# Template for Submission of Scientific Information to Describe Areas Meeting Scientific Criteria for Ecologically or Biologically Significant Marine Areas

**Title/Name of the area**: **Declining Dugong habitats threatening to unsecured livelihood of small scale fishers: a case study at Had Chaw Mai National park, Trang Province, Andaman sea, Thailand.**

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**Abstract** (*in less than 150 words)*

This project aim to address the issue of coastal resources depleting and threatening of coastal communities from in effective law enforcement, top down coastal segregated management while also considering climate change factor by introducing the concept of ecosystem based integrated coastal resource management through promoting of meaningful multi-stakeholders participation, knowledge management, capacity building among related actors and agencies including to bridge the gap between local and state policy makers and coastal communities in their ecosystem management concerning natural resource regulation The ecosystem selected targeted sites is at Trang province. A coalition of high-level national institutions that include university, ministerial authority, international agency and civil society organizations join force in championing the initiatives for national endorsement and campaigning for state policy incorporation. The process once achieved will streamline marine coastal resource regulations as well as responding to community needs for livelihood survival. To achieve the objective, local partner CSOs concentrate their work on livelihood and community networking, while the national-level partners provide technical and management backstopping to substantiate the communities' measures in managing the ecosystem in a sustainable manner. These measures also take into consideration the potential impacts from climate change and other disaster risks. The anticipated project outcomes are congruent with the new Fishery and coastal resource management laws enacted in 2015 in terms of participatory ecosystem management, and also support the decentralization directives of the Government.

## Introduction

*(To include: feature type(s) presented, geographic description, depth range, oceanography, general information data*

Trang Sea is the most important ecosystem in Thailand. It has a perfect and beautiful nature with islands, beaches, coastline and marine ecosystem, which is the major habitat of a largest habitats of Dugong (sea cow) and richness of diversity of sea grasses bed of the country. The area is an important not only from a perspective as

an important ecosystem feature that need to be conserved but it become more challenge when the area has been announced as no take zone Marine protected National park area where use to be fishing ground of small scale fishers situate along the coast line and nearby communities for their food ,livelihood and income. Moreover with poor law enforcement this area is also a fishing ground of commercial fishers encroaching to conserved zone which cause conflict in fishery between commercial fishing and small scale fishers due to degradation and depletion of marine resources from using inappropriate fishing gears and uncontrolled number of fishing gears and number of boats used for fishing in the area. Moreover, it is an important tourist area spot of Andaman Sea.

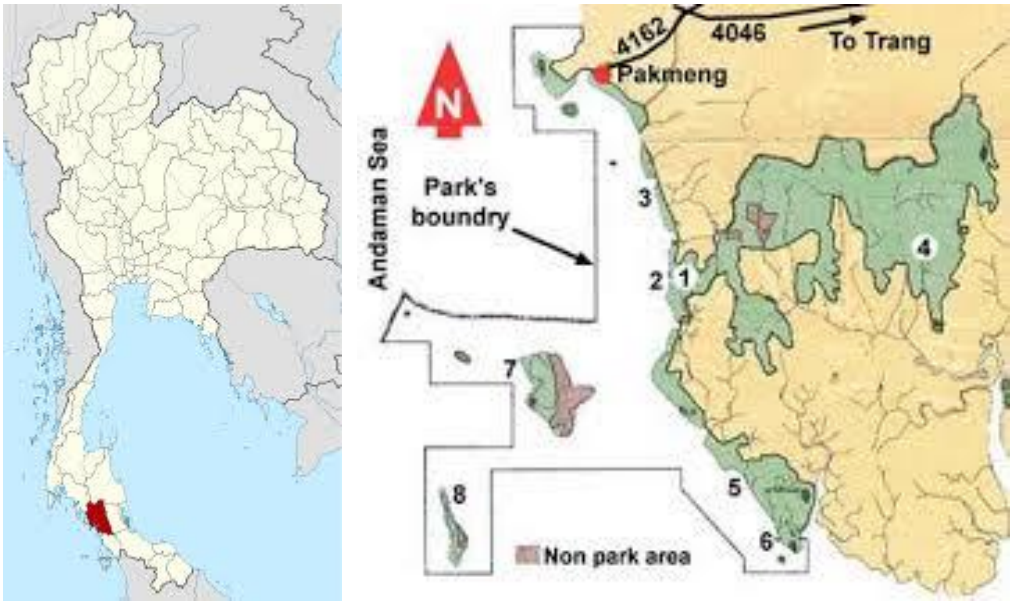
The unique characteristics of Trang Sea are marine cave that the nature has beautifully and miraculously created until it earns the name 'province of marine caves of Andaman'. It has 46 islands in total, 12 of them are in Kantang District, 13 in Palian and 21 in Sigao. There are 10 islands important for tourism, such as Koh Muk, Koh Kradarn, Koh Chuak, Koh Waen, Koh Meng, Koh Pling and Koh Chao Mai, which is under the supervision of Haad Chao Mai Marine National Park, while Koh Libong is under supervision of Koh Libong Island Wildlife Sanctuary. In addition, there are also Koh Sukorn, Koh Lao Liang, and Koh Petra, which is near Satoon province and Koh Rok and Koh Ngai in Krabi province and are like archipelagos in Trang Province. It is also a marine tourism route.

Dugongs the only extant herbivorous marine mammal inhibit coastal areas with an abundant of sea grasses . In Thailand dugongs are rare and they are scattered in small groups in both coastal lines, the Gulf of Thailand and the Andaman Sea. The largest group of dugongs inhabits around Koh Libong and Muk Islands, where located at Trang Province. This area have the biggest sea grass beds in Thailand which serve as feeding ground for endangered dugongs in Thai waters. This area have been declared as one of the National Protected Park in 1981.

## Location

*(Indicate the geographic location of the area/feature. This should include a location map. It should state if the area is within or outside national jurisdiction, or straddling both.*

)




The coast line of Trang province extends for over 120 km and has historically been inhabited by fishermen. Beaches of fine sand and clear water, and coastal forest dominate the coast.

Had Chao Mai National Park is located on the western shore of Thailand cover 231 square kilomaters and has connecting area as follows:
**North** : adjacent to Khao Chong Chan in Amphoe Kan Tang, Klong Meng and Khlong Lam Yao in Mai Fad district, Amphoe Sikao, Trang.
**South** : adjacent to Malaka channel, Amphoe Sikaow, Trang.
**East** : adjacent to Khuan Din Dang, Khuan Medjun, Khuan Lu and Khuan Dang.
**West** : adjacent to Ko Ngai, Ko Mang, Malaka channel

## 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)*

The park's terrestrial zone covers mangrove forests inland to the top of the mountains, many forested islands such as Koh Muk, Koh Kradan, Koh Wan, Koh Chueak, Koh Pling, Koh Chao Mai and Koh Meng. The forest in this areas

compose of the evergreen forest, mangrove forest, beach forest and limestone forest.
Aquatic zone consists of nearly 60% of the park. Special features are coral reefs (mostly found in sheltered spots around islands), sea grass beds (found near the shores) which are important feeding grounds for fish, prawns and dugongs.

Hat Chao Mai National Park consists of land area and sea area, located in the western side of southern part of Thailand. It covers land area about 93.64 sq.km and sea area of Andaman sea in Indian ocean about 137.21 sq.km. This national park is divided into 2 parts, the first part is the coast land including Muk island, Kra Dan island, Wan island, Cheaung island, Pring island and Meng island. This area consists of a steeply high limestone mountain where the northern part of the eastern side has Chong Chan mountain, Kwan Med Chune mountain, Kwan Dang mountain, etc. where are the source of many streams which joins together at Bang Sak canal and drains to the Trang river. In addition, this national park also consists of grass field, rainforest, mangrove forest, beach forest and sand beach whereas sea area has the deep sea widely covered with coral reef along the steeply high shoulder of mountain. This coral reef would be found in the Waen island, Cheaung island and Kradan island .

*Climate*

Hat Chao Mai National Park is influenced by the Northeastern Monsoon wind and southwestern monsoon wind which induces it has a lot of rain all year round. There are two seasons here; the hot and raining season. The hot season starts from January till April while the raining season starts from May till December. Average temperature of March and April is about 35.2 degrees Celsius while the lowest temperature is about 21.2 degrees of Celsius in January and February. Related humidity for all year round is 80 percent and average rainfall is about 2187.3 millimeters. The highest rainfall is in September which is about 158.8 millimeters.

*Fauna and Flora*

**Vegetations**

Able to classify into 5 groups as follows :
**Primary rainforest** is the main type which covers the inner land area of Nam Rab mountain, Hot water pond and the eastern part of sand beach including Muk island. Most of found plants here are Dipterocarpus chartaceous, Burma reed, and low level woods as found in a general rainforest such as rattans, vines, etc.

**Mixed forest in limestone mountain area** has been found in the western part of Muk island, Cheaung island, Wan island, Pring island, Bare Na mountain, Meng mountain, Yong Ling moutain and Chaow Mai mountain. These consists of plants which grow only in the specific area such as Dracaena lourieri, Phoenix

paludosa, Euphorbia lacel Craib., Orchid, etc.

**Beach forest**has been found in the area of shore mountain of Muk island, Chaow Mai island and Meng island. The important plants here are Cassuarina equisetifolia , etc.

**Mangrove forest** widely covers all area of bay of Muk island. The important plants are Rhizophora apiculata, Ceriops tagal, Xylocarpus granatum , etc. At the back side of this mangrove forest are the place of brackish water plants such as Nypa fruticans, Heritiera littoralis , etc.

**Aquatic plants society** that could be found here are sea grass, seaweed and planton, especially in the sea area of Chaow Mai National Park is the place of the big sea grass.

**Wild Animals**
From survey, could be classified as follows :

**Mammal Animals** which are going to be gone in the near future are sea cow, Capricornis sumatraensis, Presbytis melalophos, Muntiacus muntjak and Tragulus javanicus, while the pedatory animals that rarely found here are Felis bengalensis The easily found animals are Aonyx cinerea , etc.

**Dugong** is a kind of marine mammal. It has a slim and shuttle – like body parallel to the ground and swims by use of their two Flippers. It's mouth is at the lower part of the face where the upper lip is thick like a pig's nose. Dugong is mostly herbivorous and feeds on sea grass on the sea floor. It is a rare animal in Thailand but still found in Trang. Therefore it is regarded as a preserved forest animal as being categorized in appendix I of CITES. Being hunted for it's meat as Foods, caught by fishing gears, holding low reproduction capability, getting affected from coastal pollution which extinguishes sources of sea grass and algae as their nourishing foods, dugong will be extinct in the near future.

**Birds**, there are two types which are going to be vanished, the first is the black-necked stork and the second is the lesser adjutant. Also found the rare migrating sandpipers such as Chinese egret, Nordmann's greenshank and Chinese crested tern.

**Retiles** such as yellow-headed temple terrapin, Indian python an reticulated python.

**Amphibians** such as R. nigrovittata, Ornate Froglet, etc.

Factors threatening to biodiversity in the area,

1.Expansion of tourism with poor management disturb endanger specie like Dugongs .There were evidences reported of motored boats injure and cause death of Dugong in Adaman Sea every year . however, sofar there are no measure to address the issue. In the areas of particular concern at Libong island - Koh Mook, In Trang Province ,there are uncontrolled numbers of visitors and boat visiting the area. Some day, there were about 50-100 motored boats per day to see dugong.
2 Using of inappropriate fishing gears in fisheries .
3 Natural factors and climate change

## 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?)*

Koh Libong Island is a target area of this project. It is located in Tambon Koh Libong of Kantang District. It has a total land area of 25,000 rais. It has been declared a wildlife sanctuary. It is the habitat of varieties of birds. The island has capes and beaches. Tambon Koh Libong is divided into 2 parts. The first part is a plain linked with the mainland with some hills. It consists of 3 villages, namely village nos. 3, 6 and 8. The second part is an island in the sea with high mountains in the middle. It consists of 5 villages of nos. 1, 2, 4, 5 and 7.

The majority of villagers in Tambon Koh Libong professes Islam and is mainly engaged in coastal fishing, about 80%, followed by rubber plantation and wage earning. The people of Koh Libong are living a simple life, spending their day to day doing their occupation which depends on the weather. Sometimes, there is storm and they could not go out to the sea. Some of them have rubber plantations do also earn income from rubber plantation. Moreover, depletion of marine resources from over fishing and using inappropriate of fishing gears such as trawlers and pushing net with poor law enforcement and top down management resulted in declining of fishing productivity. Fishers although work hard but do not have sufficient income to meet their daily expenses. Most of Coastal families are indebted.

In 2004, Koh Libong has been affected by Tsunami, although not much but partially damaged, especially fishing communities. After getting assistance from both public and private sector, several villages of Koh Libong have been working with Andaman Foundation (originally Save Andaman Network-SAN) on disaster prevention and preparedness side by side with management or marine and coastal resources. The major problems that affect fisher people in this area are the coastal erosion and degradation of marine and coastal resources similar to several other areas in Trang Province.

**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*<br>• Irreplaceable<br>• Loss would mean the probable permanent disappearance of diversity or a feature, or reduction of the diversity at any level | | | | | |
| **Special importance for life-history stages of species** | Areas that are required for a population to survive and thrive. | | | | X |
| *Explanation for ranking*<br>• Breeding grounds, spawning areas, nursery areas, juvenile habitat or other areas important for life history stages of species | | | | | |
| **Importance for threatene** | Area containing habitat for the survival and recovery of endangered, threatened, declining | | | | X |

| | | | | | |
|---|---|---|---|---|---|
| **d, endangered or declining species and/or habitats** | species or area with significant assemblages of such species. | | | | |
| *Explanation for ranking*<br>• **Feeding ground for endanger spicy of Dugong.** | | | | | |
| **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 |
| *Explanation for ranking*<br>• Dugong are species of low fecundity, slow growth, long time to sexual maturity, longevity | | | | | |
| **Biological productivity** | Area containing species, populations or communities with comparatively higher natural biological productivity. | | | | X |
| *Explanation for ranking*<br>• Important for evolution and maintaining the resilience of marine species and ecosystems | | | | | |
| **Biological diversity** | Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity. | | | | X |
| *Explanation for ranking*<br>• Largest sea grasses bed in Thailand.<br>• Biodiversity of sea grasses of the area.<br>• Spawning ground for other marine live form. | | | | | |
| **Naturalness** | Area with a comparatively higher degree of naturalness as a result of | | | | X |

| | | | | | |
|---|---|---|---|---|---|
| | the lack of or low level of human-induced disturbance or degradation. | | | | |

*Explanation for ranking*

- To protect areas with near natural structure, processes and functions
- To maintain these areas as reference sites
- To safeguard and enhance ecosystem resilience

## 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** |
| **Food and livelihood of small scale fishery** | Sustainable fishery and habitat divesity | | | | X |

*Explanation for ranking*

- Top down and centralize management cannot address occurred issues and can become risk in losing endanger species like dugongs.

## References

*(e.g. relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to relevant audio/visual material, video, models, etc.)* **Hat Chao Mai National Park**
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## Maps and Figures

**Map of Thailand**

- **Trang province** **Hat Chaw Mai National Park Boundary**
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## Rights and permissions

*(Indicate if there are any known issues with giving permission to share or publish these data and what any conditions of publication might be; provide contact details for a contact person for this issue)*

**Project Annex B: Local Civil Society Organizations**

**Introduction to Southern Coastal Communities**

With a combined area of over 126,000 sq km and a coastline of about 1740 km, the Gulf of Thailand and the Andaman Sea comprise the major fishing areas of Thailand. The small-scale fisher-folk residing along the coastlines are important constituents of the fishing industry and account for nearly three-quarters of the total fishermen population. Trawl netters of various sizes, followed by gill netters dominate the marine fisheries. Several factors such as improved economy, imported fish capturing devices, fishing technologies and the increasing demand in the domestic and foreign markets for fish and fish products have induced rapid marine fisheries development during the last 4 decades in Thailand. This has resulted in a drastic decline in the abundance of coastal fishery resources. With depleting fish stocks, conflicts between small-scale and commercial fishermen have been rising.

After the 2004 Tsunami, deprived of the regular incomes from tourism, the local communities in the Andaman coast resorted to traditional fishing to survive. It was during this hardship period that the true value of coastal resources and mangrove forest became evident in relative contrast to the transient nature of the incomes from tourism. The communities in the Andaman coast of southern Thailand were convinced more than ever the significance of the natural resources to their livelihood. Consequently, they looked deep into their indigenous roots of spiritual belief and

cultural identity to redefine the relationship between them as human beings and the environment. Based on this belief, they established rules and regulations to restore and protect their mangrove forest and to guard against illegal fishing in their coastal areas. The rules and regulations operate on accumulated indigenous knowledge that aligns with the course of nature. In general, it prohibits overfishing and the utilization of modern equipment that destroys wildlife habitat.

With the assistance of emerging civil society organizations, several collaborative platforms were developed among government agencies, civil society organizations and private sector to support this new initiative in order to preserve the ecosystem and sustain the community livelihood. Due to the lack of a unified government policy and standard protocol, the success was generally localized. It rarely goes beyond the boundary of community clusters. The intervention of the central government for a streamline process regarding community by laws seems to be the key at the moment. These civil society organizations have extensive networks throughout southern Thailand.