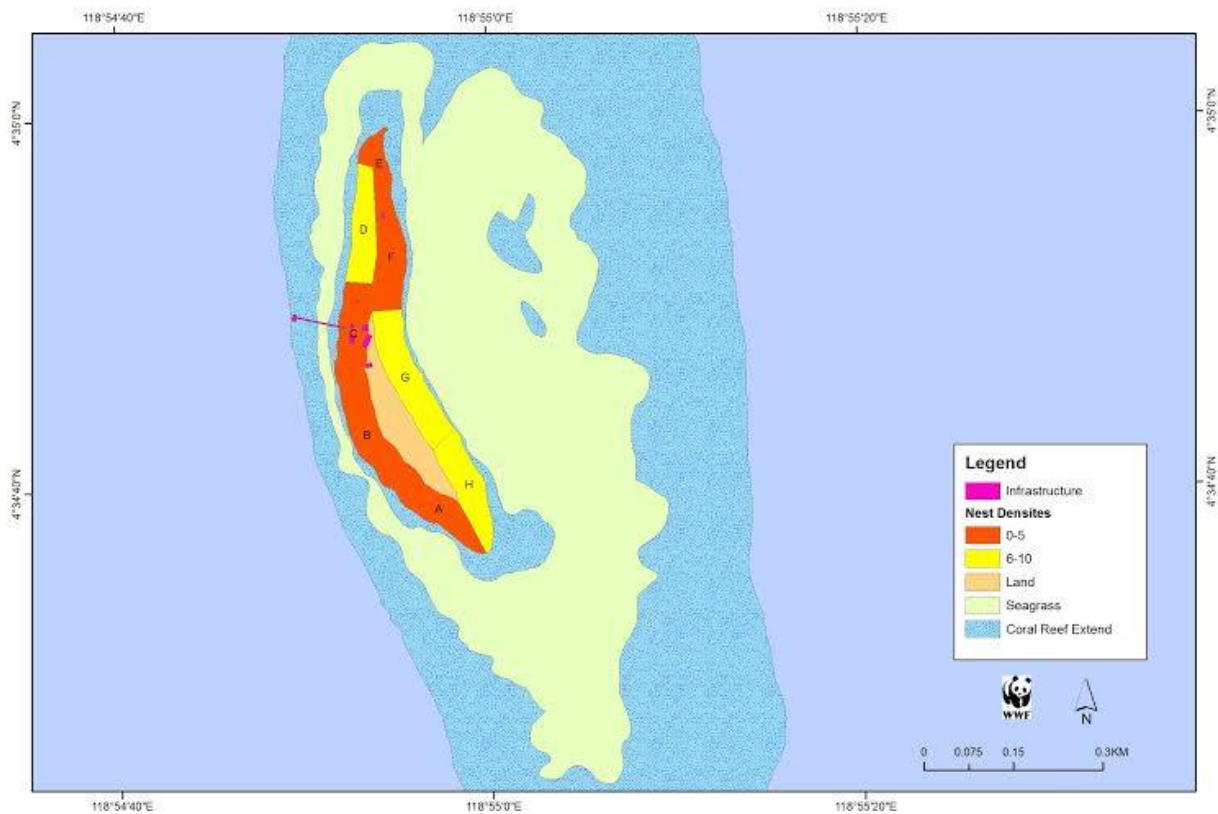
Seagrass and nesting spatial distribution at Kulapuan Island



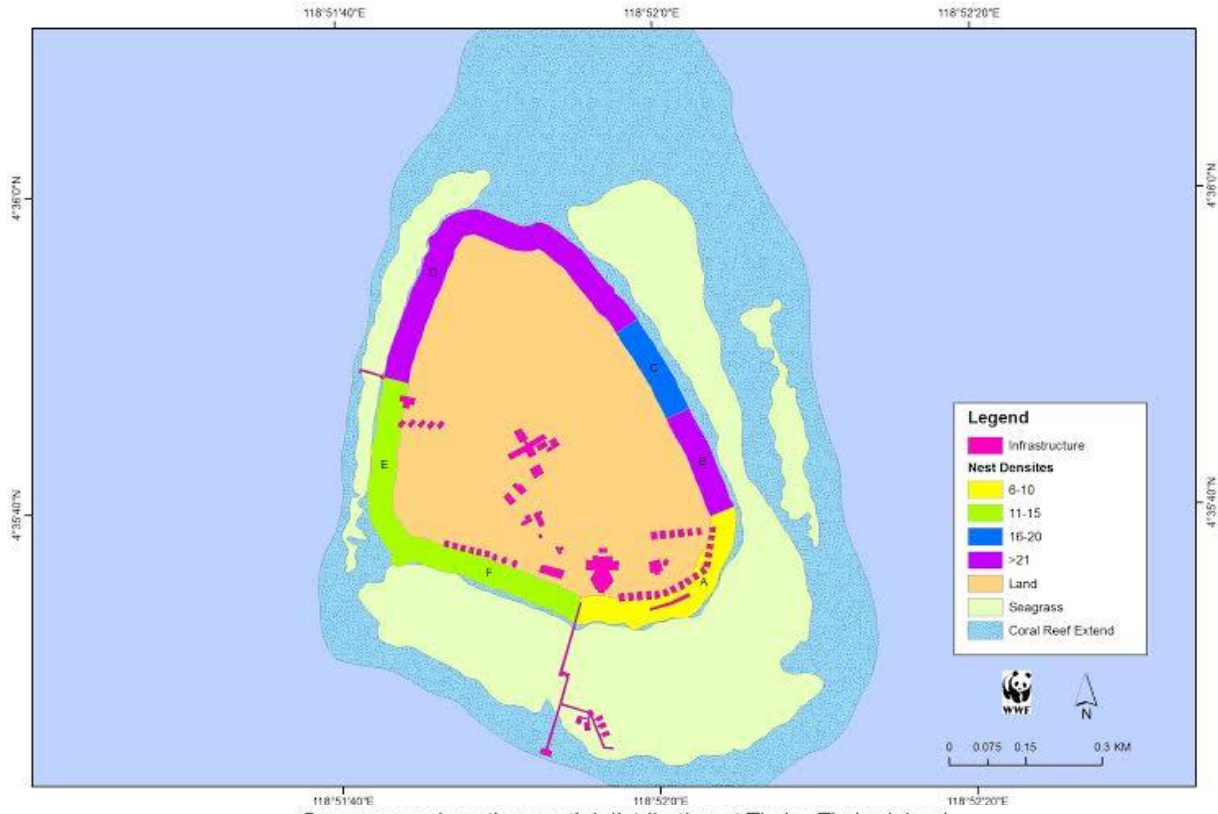
Seagrass and nesting spatial distribution at Kulapuan Island



Seagrass and nesting spatial distribution at Pandanan Island



Seagrass and nesting spatial distribution at Pom-Pom Island



Seagrass and nesting spatial distribution at Timba-Timba Island

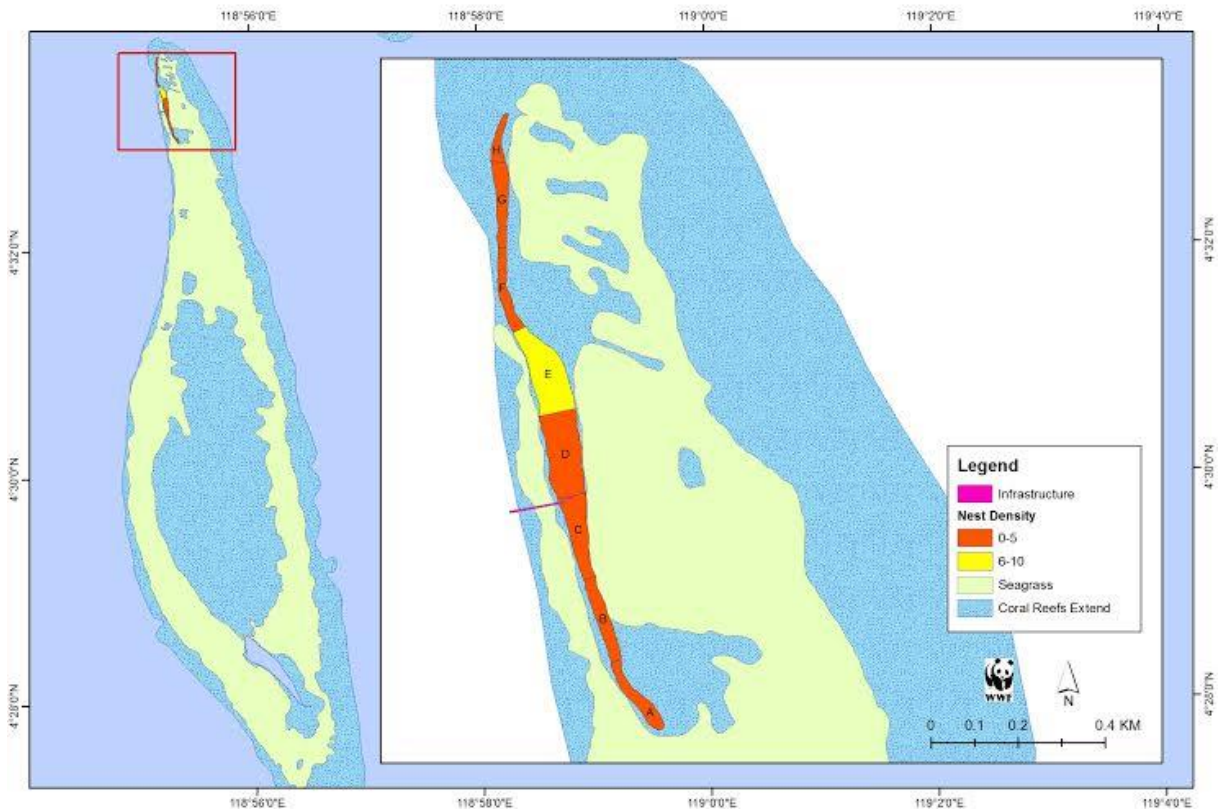
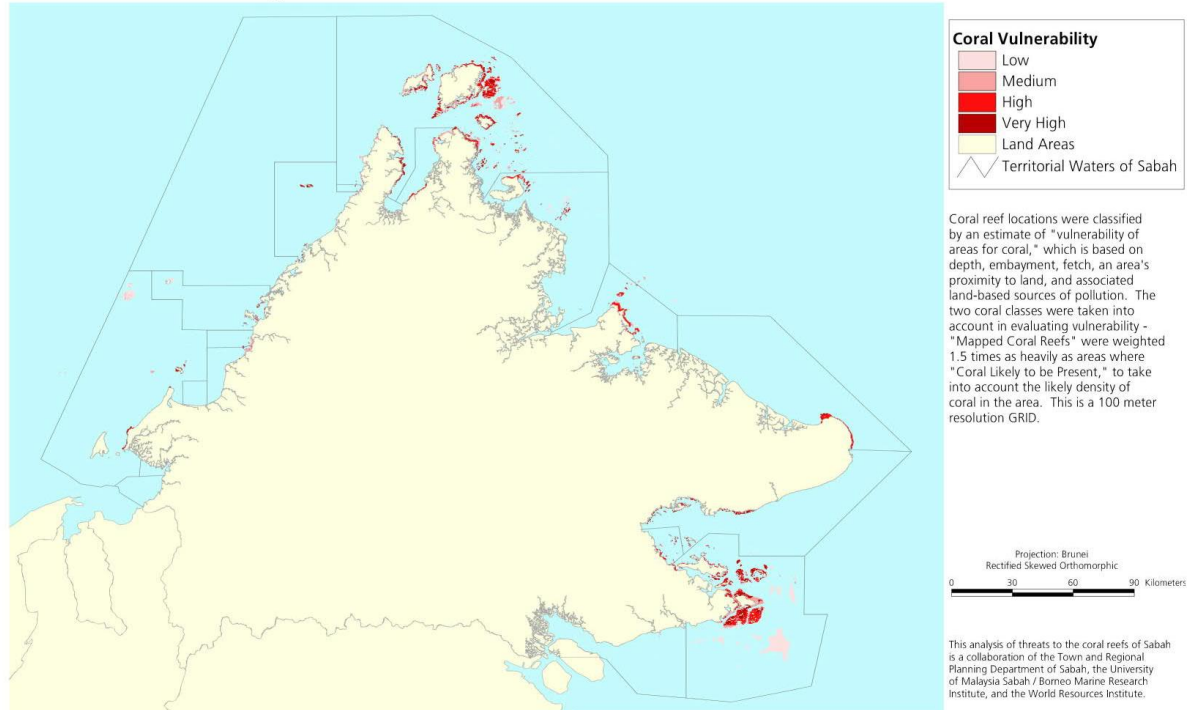
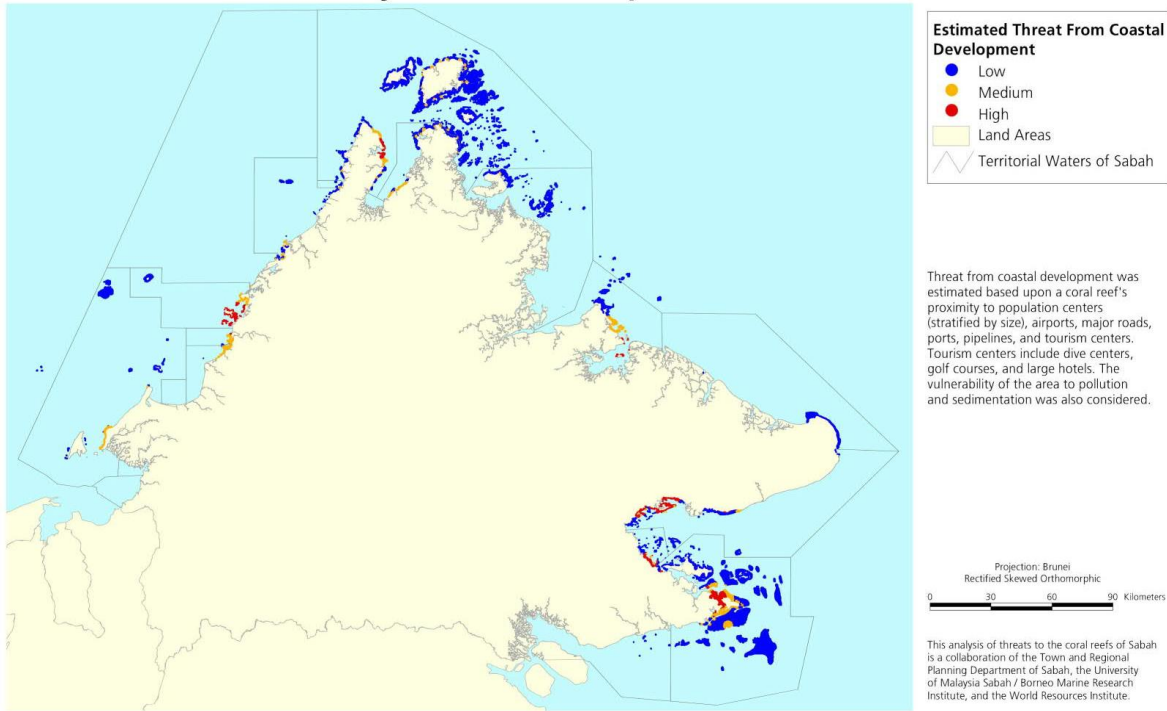


Figure 5a,b,c: Map Coral Vulnerability, Coral Reefs Threatened by Coastal Development, Coral Reefs Threatened by Destructive Fishing.[INSERT SOURCE FOR MAPS AND INCLUDE IN REFERENCE LIST]

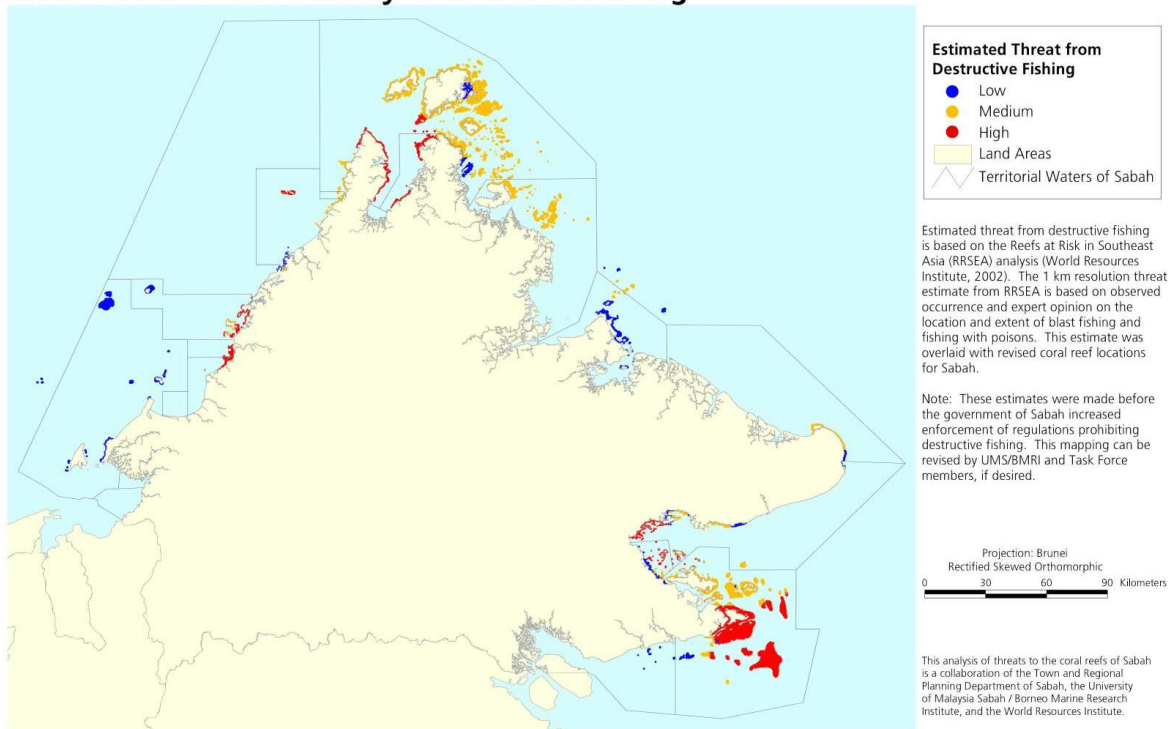
Coral Vulnerability



Coral Reefs Threatened By Coastal Development



Coral Reefs Threatened By Destructive Fishing



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For copyright information on maps of Coral Vulnerability, Coral Reefs Threatened by Coastal Development, Coral Reefs Threatened by Destructive Fishing, please contact Laretta Burke (lauretta@wri.org) , World Resources Institute, 10 G Street, NE, Washington, DC 20008 USA Fax:+12027297775 Phone +12027297774.

Template No. 9

Abstract

Nino Konis Santana National Park is the largest protected area designated by the government under responsibility of Ministry of Agriculture and Fisheries. The area is located in the eastern part of Timor-Leste. It has rich terrestrial and marine biodiversity and is one of the very few areas in Timor-Leste that are still covered with primary forests (Timor-Leste 4th National Report, 2011). However conservation of this area is challenged by poverty issues faced by the local people. Some local communities are still using cyanide and branches from the *Acanthua* tree for fishing as well as blasting fish (Amaral, 2010). Meanwhile deforestation in the protected areas down to the coastal area is high due to lack of awareness and economic issues. Therefore capacity-building, as well as promoting alternative livelihoods and policy and law enforcement, are important to prevent biodiversity degradation in this area.

Introduction

Timor-Leste is rich in biodiversity resources and natural beauty, including magnificent coral reefs, pristine coastal waters and Megafauna assemblages, including whales, dolphins, whale sharks, orcas and mantas (Erdmannand Mohan, 2013). The coastal area of Timor-Leste encompasses over 700 kilometres, including the areas of Atauro and Jaco islands. The country is situated within a region of globally significant tropical marine biodiversity (Bogg et al., 2009).

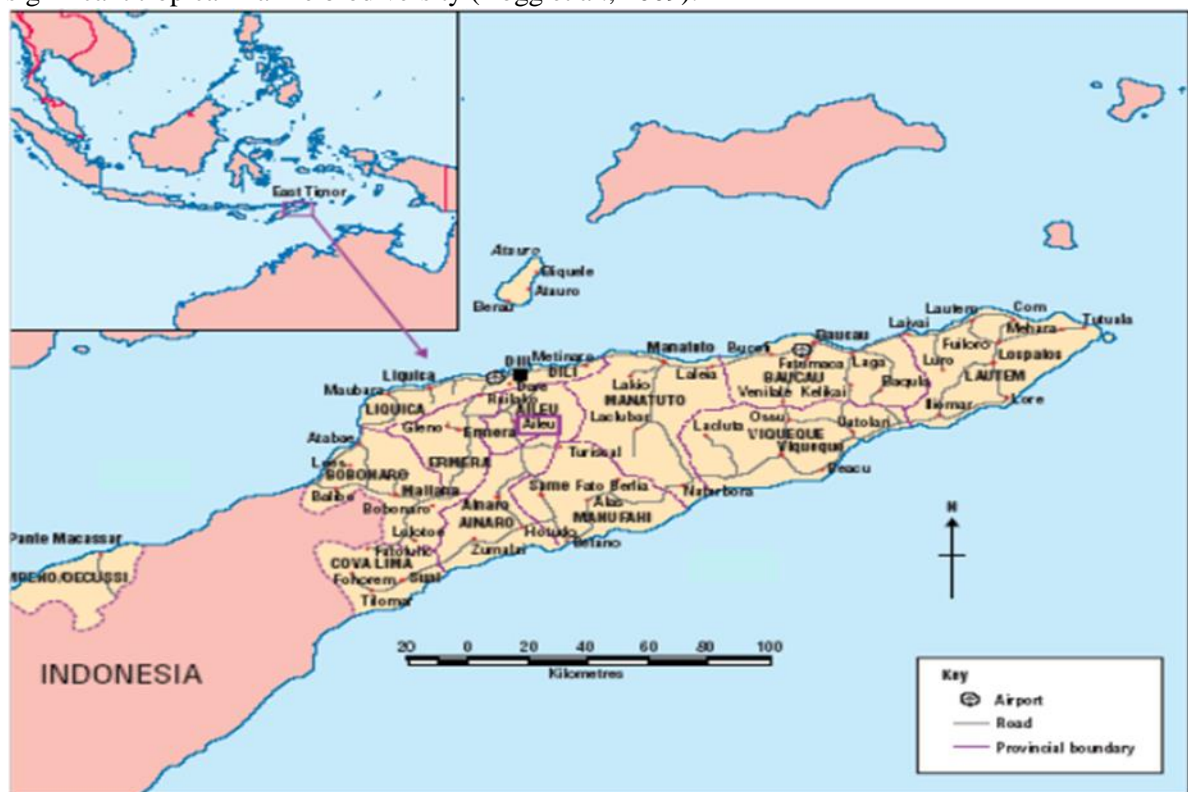


Figure 1: Map of Timor-Leste (Amaral, 2010)

In the country's National Biodiversity Strategy and Action Plan (NBSAP) a number of protected areas are mentioned that are the responsibility of the Ministry of Agriculture and Fisheries in coordination with key government stakeholders.

Location

Nino Konis Santana National Park (NKSNP) is located in the eastern part of Timor-Leste. This protected area is home to a number of marine and terrestrial habitats that are listed at the national and global level and include 55,600 ha of the "Coral Triangle" and 25 endemic bird species (Erdmann and Mohan, 2013).

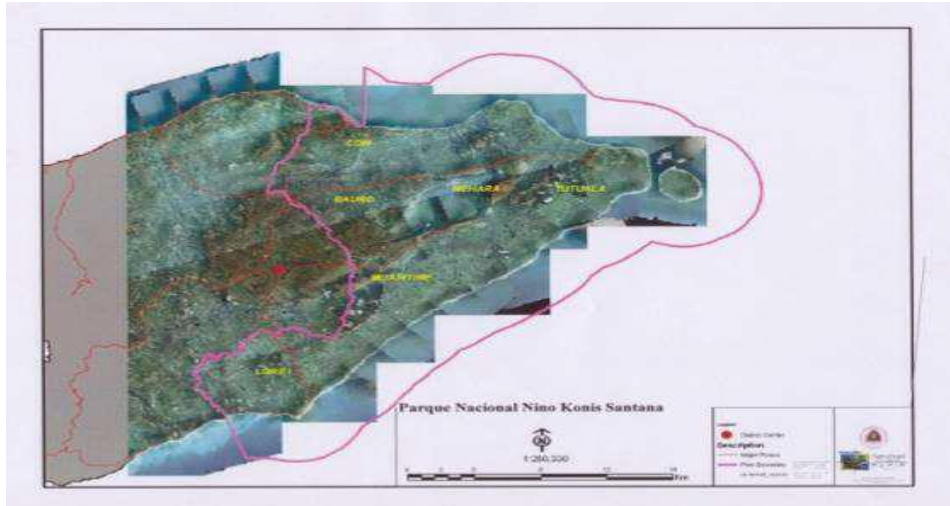


Figure 2: Map of Nino Konis Santana National Park (Erdmann M.V. & Mohan C., 2013).

Timor-Leste has undertaken coastal resource and habitat assessments, mapping and numerous activities in the watershed areas in collaboration with various experts and donors. Besides that, other efforts are also underway to develop plans, enabling policies and legislation for natural resource conservation and sustainable development, including the implementation of the NBSAP programmes by relevant stakeholders. The government has drafted the final Biodiversity Decree Law and Protected Areas Decree Law and is waiting for an opportunity at the Council of Ministers for final approval. Meanwhile a number of laws and regulations such as the Environmental Basic Law, the Environmental Licensing Decree Law and others are already in place and enforced.

In addition, a marine megafauna aerial survey was conducted by researchers from Charles Darwin University in the coastal area of Timor-Leste, including areas around NKSNP. This study identified several megafauna species that are found in the coastal area of Timor-Leste (Dethmers, 2012). However lack of follow-up studies is an obstacle for the country to identify more information on the status of marine megafauna species in the sea of Timor-Leste.

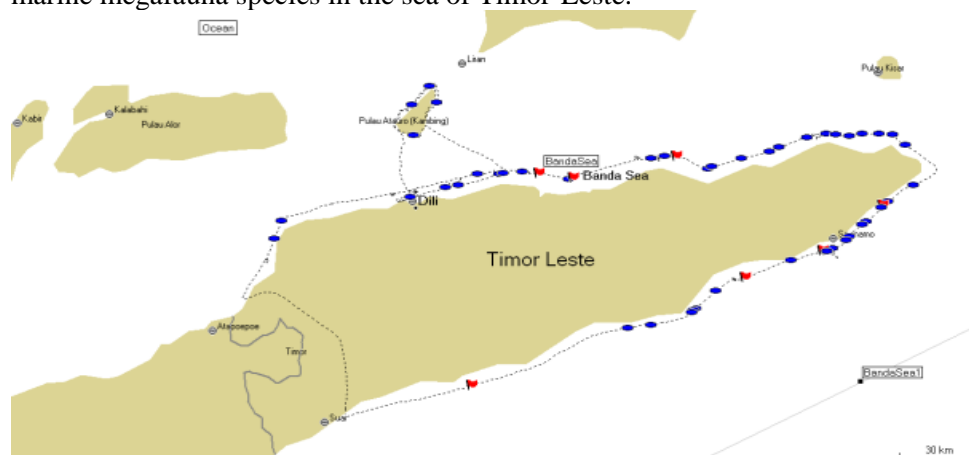


Figure 3: Marine megafauna aerial surveys in Timor-Leste (Dethmers K., 2012)

Feature description of the proposed area

Few studies of the area have been undertaken, , but based on preliminary studies from the Coral Triangle Support Partnership (CTSP), Nino Konis Santana National Park has been identified as an area rich in biodiversity resources that needs to be protected and conserved.

The marine near shore zone in Timor-Leste is characterized by a narrow reef flat (often < 60 m wide, but up to almost 1 km), that is dominated by sea grass in shallower water (approximately 2,200 ha) and corals in deeper water and on the escarpment (approximately 2,000 ha). (Amaral A.L., 2010) The reef is shoreline fringing, gradually sloping seaward to the edge of the outer slope (Erdmann M.V. & Mohan C., 2013).

The CTSP studies concluded that approximately 20 sites representing the full range of oceanographic and ecological conditions were found in Nino Konis Santana National Marine Park, including the endemic Human's fairy-wrasse (*Cirrhilabrus humanni*), which is presently known only in Timor-Leste and nearby Alor, Indonesia (Erdmann M.V. & Mohan C., 2013).

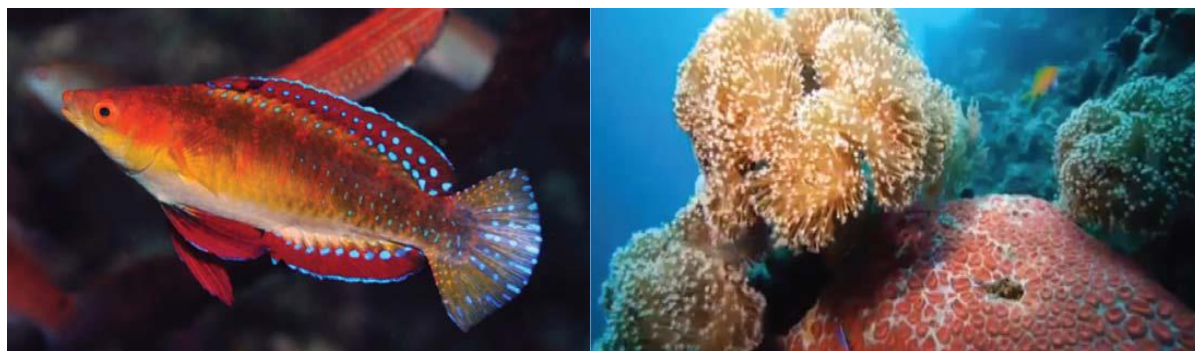


Figure 4: Human's fairy-wrasse (*Cirrhilabrus humanni*), currently known only from Timor-Leste and nearby Alor, Indonesia (Erdmann M.V. & Mohan C., 2013)



Figure 5: Bio-Ecosystem in Nino Konis Santana National Park (Amaral A.L., 2010)

Feature condition and future outlook of the proposed area

A key challenge for the NKSNP management is the current lack of zoning. NKSNP was established based on the IUCN Category V Protected Area, meaning that the local people can live in and have access to the resources in the park area. Multiple-use zoning is required to establish rules within this space, to give the best protection for the natural environment without neglecting the needs of the people who live there. The zoning can then inform how the park is managed (Erdmann and Mohan, 2013).

Another challenge is the living conditions of the local communities who depend on fishing to sustain their livelihoods. Without an alternative solution for the communities' livelihoods it is expected that the protected species can be used unsustainably because some local people depend heavily on them.

In 2013, the Coral Triangle Initiative (CTI) project, led by the Government of Timor-Leste (Ministry of Agriculture and Fisheries) and supported by the USAID's Coral Triangle Support Partnership (CTSP), conducted research on cost-effective management solutions at NKSNP to determine whether it was possible for the communities to participate in the project. In this regards, the CTSP has, in turn, co-facilitated a process through which fishing communities in the national park have completed multiple-use zoning of their local marine area. The zones were divided into no-take zones, buffer zones and special regulation zones with a mix of gear restrictions, temporal closures and species-specific take limits. This community-based zoning is accompanied by community-based management plans and covers 22,360 hectares of the 55,600 hectare marine park (Erdmann and Mohan, 2013).

Assessment of the area against CBD EBSA Criteria [References and further explanations to be added]

NKSNP is designated as an IUCN Category V Protected Area, in which many of its communities rely on unsustainable fishing practices, making it difficult to protect marine biodiversity there. However, there are

important habitats for certain threatened fish species there and it has high biodiversity, which makes it an important area meeting EBSA criteria.

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				X
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>Nino Konis Santana National Park is one of the unique natural places found in Timor-Leste. It has high-quality reefs and forms an important link in the regional MPA network being developed in the Lesser Sunda marine ecoregion and the broader Coral Triangle Reefs of high conservation value (Erdmann M.V. & Mohan C., 2013).</p> <p>One species of coral (<i>Montipora spp.</i>) shows significant morphological differences from its closest congener, and is likely new to science, requiring additional taxonomic study (Erdmann and Mohan C. 2013).</p>					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.				X
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>The literature is not clear of the importance of NKSNP for the life-history stages of species, but the assumption is that the coral reefs in the area are of definite importance to several reef fish species that live there as spawning and nursery grounds as well as important feeding grounds.</p>					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.				X
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>Sharks, coral trout (<i>Plectropomus</i> species), and the highly threatened Napoleon wrasse (<i>Cheilinus undulatus</i>) are supposed to have their habitats in the Nino Konis Santana MPA, however in a recent</p>					

<p>survey they were rarely spotted, which according to the researchers indicates high fishing pressure (Erdmann and Mohan, 2013). If fishing pressure on these species is reduced (i.e., by instating no-take zones) these species may thrive in those areas once more.</p>					
<p>Vulnerability, fragility, sensitivity, or slow recovery</p>	<p>Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.</p>				X
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>NKSNP has rich marine biodiversity (i.e. coral reefs) but the areas are also claimed by the local communities as traditional land as well as one of the potential places for tourism development (Erdmann M.V. & Mohan C., 2013). Even though NKSNP is considered under IUCN Category V Protected Area, lack of solutions for alternative livelihoods and awareness-raising for the local community and unsustainable tourism development in the area can lead to destruction of terrestrial and marine resources.</p>					
<p>Biological productivity</p>	<p>Area containing species, populations or communities with comparatively higher natural biological productivity.</p>				X
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[Need to discuss marine biodiversity and provide scientific references.]</p>					
<p>Biological diversity</p>	<p>Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.</p>				X
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>Nino Konis Santana National Park is home to many biodiversity resources identified by researchers in the country and it is ranked as an IUCN Category V Protected Area, (Erdmann and Mohan , 2013). Counts for fish species also yielded higher than average results, indicating higher genetic diversity. Fish species numbers in the Nino Konis Santana MPA at visually sampled sites during a survey ranged from 66 to 294, with an average of 212 species per site. This is the second- highest average for any survey region to date anywhere on the globe. The top 6 sites recorded for reef fish diversity in NKSNP included Site 4 (Loikere; 270 species); Site 11 (Ete Asa Lepek; 260 species); Site 9 (West Jako Island; 249 species); Site 16 (Tenu; 243 species); Site 13 (Com Deep Cave; 238 species); and Site 10 (Djonu Twin Rocks Tutuala; 237 species). 200 or more species per site is considered the benchmark for an excellent fish count. This total was achieved at 70 percent of the 2012 Timor-Leste MRAP sites - the highest percentage yet recorded by the authors anywhere in the world (Erdmann M.V. & Mohan C., 2013)</p>					

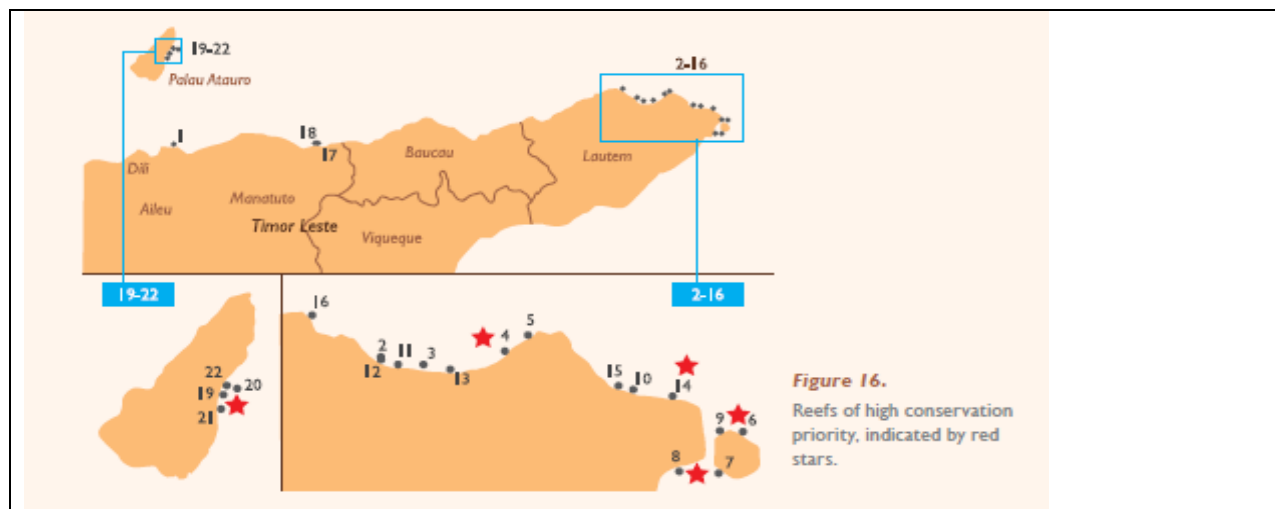


Figure 6: Reefs of high conservation priority, Nino Konis Santana National Park (Erdmann and Mohan, 2013).

In terms of coral diversity, NKSNP hosts diverse reef coral fauna as well: 214 species at Site 14 (Djonu East); 194 species at Site 15 (Tutuala 3 Terraces) and 193 species at Site 4 (Loikere) Erdmann and Mohan, 2013).

Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.			X	
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Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)

The marine environment, including the coral reefs, is relatively undisturbed and can even be characterized as pristine, notwithstanding fishing pressure. Because this is a protected area, it is expected that human-induced disturbances here will be less than in other marine areas in Timor-Leste.

Like the other reefs sampled in Timor-Leste, NKSNP is also quite resilient to other pressures such as climate change. There was no evidence or reports of past (1998) or recent (2010) large-scale high temperature bleaching-induced coral mortality around Timor-Leste due to presence of cool waters about three to four degrees cooler than many neighbouring locations (Erdmann and Mohan, 2013).

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High
Add relevant criteria					

Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)

References

- Amaral A.L. (2010) Information Share Among Participants on MPA and MPAs Network Development in the 6th ICRISE Regional Workshop. National Directorate of Fisheries and Aquaculture. Timor-Leste
- Bogg G, et al. (2009). The Timor-Leste Coastal/Marine Habitats Mapping for Tourism and Fisheries Development Project. Charles Darwin University. Australia.
- Democratic Republic of Timor-Leste (2011). Timor-Leste's Fourth National Report to the UN Convention on Biological Diversity. Timor-Leste.
- Dethmers K. (2012). Marine Megafauna Surveys for Ecotourism Potential. Charles Darwin University, Australia. www.cdu.edu.au/sites/default/files/research/docs/project3.pdf . Date 13/Nov/2015.
- Erdmann M.V. & Mohan C. (2013). A Rapid Marine Biological Assessment of Timor-Leste. Timor-Leste's National Coordinating Committee with funding from the United States Agency for International Development's Coral Triangle Support Partnership (CTSP).

Template No. 10

Abstract: The intertidal zones of shallow coastal seas in East Asia are critically important for the survival of many migratory waterbird species that are dependent on these areas for critical stages of their life cycle, mostly obviously during the migration periods, when some sites form critical bottlenecks, particularly in the Yellow Sea ecoregion (China, Republic of Korea, Democratic People's Republic of Korea), but also for breeding and non-breeding populations. Intertidal mudflats and sandflats have been disappearing at an alarming rate in recent decades (60% for the Yellow Sea in 50 years) leaving migratory waterbirds dependent on an ever-decreasing number of sites. As a consequence the populations of migratory waterbirds have declined precipitously, with up to 30 species endangered or critically endangered, and depending on a handful of sites, often unprotected, for their survival. It is no exaggeration to say that all remaining intertidal areas of the East Asian Seas are of vital importance to saving migratory waterbirds dependent on them.

Introduction

Intertidal zones are mudflats and sandflats exposed at low tides. They support a very high productivity of benthic organisms that are the principal diet of over 100 species of migratory waterbirds, particularly shorebirds. They also provide livelihoods for local populations using fisheries and shellfisheries, and a variety of other ecosystem services. However, their level of protection is low compared to other wetland and terrestrial ecosystems. This is very important because of the connectivity of these areas in supporting the full life cycle of many dependent species.

Location

Intertidal areas off the coast of all countries of East Asia [Normally, one template description provided per spatially defined area]. The most critical areas are in China (Yellow Sea coast, South China Sea coasts, DPRK and ROK west coasts, key sites in Japan, Vietnam, Thailand, Philippines, Indonesia, Malaysia). A 2012 IUCN Situation Analysis identified 16 key intertidal areas in East and SE Asia for migratory waterbirds. See also marine IBA data for coastal areas.

Feature description of the proposed area

Intertidal mudflats and sandflats

Feature condition and future outlook of the proposed area

The area and extent of intertidal flats has rapidly declined in recent decades and continues to decline, mainly due to reclamation for industrial and residential development. The future outlook is bleak, with many areas currently proposed for reclamation and a very low proportion of protected areas, which are also at threat of degazettement. Lowering of productivity due to pollution from industrial and aquaculture development is also a threat, as is invasion by the invasive alien cordgrass species *Spartina*

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or	Area contains either (i) unique ("the only one of its				X

rarity	kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>Unique benthic community and endangered migratory bird species dependent on mudflats. For example, possibly 100% of the global population of endangered Nordmann’s greenshank and CR spoon-billed sandpiper use a single unprotected site (Rudong-Dongtai) in China as a critical staging area, 60% of red knot use another area (Luannan) – also unprotected, in China. The majority of endangered black-faced spoonbill breeds off coasts of ROK/DPRK border and depends on mudflats for feeding – it winters principally at two sites in Taiwan and Hong Kong. Sembilang in Sumatra, Indonesia is the major non-breeding site for endemic vulnerable Asiatic dowitcher.[INSERT REFERENCES]</p>					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.				X
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>Migratory waterbirds breed mostly in Arctic and sub-Arctic regions, and many winter in Australasia, but are totally dependent on East Asia Sea intertidal coasts to complete this migration. [INSERT SPECIES NAMES AND REFERENCES]</p>					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.				X
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>33 globally endangered waterbird species use the East Asian – Australasian Flyway, and 50 million waterbirds use the Flyway each year. Many other waterbirds are endemic to the Flyway, and populations continue to decline, resulting in recent uplisting on IUCN Red List.[INSERT SPECIES NAMES AND REFERENCES]</p>					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.				X
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>Mudflats and sandflats are very vulnerable to reclamation, resulting in total loss of habitat. Remaining areas are subject to pollution and invasive species. While restoration of degraded areas may be possible, the potential for re-creation of natural mudflats is so far very limited.[INSERT REFERENCES AND SPECIES NAMES]</p>					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.				X
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p>					

Exceptional productivity, including for shellfish and local fisheries. This enables the tens of thousands of shorebirds to benefit from such sites. [INSERT SPECIES NAMES AND REFERENCES]					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.			X	
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Habitats are quite simply structured, but high benthic diversity and bird diversity [INSERT REFERENCES AND SPECIES NAMES]					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.			X	
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
This varies – some remain natural, but many suffer from anthropogenic effects from impacts of reclamation (from total loss of naturalness to pollution and degradation of nearby areas)					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High
Connectivity	The intertidal zones of the East Asia Seas form an interconnected and interdependent network, which will suffer disproportionately from the loss a key sites (like losing rungs of the ladder)				X
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
Runge et al in Science (2014) noted that for migratory species, only 7% are protected in stopover areas, much lower than in breeding and non-breeding areas.[This section refers to the use of other criteria, such as IBA criteria...have they been applied to any of these sites?]					

References

Bamford, M., Watkins, D., Bancroft, W., Tischler, G. & Wahl, J. (2008) *Migratory shorebirds of the East Asian-Australasian Flyway: Population estimates and internationally important sites*. Wetlands International, Oceania.

Bai Q., Chen J., Chen Z. et al., 2015. Identification of coastal wetlands of international importance for waterbirds: a review of China Coastal Waterbird Surveys 2005–2013. *Avian Research*, 6:12.

Conklin, Verkuil and Smith 2014 Prioritizing migratory shorebirds for conservation action on the East Asian-Australasian Flyway WWF Hong Kong

MacKinnon, J., Verkuil, Y.I. & Murray, N. (2012) IUCN situation analysis on East and Southeast Asian intertidal habitats, with particular reference to the Yellow Sea (including the Bohai Sea). *Occasional paper of the IUCN species survival commission*, 47

Murray, N.J. & Fuller, R.A. (2015) Protecting stopover habitat for migratory shorebirds in East Asia. *Journal of Ornithology*, 1-9.

- Murray, N.J., Clemens, R.S., Phinn, S.R., Possingham, H.P. & Fuller, R.A. (2014) Tracking the rapid loss of tidal wetlands in the Yellow Sea. *Frontiers in Ecology and the Environment*, 12, 267-272.
- Yang, H.Y., Chen, B., Barter, M., Piersma, T., Zhou, C.F., Li, F.S. & Zhang, Z.W. (2011) Impacts of tidal land reclamation in Bohai Bay, China: ongoing losses of critical Yellow Sea waterbird staging and wintering sites. *Bird Conservation International*, 21, 241-259.

Maps and Figures

See IBA Marine Atlas: <http://maps.birdlife.org/marineIBAs/default.html>

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Template No. 11
[Further scientific information and referecens to be provided]

Abstract

This description is in relation to the area of high productivity in the North Pacific as described by the North Pacific Regional Workshop on EBSAs (Area No. 19 North Pacific Transition Zone, available at <https://www.cbd.int/doc/meetings/mar/ebsa-np-01/official/ebsa-np-01-04-en.pdf>). This considers an extension of this EBSA area to the further west side within the scope of this workshop. It captures the seasonal increase in productivity and encompasses a number of confirmed and proposed Important Bird Areas, for sooty shearwater, providence petrel, streaked shearwater, black tail gull, short tailed albatross and Japanese murrelet.

Introduction

(To include: feature type(s) presented, geographic description, depth range, oceanography, general information data reported, availability of models)

Location

(Indicate the geographic location of the area/feature. This should include a location map.)

Feature description of the proposed area

(This should include information about the characteristics of the feature to be proposed, e.g. in terms of physical description (water column feature, benthic feature, or both), biological communities, role in ecosystem function, and then refer to the data/information that is available to support the proposal and whether models are available in the absence of data. This needs to be supported where possible with maps, models, reference to analysis, or the level of research in the area)

Feature condition and future outlook of the proposed area

(Description of the current condition of the area – is this static, declining, improving, what are the particular vulnerabilities? Any planned research/programmes/investigations?)

Assessment of the area against CBD EBSA Criteria

(Discuss the area in relation to each of the CBD criteria and relate the best available science. Note that a proposed area for EBSA description may qualify on the basis of one or more of the criteria, and that the polygons of the EBSA need not be defined with exact precision. And modeling may be used to estimate the presence of EBSA attributes. Please note where there are significant information gaps)

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				x
Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents) [TO BE INSERTED]					

Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.		x		
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.				x
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.		x		
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.				x
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.	x			
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.		x		
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High
<i>Add relevant criteria</i>					
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

References

(e.g. relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to other relevant material, models, etc.)

Maps and Figures**Rights and permissions**

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Template No. 12
[Further scientific information and referecens to be provided]

Abstract *(in less than 150 words)*

Directly offshore of Catanduanes Island, Philippines, lies the Philippines trench. The trench itself lies outside the Coral Triangel Initiative (CTI) region but the steep slope of the trench lies close to shore. This is an area that is likely to be potential habitat for deep water corals, which are unlikely to be found in any other location in the northern CTI region.

Introduction

(To include: feature type(s) presented, geographic description, depth range, oceanography, general information data reported, availability of models)

Location

(Indicate the geographic location of the area/feature. This should include a location map.)

Feature description of the proposed area

(This should include information about the characteristics of the feature to be proposed, e.g. in terms of physical description (water column feature, benthic feature, or both), biological communities, role in ecosystem function, and then refer to the data/information that is available to support the proposal and whether models are available in the absence of data. This needs to be supported where possible with maps, models, reference to analysis, or the level of research in the area)

Feature condition and future outlook of the proposed area

(Description of the current condition of the area – is this static, declining, improving, what are the particular vulnerabilities? Any planned research/programmes/investigations?)

Assessment of the area against CBD EBSA Criteria

(Discuss the area in relation to each of the CBD criteria and relate the best available science. Note that a proposed area for EBSA description may qualify on the basis of one or more of the criteria, and that the polygons of the EBSA need not be defined with exact precision. And modeling may be used to estimate the presence of EBSA attributes. Please note where there are significant information gaps)

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No informati on	Low	Mediu m	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.			X	
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> [TO BE INSERTED]					
Special importance for life-history stages of	Areas that are required for a population to survive and thrive.		X		

species					
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> [TO BE INSERTED]					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.		X		
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> [TO BE INSERTED]					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.				X
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> [TO BE INSERTED]					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.		X		
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> [TO BE INSERTED]					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.		X		
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> [TO BE INSERTED]					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.	X			
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i> [TO BE INSERTED]					

Sharing experiences and information applying other criteria (Optional)

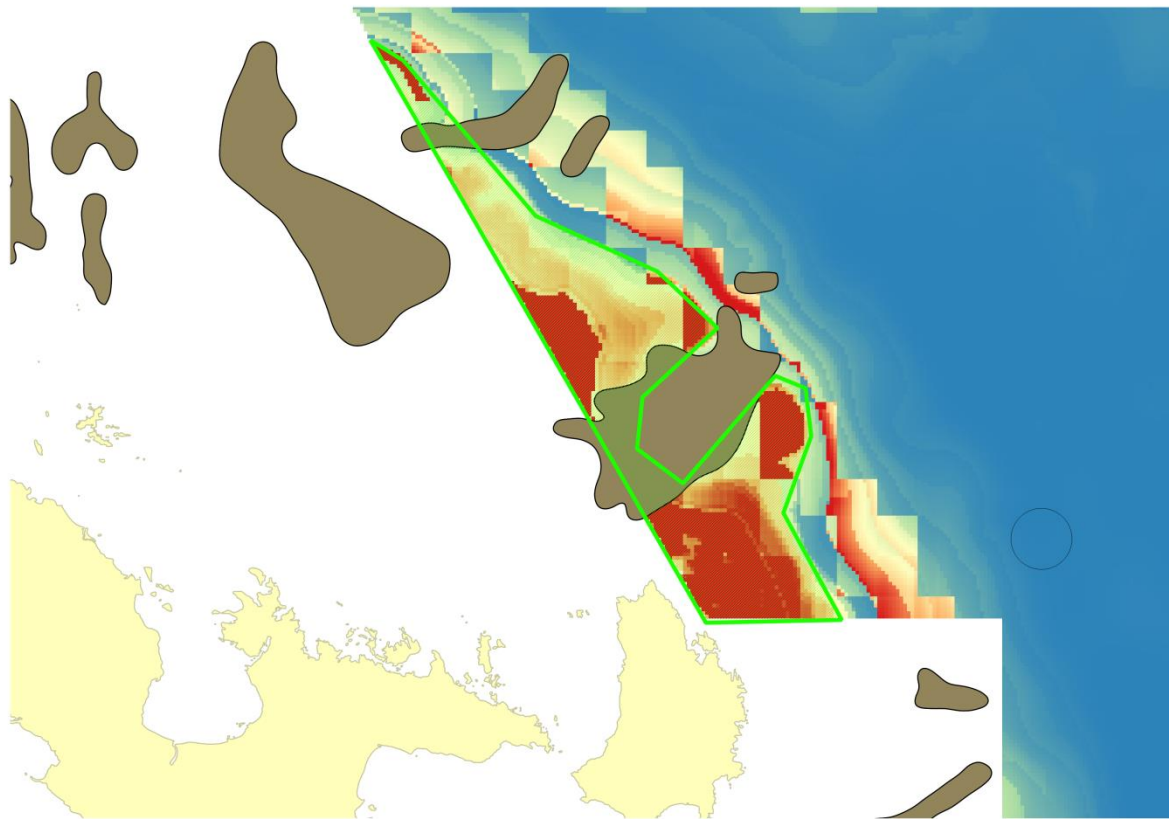
Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High

<i>Add relevant criteria</i>					
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

References

(e.g. relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to other relevant material, models, etc.)

Maps and Figures



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Template No. 13

[Further scientific information and referecens to be provided]

Abstract *(in less than 150 words)*

The Aru and Tanimbar troughs are an extensive trough system in south Indonesia, on the border of the Banda and Arafura seas. It marks a rapid transition between depth zones and may provide a diversity of deep sea habitats within a small area. These types of rapid deep sea transitions are rare within the seas of East Asia.

Introduction

(To include: feature type(s) presented, geographic description, depth range, oceanography, general information data reported, availability of models)

Location

(Indicate the geographic location of the area/feature. This should include a location map.)

Feature description of the proposed area

(This should include information about the characteristics of the feature to be proposed, e.g. in terms of physical description (water column feature, benthic feature, or both), biological communities, role in ecosystem function, and then refer to the data/information that is available to support the proposal and whether models are available in the absence of data. This needs to be supported where possible with maps, models, reference to analysis, or the level of research in the area)

Feature condition and future outlook of the proposed area

(Description of the current condition of the area – is this static, declining, improving, what are the particular vulnerabilities? Any planned research/programmes/investigations?)

Assessment of the area against CBD EBSA Criteria

(Discuss the area in relation to each of the CBD criteria and relate the best available science. Note that a proposed area for EBSA description may qualify on the basis of one or more of the criteria, and that the polygons of the EBSA need not be defined with exact precision. And modeling may be used to estimate the presence of EBSA attributes. Please note where there are significant information gaps)

CBD EBSA Criteria (Annex I to decision IX/20)	Description (Annex I to decision IX/20)	Ranking of criterion relevance (please mark one column with an X)			
		No information	Low	Medium	High
Uniqueness or rarity	Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.				X
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					
[TO BE INSERTED]					
Special importance for	Areas that are required for a population to survive and thrive.		X		

life-history stages of species					
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.		x		
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.	x			
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.		x		
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.	x			
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.				x
<p><i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i></p> <p>[TO BE INSERTED]</p>					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	Description	Ranking of criterion relevance (please mark one column with an X)			
		Don't Know	Low	Medium	High
<i>Add relevant criteria</i>					
<i>Explanation for ranking (must be accompanied by relevant sources of scientific articles, reports or documents)</i>					

References

(e.g. relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to other relevant material, models, etc.)

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Table 1. Other scientific information submitted in support of the workshop objectives

Author(s)	Title/Contents of submission
Ryota Nakajima, Takehisa Yamakita, Hiromi Watanabe, Katsunori Fujikura, Katsuhiko Tanaka, Hiroyuki Yamamoto and Yoshihisa Shirayama	Species richness and community structure of benthic macrofauna and megafauna in the deep-sea chemosynthetic ecosystems around the Japanese archipelago: an attempt to identify priority areas for conservation, <i>Diversity and Distributions</i> , (Diversity Distrib.) (2014) 20, 1160–1172. DOI: 10.1111/ddi.12204
Takehisa Yamakita, Hiroyuki Yamamoto, Masahiro Nakaoka, Hiroya Yamano, Katsunori Fujikura, Kiyotaka Hidaka, Yuichi Hirota, Tadafumi Ichikawa, Shigeho Kakehi, Takahiko Kameda, Satoshi Kitajima, Kazuhiro Kogure, Teruhisa Komatsu, Naoki H. Kumagai, Hiroomi Miyamoto, Kazushi Miyashita, Haruyuki Morimoto, Ryota Nakajima, Shuhei Nishida, Kou Nishiuchi, Shingo Sakamoto, Masayoshi Sano, Kenji Sudo, Hiroya Sugisaki, Kazuaki Tadokoro, Katsuhiko Tanaka, Yoshie Jintsu-Uchifune, Kentaro Watanabe, Hiromi Watanabe, Yumiko Yara, Norishige Yotsukura, Yoshihisa Shirayama	Identification of important marine areas around the Japanese Archipelago: Establishment of a protocol for evaluating a broad area using ecologically and biologically significant areas selection criteria <i>Marine Policy</i> 51(2015)136–147. http://dx.doi.org/10.1016/j.marpol.2014.07.009
Nguyen Chu Hoi	Application of spatial planning in establishing a system of marine protected areas for sustainable fisheries management in Vietnam, <i>J. Mar. Biol. Ass. India</i> , 56 (1), 28-33, January-June 2014. doi: 10.6024/jmbai.2014.56.1.01750s-04
Nguyen Chu Hoi and Vu Hai Dang	Building a Regional Network and Management Regime of Marine Protected Areas in the South China Sea for Sustainable Development, <i>Journal of International Wildlife Law & Policy</i> , 18:128–138, 2015 DOI: 10.1080/13880292.2015.1044797

<p>United Nations Environment Programme, Coordinating Body on the Seas of East Asia (COBSEA), 2010</p>	<p>State of the Marine Environment Report (SOMER) for the East Asian Seas 2009. http://www.cobsea.org/documents/Report-SOMER/</p> <p>The 2009 EAS SOMER presents information regarding the present state of and outlook for the region's marine and coastal environment, and is intended to enhance COBSEA's activities on information management in support of improved policy implementation towards sustainable coastal and marine development in the East Asian Seas region. Trends were analysed based on information over a 25-year period between 1981 and 2006 with new information up to 2009 included as far as is possible, and the outlook for the region is projected up to 2012.</p>
<p>Ward, Trevor J., UNEP/COBSEA, Bangkok October 2012.</p> <p>Organising Group: Dr. Elik Adler, UNEP/COBSEA, Dr. Elaine Baker, GRID Arendal, Dr. Peter Harris, Geoscience Australia, Dr. Alexander Tkalin, UNEP/NOWPAP, Mr. Wenxi Zhu, UNESCO/IOC/WESTPAC</p>	<p>Workshop Report: Regional Scientific and Technical Capacity Building Workshop on the World Ocean Assessment (Regular Process), Bangkok, Thailand (co-organized by GRID Arendal, COBSEA, NOWPAP and IOC/Westpac), 17–19 September 2012. http://www.grida.no/publications/default/5784.aspx</p> <p>The report presents the results of the capacity building workshop to undertake regional integrated marine assessments. The workshop utilized a methodology for a rapid regional ocean assessment and applied it to the South China Sea (SCS). The workshop included an evaluation of the assessment methodology and its potential effectiveness in producing a credible assessment, for the region and also for national jurisdictions. The participants used the methodology to produce an indicative assessment of biodiversity and ecosystem health in the SCS.</p>
<p>United Nations Environment Programme</p>	<p>Documents and datasets of the UNEP/GEF South China Sea Project</p> <p>The UNEP/GEF South China Sea Project was a significant GEF project implemented by UNEP in partnership with seven riparian states bordering the South China Sea (Cambodia, China, Indonesia, Malaysia, Philippines, Thailand, and Vietnam). It was the first attempt to develop a regionally co-ordinated programme of action designed to reverse environmental degradation particularly in the areas of coastal habitat degradation and loss, land-based pollution, and fisheries. The project produced a number and variety of information and data outputs which include, among others: four regional databases; a repository of more than 1,800 project documents and publications; online modeling tools; a large collection of regionally specific training materials; a catalogue of multi-media</p>

	<p>public awareness resources; and an extensive index of national language publications. http://www.unepscs.org/ e.g. http://www.unepscs.org/remository/Download/19 - Technical Publications and Guidelines.html</p>
<p>Benjamin Kahn and Ken Vance-Borland, APEX Environmental and Conservation Planning Institute, April 2013</p> <p>A Technical Report prepared for WWF Australia</p>	<p>Marine Conservation Planning and the Offshore Oil & Gas and Deep-Sea Mining, and Shipping Industries in the Coral Triangle and South West Pacific: Large-Scale Spatial Analysis of the Overlap between Priority Conservation Areas with Marine Extraction Blocks and International Shipping Lanes.</p>
<p>Huffard, C.L., M.V. Erdmann, T.R.P. Gunawan (Eds) (2012). Ministry of Marine Affairs and Fisheries and Marine Protected Areas Governance Program. Jakarta-Indonesia. 105 pp.</p>	<p>Geographic Priorities for Marine Biodiversity Conservation in Indonesia.</p>