Thailand

GENERAL INFORMATION

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Memorandum signed: 5 December 2004

Effective Date: 1 March 2005

This report was last updated: 7 September 2011

OBJECTIVE I. REDUCE DIRECT AND INDIRECT CAUSES OF MARINE TURTLE MORTALITY

1.1 Introduction to marine turtle populations and habitats, challenges and conservation efforts. [INF]

The 740 km of the Andaman Sea coast of Thailand is situated between Myanmar and Malaysia. The narrow continent shelf bordered by deep oceanic waters of the northern portion widens to the south where large areas of mangrove forest fringe the coast. The complex ecosystem of mangrove forests, seagrass beds, coral reefs supports diverse fishery resources (Nootmorn et al., 2003).

Five species of sea turtles have been recorded in Thai waters: olive ridley turtle (*Lepidochelys olivacea*), green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*), leatherback turtle (*Dermochelys coriacea*), and loggerhead turtle (*Caretta caretta*).

Low genetic divergence between the nesting green turtle populations of the Gulf of Thailand and the Andaman Sea has been found, indicating that the present geological boundary (the part of the southern continent from Thailand to the Malaysia peninsula down to Indonesia) does not effectively prevent the gene flow between the two populations that was observed in invertebrate species in these areas (Kittiwattanawong et al., 2003).

Most sea turtle populations in the South East Asian region have decreased dramatically through long-term harvesting of eggs and adults, and as a result of being caught as by-catch in the ever growing trawler fisheries (Shanker & Pilcher, 2003). The remaining sea turtle populations in Thailand are widespread and exhibit a scattered distribution. Most of the available information is informal, with data on population status, trends and local exploitation or scientific data collected using different methodologies. It is known that sea turtles nest along the Andaman Sea coast (west coast - Phrathong Island, Ko Korkhao Island, Thaimuang Beach, Surin Islands, Similan Islands, Phang-nga Province; Maikhaw Beach, Phuket Province; Ko Tarutao, Ko Adang Rawi, Satun Province) and in the Gulf of Thailand (east coast - Kram Islands, Cholburi Province; Kra Island, Nakhonsrithammarat Province). Little is known about their feeding and foraging habitats, although knowledge of migration patterns has improved in the last five years. Long distance migrations of few animals were recorded in the Gulf of Thailand; a green turtle tracked in the Andaman Sea coast travelled to Andaman islands.

Sea turtles threats on nesting grounds are mitigated by some conservation projects. However, tourism development, egg poaching, and illegal trade of turtle products are affecting the population. Estimation of mortality at seas has not been quantified, but it is evident that fisheries are the main threat for sea turtles in Thai waters.

Synopsis:
Species and relative abundance
1. Green turtle: 78%
2. Hawksbill turtle: 20%
3. Leatherback turtle: 1%
4. Loggerhead: 1% and
5. Olive ridley turtle: 1%

Foraging grounds:
-- Green turtle - seagrass areas both in the Gulf of Thailand and the Andaman Sea
-- Hawksbill turtles - among coral reefs
-- Olive Ridley turtles - Coastal areas from Ranong to Phangnga

Developmental habitats: assumed to be in offshore area

Based on:
Juntarashote, K. 2003. Country report for BOBLME Programme: Thailand. BOBLME, FAO GCP/ RAS/ 179/ WBG, Chennai, India.

Kittiwattanawong, K., Mananasup, S., Kinoshita, M. & Nakayama, K. (2003b). No genetic divergence between green turtle (Chelonia mydas) nesting populations from the Andaman Sea and the Gulf of Thailand. In: Proceedings of the 4th Workshop on SEASTAR2000 (Editor: Arai, N.) pp. 15 – 19.

Kittiwattanawong, K., Chantrapornsyl, & Aureggi, M. (2006). The status of marine turtles in Thailand. Testudo Journal 6(3): 50-63.

Nootmorn, P., Chayakun, R., and Chullasorn, S., (2003). The Andaman Sea Marine Ecosystem in Thailand. Department of Fisheries. Bangkok.

Shanker, K. (2004). "Marine turtle status and conservation in the Indian Ocean." FAO Fisheries Reports 738: 85-98.

Shanker, K. & Pilcher, N.J. (2003). Marine turtle conservation in South and Southeast Asia: hopeless cause or cause of hope? MTN 100: 43 – 51.

See additional References in Section 3.1.1

1.2.1 Describe any protocol or approaches practiced in your country, which you consider exemplary, for minimising threats to marine turtle populations and their habitats, which may be suitable for adaptation and adoption elsewhere. [BPR]

Local community volunteers and educational/awareness activities (local fishermen and schools).

Enforcement of legislation has generally been ineffective.

By empowering and strengthening local villagers to protect their territorial waters (i.e. within 3 km from the shore line)

Education of school children and local villagers

Developed a set of national marine parks and protected areas

See: BOBLME (2011). Status of Marine Protected Areas and Fish Refugia in the Bay of Bengal Large Marine Ecosystem. BOBLME-2011-Ecology-10

1.3.1 Describe any socio-economic studies or activities that have been conducted among communities that interact with marine turtles and their habitats. [BPR, INF]

A study on interaction between artisanal fisheries and sea turtles was conducted at Phra Thong Island (Tsaros and Aureggi, 2007). Squid traps, the most common type of fishing gear (68.8% of fishermen interviewed), can potentially catch turtles. Whilst only three interviewees mentioned the interaction between traps and turtles, there are several factors which contribute to this concern. The trap stays at sea over night, with fresh bait, which can attract turtles. The opening (35-40 cm) could allow a young turtle to enter and become trapped. This opening should be reduced to minimize by-catch without reducing the amount of squid caught in trap.

See: Tsaros, P. and Aureggi, M. 2007. Interaction between artisan fisheries and sea turtles at Phra Thong Island. Naucrates Final report, pp16.

1.3.2 Which of these adverse economic incentives are underlying threats to marine turtles in your country? [TSH]

■ **High prices earned from turtle products relative to other commodities**

☐ Lack of affordable alternatives to turtle products

☐ Ease of access to the turtle resource (eg. by virtue of proximity or ease of land/water access)

☐ Low cost of land near nesting beaches

☐ Low penalties against illegal harvesting

☐ Other1:

☐ Other2:

☐ Other3:

☐ None of the above or Not Applicable

1.3.3 Has your country has taken any measures to try to correct these adverse economic incentives? [BPR]

☐ YES ■ NO ☐ NOT APPLICABLE (no adverse economic incentives exist)

Consumption of sea turtle eggs is inspired by traditional beliefs. Education and awareness building would be helpful measures.

1.4.1 Indicate, and describe in more detail, the main fisheries occurring in the waters of your country, as well as any high seas fisheries in which flag vessels of your country participate, that could possibly interact with marine turtles. [INF]

a) Shrimp trawls: ■ YES ☐ NO

Shrimp trawl research vessels have routinely surveyed assigned grids, on a monthly basis since 1970, without catching a single turtle. The surveys have been conducted in both the Gulf of Thailand and the Andaman Sea. Survey depths range between 10 and 50 m. It may therefore be concluded that the fishery is not interacting with turtles.

The percentage of sea turtles accidentally caught by trawls is around 8% compared to other fishing gears, according to records (1991-2006) obtained from Phuket Marine Biological Center (Andaman Sea) and Mannai Seaturtle Conservation Center (Gulf of Thailand).

Source: Department of Fisheries

b) Set gill nets: ■ YES ☐ NO

Some turtles have been caught by gillnets (such as crab gillnets, bamboo stake traps etc). More than half of the turtles caught were still alive. Wounded turtles have been treated and released back to the sea.

The percentage of sea turtles accidentally caught by gillnet is around 58% compared to other fishing gears, according to records (1991-2006) obtained from Phuket Marine Biological Center (Andaman Sea) and Mannai Seaturtle Conservation Center (Gulf of Thailand).

c) Anchored Fish Aggregating Devices (FADs): ☐ YES ■ NO

There is no record of use of FADs in Thailand.

d) Purse seine (with or without FADs): ■ YES ☐ NO

Some turtles have been caught by anchovy purse seiners that operate in the coastal zone. Most of the turtles were still alive.

The percentage of sea turtles accidentally caught by purse seine is around 5% compared to other fishing gears, according to records (1991-2006) obtained from Phuket Marine Biological Center (Andaman Sea) and Mannai Seaturtle Conservation Center (Gulf of Thailand).

e) Longline (shallow or deepset): ■ YES ☐ NO

f) Driftnet: ☐ YES ■ NO

There is no record of use of driftnets in Thailand.

g) Other1:

There is some evidence of capture of turtles in this gear.

h) Other2:

Some (adult) turtles have been caught by entanglement in the floating line, always resulting in death.

According to records (1991-2006) obtained from Phuket Marine Biological Center (Andaman Sea) and Mannai Seaturtle Conservation Center (Gulf of Thailand), sea turtles accidentally caught by squid trap is around 6% compared to other fishing gears.

☐ **None of the above**

1.4.2 Please indicate the relative level of fishing effort and perceived impact of each of the above fisheries on marine turtles (e.g. in terms of by-catch). [TSH]

a) Shrimp trawls

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ■ **UNKNOWN**

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ■ **NONE** ☐ UNKNOWN

Source: Records and reports from research vessels (shrimp trawl); as well as reports derived from surveys at landing sites.

b) Set gill nets

Fishing effort:

☐ RELATIVELY HIGH ■ **MODERATE** ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

Perceived Impact:

☐ RELATIVELY HIGH ■ **MODERATE** ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

Source: Information from fishermen who have caught turtles in their gear.

c) Anchored Fish Aggregating Devices (FADs)

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ■ **NONE** ☐ UNKNOWN

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ■ **NONE** ☐ UNKNOWN

Source:

d) Purse seine (with or without FADs)

Fishing effort:

☐ RELATIVELY HIGH ■ **MODERATE** ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

Perceived Impact:

☐ RELATIVELY HIGH ■ **MODERATE** ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

Source: Information from the owners of the gear.

e) Longline (shallow or deepset)

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ■ **RELATIVELY LOW** ☐ NONE ☐ UNKNOWN

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ■ **RELATIVELY LOW** ☐ NONE ☐ UNKNOWN

Source: Information from fishermen

f) Driftnet

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ■ **NONE** ☐ UNKNOWN

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ■ **NONE** ☐ UNKNOWN

Source:

g) Other1 (from 1.4.1): **Pair trawlers**

Fishing effort:

☐ RELATIVELY HIGH ■ **MODERATE** ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

Perceived Impact:

☐ RELATIVELY HIGH ■ **MODERATE** ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

Source: Some pair trawlers fish illegally in the area within 3 km of the shoreline.

h) Other2 (from 1.4.1): **Squid traps**

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ■ **RELATIVELY LOW** ☐ NONE ☐ UNKNOWN

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ■ **RELATIVELY LOW** ☐ NONE ☐ UNKNOWN

Source: Information from fishermen in coastal villages.

1.4.3 Describe any illegal fishing that is known to occur in or around the waters of your country that may impact marine turtles. Describe the measures being taken to deal with this problem and any difficulties encountered in this regard. [TSH]

Illegal fishing boats often invade within 3 km of coastal zone, even though fisheries patrol is set up to guard the 3 km coastal area. With the limited manpower and budget, patrolling and enforcement cannot be done thoroughly. It is planned to encourage volunteers within local communities to help monitor and protect these areas.

1.4.4 Which of the following methods are used by your country to minimise incidental capture/mortality of marine turtles in fishing activities? [IND]

a) **Appropriate handling** of incidentally caught turtles (e.g. resuscitation or release by fishers using equipment such as de-hooking, line cutting tools and scoop nets)

■ **YES** ☐ NO ☐ NOT APPLICABLE

Some trainings have been conducted, but not frequently.

b) **Devices that allow the escape of marine turtles** (e.g. turtle excluder devices (TEDs) or other measures that are comparable in effectiveness)

☐ YES ☐ NO ■ **NOT APPLICABLE**

Although there is information available on the use of TEDs, fishers have not accepted the use TEDs, on grounds of cost and because they know from their experience that no turtles are caught by small shrimp trawlers.

See: Chantrapornsyl, S. (1996). Status of marine turtles in Thailand. Proceedings of the First SEAFDEC Workshop on Marine Turtle Research and Conservation, Jan. 15-18, Malaysia: 77-92.

c) **Measures to avoid encirclement** of marine turtles in purse seine fisheries

☐ YES ■ **NO** ☐ NOT APPLICABLE

There are no measures specifically in relation to turtles, but from the fisheries side there are several measures to protect pelagic fish targeted by purse seiners (e.g. mesh size, light, length of net, etc.).

See: Flewwelling, P. and Hosch, G.2006. Country review: Thailand (Andaman Sea). De Young, C. (ed.) Review of the state of world marine capture fisheries management: Indian Ocean. FAO Fisheries Technical Paper. No. 488. Rome, FAO. 2006. 458p.

d) **Appropriate combinations** of hook design, type of bait, depth, gear specifications and fishing practices

☐ YES ■ **NO** ☐ NOT APPLICABLE

e) **Monitoring and recovery of fish aggregating devices** (FADs)

■ **YES** ☐ NO ☐ NOT APPLICABLE

Usually FADs are used as habitats for fish shelter and spawning area. The communities take care of their FADs in order to enhance fishery resources.

f) **Net retention and recycling schemes**

☐ YES ■ **NO** ☐ NOT APPLICABLE

g) **Spatial and temporal control of fishing** (e.g. seasonal closures of fishing activities)

■ **YES** ☐ NO ☐ NOT APPLICABLE

Thailand has several areas with annual seasonal closures (e.g. areas in Prachuab, Kiri Khan - Chumphon - Surat Thani provinces) for three months from 15 February to 15 May. Similarly, there are areas in the Andaman Sea, Cholburi coastal area for six months (September to February), Trad in Koh Chang area, etc. See: FAO (2009). NATIONAL FISHERY SECTOR OVERVIEW: THAILAND. FAO. FCP/CP/THA (on-line)

Flewwelling, P. and Hosch, G.2006. Country review: Thailand (Andaman Sea). De Young, C. (ed.) Review of the state of world marine capture fisheries management: Indian Ocean. FAO Fisheries Technical Paper. No. 488. Rome, FAO. 2006. 458p.

h) **Effort management control**

■ **YES** ☐ NO ☐ NOT APPLICABLE

Various effort management control measures are in place:

1. Freezing the number of trawlers. The next step will be to reduce their number and to eliminate push nets.
2. Limitations on mesh size, sieve size for purse seines and short neck clam dredgers.
3. No fishing effort allowed within 3 km from the shoreline.
4. Closed area and closed season for certain fishing gear.
5. Limitations on length, width and mesh size for Rastrelliger (mackerel) catch.

See: FAO (2009). NATIONAL FISHERY SECTOR OVERVIEW: THAILAND. FAO. FCP/CP/THA (on-line)

Flewwelling, P. and Hosch, G. 2006. Country review: Thailand (Andaman Sea). De Young, C. (ed.) Review of the state of world marine capture fisheries management: Indian Ocean. FAO Fisheries Technical Paper. No. 488. Rome, FAO. 2006. 458p.

☐ Other (list and explain):

☐ None of the above

1.4.5 Which of the following programmes has your country developed - in consultation with the fishing industry and fisheries management organisations - to promote implementation of measures to minimise incidental capture and mortality of turtles in national waters and in the high seas? [IND]

Onboard observer programmes

☐ YES ■ **NO** ☐ NOT APPLICABLE

See: Flewwelling, P. and Hosch, G. 2006. Country review: Thailand (Andaman Sea). De Young, C. (ed.) Review of the state of world marine capture fisheries management: Indian Ocean. FAO Fisheries Technical Paper. No. 488. Rome, FAO. 2006. 458p.

Vessel monitoring systems

☐ YES ■ **NO** ☐ NOT APPLICABLE

Although there is no VMS in Thailand per se.

1. For high seas fisheries, cooperation has been initiated with companies to minimise the incidental catch of turtles by using circle hooks for tuna longlines.

2. Boat owners have to report all of their catch, including by-catch to government agencies, or face no extension of licences for the next year.

See: Flewwelling, P. and Hosch, G. 2006. Country review: Thailand (Andaman Sea). De Young, C. (ed.) Review of the state of world marine capture fisheries management: Indian Ocean. FAO Fisheries Technical Paper. No. 488. Rome, FAO. 2006. 458p.

Inspections (i.e. at sea, in port, at landing sites)

■ **YES** ☐ NO ☐ NOT APPLICABLE

There are researchers and inspectors to check at ports and landing sites.

See: Flewwelling, P. and Hosch, G. 2006. Country review: Thailand (Andaman Sea). De Young, C. (ed.) Review of the state of world marine capture fisheries management: Indian Ocean. FAO Fisheries Technical Paper. No. 488. Rome, FAO. 2006. 458p.

Training programmes / workshops to educate fishers

■ **YES** ☐ NO ☐ NOT APPLICABLE

Few training workshops have been conducted to date; it is planned to hold more (and more widespread) training sessions in future.

Informative videos, brochures, printed guidelines etc.

■ **YES** ☐ NO ☐ NOT APPLICABLE

Documents, posters, brochures.

Other (list and explain):

☐ YES ☐ NO ☐ NOT APPLICABLE

☐ **None of the above**

1.4.6 Are the mitigation measures described in 1.4.4 and 1.4.5, periodically reviewed and evaluated for their efficacy? [SAP]

■ **YES** ☐ NO ☐ UNSURE

Very few mitigation measures are periodically reviewed and evaluated for their efficacy.

1.4.7 In your country, what types of data collection, research and development have been undertaken to support the reduction of marine turtle incidental catch (while taking into consideration the impact of various mitigation measures on other species)? [SAP]

No specific studies have been conducted in Thailand but Studies in Sri Lanka and India suggest that turtle by-catch may be a problem in some fisheries. The use of Turtle Excluder Devices (TEDs) in shrimp trawling has been enforced since 1996.

1.4.8 Has your country exchanged information and provided technical assistance (formally or informally) to other Signatory States to promote the activities described in 1.4.4, 1.4.5 and 1.4.7 above? [SAP]

☐ YES ☐ NO ■ **UNSURE**

1.4.9 What legislative and practical measures has your country taken in support of UN General Assembly Resolution 46/215 concerning the moratorium on the use of large-scale driftnets? [SAP]

None

1.5.1 Does your country have legislation to prohibit direct harvest and domestic trade in marine turtles, their eggs, parts and products; and to protect important turtle habitats? [IND]

■ **YES** ☐ NO ☐ UNSURE

Commercial harvest, sale and consumption of sea turtle meat and products are prohibited. Many laws and regulations have been registered to provide protection.

By virtue of the Wildlife Reservation and Protection Act, B.E. 1992, under the jurisdiction of the Royal Forestry Department, hunting is prohibited. Also the possession of reserved wild animals, protected wild animals or their carcasses is prohibited.

1.5.2 Which, among the following list, are economic uses and cultural values of marine turtles in your country? Please rate the relative prevalence / importance of each consumptive or non-consumptive use. [INF]

USES / VALUES	**RELATIVE PREVALENCE / IMPORTANCE**
Meat consumption	
☐ YES ■ **NO**	☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN
Egg consumption	
☐ YES ■ **NO**	☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN
Shell products	
☐ YES ■ **NO**	☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN
Fat consumption	
☐ YES ■ **NO**	☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN
Traditional medicine	
☐ YES ■ **NO**	☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN
Eco-tourism programmes	

☐ YES ■ **NO** ☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN

Programmes are being developed.

See: Junichi Okuyama; Boonhai, Kanokwan; Boonmee, Panumard; Mananunsap, Somachai; Charuchinda, Mickmin; Arai, Nobuak. (2003). The regional management model for ecotourism planning in the Rayong coastal area, Thailand.

Okayama, J. et al. (2003). Development on Sea Turtle Ecotourism in Mannai Island. Proc. of the 3rd SEASTAR2000 Workshop.

Cultural / traditional significance

☐ YES ■ **NO** ☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN

No traditional use.

Other

1.5.3 Please indicate the relative level and impact of traditional harvest on marine turtles and their eggs. [IND, TSH]

Level of harvest:

☐ RELATIVELY HIGH ☐ MODERATE ■ **RELATIVELY LOW** ☐ NONE ☐ UNKNOWN

Impact of harvest:

☐ RELATIVELY HIGH ☐ MODERATE ■ **RELATIVELY LOW** ☐ NONE ☐ UNKNOWN

Source of information:

Overall the level of harvest and impact of harvest appear to be low; however, harvest may be high at local places.

See: AUREGGI, M. (2009). Thirteen years of sea turtle conservation in South Thailand: are we avoiding extinction? Proceedings of the 5th International Symposium on SEASTAR2000 and Asian Bio-logging Science (The 9th SEASTAR2000 workshop) (2009) http://repository.kulib.kyoto-u.ac.jp/dspace/bulletin/seastar2000: 7-10.

Chantrapornsyl, S. (1996). Status of marine turtles in Thailand. . Proceedings of the First SEAFDEC Workshop on Marine Turtle Research and Conservation., Malaysia.

1.5.4 Have any domestic management programmes been established to limit the levels of intentional harvest? [SAP]

☐ YES ☐ NO ■ **UNKNOWN**

1.5.5 Describe any management agreements negotiated between your country and other States in relation to sustainable levels of traditional harvest, to ensure that such harvest does not undermine conservation efforts. [BPR]

1.6.1 First, select one of the options at left to indicate whether or not your country has any of the following measures in place to minimise the mortality of eggs, hatchlings and nesting females. If yes, then estimate the relative effectiveness of these measures. [IND, SAP]

MEASURES	RELATIVE EFFECTIVENESS
Monitoring/protection programmes	

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

Only the National Parks, the Royal Thai Navy and protected areas are managed.

Education / awareness programmes

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ☐ GOOD ■ **LOW** ☐ UNKNOWN

Egg relocation / hatcheries

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

Beach patrolling during nesting season and removal of eggs to be placed in a hatchery.

Predator control

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

Vehicle / access restrictions

☐ YES ■ **NO** ☐ N/A ☐ EXCELLENT ☐ GOOD ☐ LOW ☐ UNKNOWN

Removal of debris / clean-up

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

Diving groups conduct underwater garbage collection along the coral reef areas.

Re-vegetation of frontal dunes

☐ YES ■ **NO** ☐ N/A ☐ EXCELLENT ☐ GOOD ☐ LOW ☐ UNKNOWN

Building location / design regulations

☐ YES ■ **NO** ☐ N/A ☐ EXCELLENT ☐ GOOD ☐ LOW ☐ UNKNOWN

Light pollution reduction

☐ YES ■ **NO** ☐ N/A ☐ EXCELLENT ☐ GOOD ☐ LOW ☐ UNKNOWN

Other (list and rate them)

☐ YES ☐ NO ☐ N/A

1.6.2 Has your country undertaken any evaluation of its nest and beach management programmes? [SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE

Reference/contact details for published or unpublished reports concerning the evaluation of the effectiveness of nest and beach management programmes:

AUREGGI, M. (2009). Thirteen years of sea turtle conservation in South Thailand: are we avoiding extinction? Proceedings of the 5th International Symposium on SEASTAR2000 and Asian Bio-logging Science (The 9th SEASTAR2000 workshop) (2009) http://repository.kulib.kyoto-u.ac.jp/dspace/bulletin/seastar2000: 7-10.

Chantrapornsyl, S., 1992. Artificial incubation and embryonic development of olive ridley turtle eggs. Phuket mar. biol. Cent. Res. Bull. 57: 41-50.

Chantrapornsyl, S., 1995. Biology and conservation of olive ridley turtles (Lepidochelys olivacea) in the Andaman Sea, Southern Thailand. PMBC Bulletin No. 57:51-66.

Mananunsap, S. and M. Charuchinda, 1994. Laying eggs of sea turtle around Khram Island, Chonburi Province During 1988-1993. Seminar on Fisheries, Department of Fisheries. Sept. 19-21, 1994.

Mananunsap, S. and S. Rongmuangsart, 1988. Reproductive biology of sea turtles of Khram Island, Chonburi Province. Seminar on Fisheries, Department of Fisheries, Sep. 1988.

Phasuk, B., 1981. Sea turtles and conservation. Thai Fisheries Gazette 34(3): 253-267.

Phasuk, B., 1992. Biology of sea turtles and reproductive biology of green turtle in Thailand. Thai Fisheries Gazette, 45(1): 603-650 (1992).

Phasuk, B., 1992. Conservation of sea turtle in Thailand. Thai Fisheries Gazette, 45(3): 807-820.

OBJECTIVE II. PROTECT, CONSERVE AND REHABILITATE MARINE TURTLE HABITATS

2.1.1 What is being done to protect critical habitats *outside* of established protected areas? (NB: It is assumed that legislation relating to established protected areas will have been described in Section 1.5.1) [BPR, SAP]

The majority of known nesting sites are within national parks and reserves.

2.1.2 Are assessments routinely made of the environmental impact of marine and coastal development on marine turtles and their habitats? [IND, SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE

2.1.3 Is marine water quality (including marine debris) monitored near turtle habitats? If yes, describe the nature of this monitoring and any remedial measures that may have been taken. [SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE

The water quality in the Andaman Sea was assessed from May 2002 to March 2003 (PCD 2003). Heavy metal concentrations and total bacteria counts were below the national standard for sea water but total coli form bacteria near Patong Beach in Phuket Province and Ban Lamsak in Phangnga Province was higher.

See: PCD. 2003. Assessment of marine environment. Pollution Control Division. CD ROM. Bangkok.

2.1.4 Are measures in place to prohibit the use of poisonous chemicals and explosives? [SAP]

☐ YES ☐ NO ☐ NOT APPLICABLE

2.2.1 Are efforts being made to recover degraded coral reefs? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc). [IND, SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE (no degraded coral reefs)

A 20-year plan has been developed by the National Environment Commission to keep a balance between economic and social development, and conservation of the environment and natural resources. Part of the prescribed action includes coastal coral reef ecosystems.

See: Thailand Policy and Prospective Plan for Enhancement and Conservation of National Environment Quality (1997-2016)

2.2.2 Are efforts being made to recover degraded mangrove habitats that are important for turtles? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc.) [IND, SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE (no mangrove habitats important for turtles)

The mangrove areas along the Andaman Sea coast have decreased based on LANDSAT images taken since 1975. Many areas have been destroyed. The National Mangrove Resource Committee has established a zoning system within which activities are regulated. Because the mangrove forest area is the major source of income and food the stakeholders are joining the mangrove forest conservation and management efforts.

See: Juntarashote, K. (2003). Country report of BoBLME Programme: Thailand.

Kazuhiro, S. (2000). Socioeconomic study on the utilization of mangrove forests in southeast Asia. In : Proceedings of Asia‐Pacific Cooperation on Research for conservation of mangroves, Okinawa, Japan, pp. 129‐138.

2.2.3 Are efforts being made to recover degraded sea grass habitats? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc.). [IND, SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE (no degraded sea grass habitats)

Along the Andaman Sea coast the largest seagrass beds are located from Chaomai Beach to Muk Island, off Talibong Island in Trang Province, Phangnga Bay and in Lanta Bay, Krabi Province. (Chansang et al. 1988, OEPP 2003a). Degraded seagrass beds occur near Phuket Island. The government and NGOs have started education and awareness campaigns and started a sea grass plantation.

See: Chansaeng, H., P. Boonyanate, S. Poovachiranon, N. Phongsuwan and S. Bussarawit. 1988. Project 2: Living resources in coastal areas with emphasis on mangroves and coral reef ecosystem: Subproject on inventory and monitoring of coral reefs, seagrass and soft bottom communities in the Andaman Sea. ASEAN-Australia Cooperative Program on Marine Science. Phuket Marine Biological Center, Phuket Province, Thailand.Chansaeng and Poovachiranon. 1994. The distribution and species composition of seagrass beds along the Andaman Sea Coast of Thailand. Phuket mar. Biol.Cent. Res. Bull. 59:43-52.

Juntarashote, K. (2003). Country report of BoBLME Programme: Thailand.

OEPP (Office of Environmental Policy and Planning). (2003a). OEPP 2003 Project: Thailand's National Coastal Resources and Environmental Profile. OEPP. Ministry of Science, Technology and Environment. Bangkok. (in Thai)

OBJECTIVE III. IMPROVE UNDERSTANDING OF MARINE TURTLE ECOLOGY AND POPULATIONS THROUGH RESEARCH, MONITORING AND INFORMATION EXCHANGE

3.1.1 Give a list of available literature that includes baseline information from studies carried out in your country on marine turtle populations and their habitats. [INF]

There are many publications on sea turtle population study in Thailand.

Adulyanukosol, K. & Ruangkaew, R. (2003). Sea turtle stranding records in the Andaman coast, Thailand. In: Proceedings of the 3rd Workshop on SEASTAR2000 (Editor: Arai, N.) pp. 105–109.

Aureggi, M. (2006). The status of marine turtles in Thailand. Testudo 6: 50-63.

Aureggi, M. (2009). Thirteen years of sea turtle conservation in South Thailand: are we avoiding extinction? Proceedings of the 5th International Symposium on SEASTAR2000 and Asian Bio-logging Science (The 9th SEASTAR2000 workshop) (2009) http://repository.kulib.kyoto-u.ac.jp/dspace/bulletin/seastar2000: 7-10.

Aureggi, M. & Chantrapornsyl, S. (2003). Conservation Project: sea turtles at Phra Thong Island, South Thailand. Kachhapa Newsletter 9: 3–5.

Aureggi, M. & Chantrapornsyl, S. (2006). Reproductive biology and conservation of the olive ridley turtle at Phra Thong Island &aman Sea, Thailand. Phuket Marine Biological Center Research Bulletin 67: 81-87.

Aureggi, M., Chantrapornsyl, S. & Young, L. (2003). Conservation Project at Phra Thong and Kho Khao Islands, South West Thailand. Tiger Paper 30(3): 11–13.

Aureggi, M., Gerosa, G. & Chantrapornsyl, S. (2000). Elimination of egg poaching activity at Phra Thong island, Thailand. First Italian Meeting on Sea Turtle Biology and Conservation. Policoro, Italy.

Aureggi, M., Gerosa, G. & Chantrapornsyl, S. (2004). An update of sea turtle nesting along the Andaman coast of Thailand: 1996–2000. In: Proceedings 21st International Symposium on Sea Turtle Biology and Conservation (Editors: Coyne, M.S. and Clark, R.D.) pp. 98–100. NOAA Technical Memorandum NMFS-SEFSC-528.

Chantrapornsyl, S. (1997). Status of marine turtles in Thailand. Unpublished report.

Chantrapornsyl, S. (1992). Artificial incubation and embryonic development of olive ridley turtle eggs. Phuket mar. biol. Cent. Res. Bull. 57: 41-50.

Chantrapornsyl, S. (1992). Biology and Conservation Olive Ridley Turtles (Lepidochelys olivacea) in the Andaman Sea, Southern Thailand. Phuket Mar. Biol. Cent. Res. Bull. 57: 51–66.

Charuchinda, M., Sakamoto, W., Arai, N. & Monanunsap, N. (2003a). Migration pattern of post-nesting green turtles in the Gulf of Thailand. In: Proceedings of the 3rd Workshop on SEASTAR2000 (Editor: Arai, N.) pp. 53–57.

Charuchinda, M., Sakamoto, W., Monanunsap, N. & Arai, N. (2003b). Satellite tracking for loggerhead turtles, Caretta caretta: note on navigational ability in the ocean. In: Proceedings of the 3rd Workshop on SEASTAR2000 (Editor: Arai, N.) pp. 59–62.

Kittiwattanawong, K., Chantrapornsyl, S., and Aureggi, M. (2006). The status of marine turtles in Thailand. Testudo Journal 6(3): 50-63.

Kittiwattanawong, K., Chantrapornsyl, S., Manananansup, M., Charuchinda, M., Sakamoto, W., Arai, N. & Klom-in, W. (2003). Protective areas for internesting green turtle (Chelonia mydas) populations in Thailand. In: Proceedings of the 3rd Workshop on SEASTAR2000 (Editor: Arai, N.) pp. 45–48.

Kittiwattanawong, K., Chantrapornsyl, S., Sakamoto, W., & Arai, N. (2001). Feeding and inter-nesting grounds of the green turtle nesting population at Similan islands, Thailand. In: Book of abstracts of the 1st Workshop on SEASTAR2000, Phuket, 2001, p. 21.

Kittiwattanawong, K., Mananasup, S., Kinoshita, M. & Nakayama, K. (2003b). No genetic divergence between green turtle (Chelonia mydas) nesting populations from the Andaman Sea and the Gulf of Thailand. In: Proceedings of the 4th Workshop on SEASTAR2000 (Editor: Arai, N.) pp. 15 – 19.

Klom-in, W. (2001). The Royal Thai Navy sea turtles conservation in the Andaman Sea. In: Book of abstracts of the 1st Workshop on SEASTAR2000, Phuket, 2001, p. 12.

Klom-in, W. (2002). The Royal Thai Navy sea turtles conservation in the Andaman Sea. In: Book of abstracts of the 3rd Workshop on SEASTAR2000, Bangkok, 2002, p. 36.

Mananunsap, S. and Charuchinda, M. (1994). Laying egg of sea turtle around Khram Island, Chonburi Province During 1988-1993. Seminar on Fisheries, Department of Fisheries. Sept. 19-21, 1994.

Mananunsap, S. and Rongmuangsart, S. (1988). Reproductive biology of sea turtle of Khram Island, Chonburi Province. Seminar on Fisheries, Department of Fisheries, Sep. 1988.

Monanunsap, S. & Charuchinda, M. (2001). Reproductive biology of green turtle at Ko Kram Island, Chonburi Province, Thailand. In: Proceedings of the 1st Workshop on SEASTAR2000, pp. 11–15.

Monanunsap, S., Charuchinda, M. & Tatsukawa, K. (2003). Satellite tracking for nesting hawksbill, Erethmochelys imbricata in the Gulf of Thailand. In: Proceedings of the 3rd Workshop on SEASTAR2000 (Editor: Arai, N.) pp. 23–25.

Mudsuk, N., Senanan, W., Monanunsap, S., and Kaewsa, N. (2005). Detection of multiple paternity in Green turtle clutches during a reproductive season at Khram Island, Thailand, the proceeding of the fifth SEASTAR 2000 workshop, December 2005, page 1-5, Kyoto, Japan.

Phasuk, B, (1992). Biology of sea turtles and reproductive biology of green turtle in Thailand. Thai Fisheries Gazette, 45(1): 603-650 (1992).

Phasuk, B. & Rongmaungsart, S. (1973). Growth studies on the olive ridley turtle, Lepidochelys olivacea Eschscholtz, in captivity and the effect of food preference on growth. Phuket Mar. Biol. Center Res. Bull.: 114pp.

Phasuk, B. (1992) (Thai). Biology, culture technique and conservation of sea turtles in Thailand. Phuket Mar. Biol. Cent. Tech. Paper. No.1/1992: 114pp.

Phasuk, B. (1992). Conservation of sea turtle in Thailand. Thai Fisheries Gazette, 45(3): 807-820.

Phasuk, B., (1981). Sea turtle and conservation. Thai Fisheries Gazette 34(3): 253-267.

Polunin, N.V.C. (1975). Sea Turtles: reports on Thailand, West Malaysia and Indonesia with synopsis of data on the conservation status in the Indo west pacific region. IUCN unpubl. report. Settle, S. (1995). The status of nesting populations of sea turtles in Thailand and their conservation. Tiger Paper 22(1): 2–6.

Shanker, K. & Pilcher, N.J. (2003). Marine turtle conservation in South and Southeast Asia: hopeless cause or cause of hope? MTN 100: 43 – 51.

Shiba, N., Arai, N., Sakamoto, W., Tubtimsang, W. & Charuchinda, M. (2002). The relationship between shrimp trawl fishing grounds and adult female green turtle in the Gulf of Thailand. In: Proceedings of the 2nd Workshop on SEASTAR2000, pp. 5– 9.

Tsaros, P. and Aureggi, M. (2007). Interaction between artisan fisheries and sea turtles at Phra Thong island. Naucrates Final report, pp16.

3.1.2 Have long-term monitoring programmes (i.e. of at least 10 years duration) been initiated or planned for priority marine turtle populations frequenting the territory of your country? [IND, BPR]

■ **YES** ☐ NO ☐ UNSURE

Monitoring of nest numbers at most nesting beaches.

Sea turtle conservation and monitoring at Phra Thong island started in 1996.

See: AUREGGI, M. (2009). Thirteen years of sea turtle conservation in South Thailand: are we avoiding extinction? Proceedings of the 5th International Symposium on SEASTAR2000 and Asian Bio-logging Science (The 9th SEASTAR2000 workshop) (2009) http://repository.kulib.kyoto-u.ac.jp/dspace/bulletin/seastar2000: 7-10.

3.1.3 Has the genetic identity of marine turtle populations in your country been characterised? [INF, PRI]

■ **YES** ☐ NO ☐ UNSURE

The population genetic studies of sea turtles in Thailand have been completed both in the Gulf of Thailand and the Andaman Sea Coast of Thailand. Some results showed that there was no genetic divergence of sea turtle population between the Gulf and the Andaman Sea coast of Thailand.

See: Kittiwattanawong, K., Mananunsai, S. Kinoshita, M., and Nakayama, K.(2003). No genetic divergence between green turtle Chelonia mydas nesting populations from the Andaman Sea and the Gulf of Thailand. Proceedings on the 4th SEASTAR2000 Workshop (2003) 15-19.

3.1.4 Which of the following methods have been or are being used to try to identify migration routes of turtles? Use the text boxes to provide additional details. [INF, PRI]

Tagging ■ **YES** ☐ NO

Source: Department of Marine and Coastal Resources, Ministry of Natural Resources and Environment

- 1979-1983, 2000-3000 head-started turtles (green, olive ridley and hawksbill) were tagged with plastic tags and released in the Andaman sea
- 1998-recent: Inconel tag & PIT
-------Inconel tags were applied to the juvenile turtles.
-------Microchip tags were also applied for double tagging all turtles

Sea turtle tagging from 1998 to 2008

Year	Andaman Sea		Gulf of TH		SEAFDEC MFRDMD	
	Inconel	PIT	Inconel	PIT	Inconel	PIT
1998					1100	
1999	14	20	260	239	0	0
2000	5	86	62	175	0	0
2001	71	70	50	95	0	25
2002	66	71	87	126	0	0
2003	65	50	101	242	0	0
2004	77	64	15	125	0	0
2005	117	251	12	107	600	0
2006	112	160	10	152	0	0
2007	98	291	18	221	0	0
2008	39	258	9	65	0	0
-Total	**664**	**1321**	**672**	**1981**	**1700**	**25**

Satellite tracking ■ **YES** ☐ NO

Satellite tracking has been done with female nesting turtles (green, hawksbill and olive ridley turtles)

On going PTTs activities
- Tracking of head started turtles
---------12-14 months old green turtles
---------Fund raising by coastal hotels and resorts
- Continue experiment on GPS-PTTs

PTT-attached sea turtles from 1995 to 2008

	Andaman Sea	Gulf of Thailand	Total
Green	18 (2)	23	43
Hawksbill	0	12	12
Loggerhead	0	1 (1)	2
Olive ridley	1	0	1
Leatherback	1	0	1
Total	22	37	59

Source: Department of Marine and Coastal Resources, Ministry of Natural Resources and Environment

See also: Aureggi, M. (2006). "The Status of Marine Turtles in Thailand." Testudo 6(3).

Monanunsap, S., Charuchinda, M. & Tatsukawa, K. (2003). Satellite tracking for nesting hawksbill, Erethmochelys imbricata in the Gulf of Thailand. In: Proceedings of the 3rd Workshop on SEASTAR2000 (Editor: Arai, N.) pp. 23–25.

☐ **Other**

☐ **None of the above**

3.1.5 Have studies been carried out on marine turtle population dynamics and survival rates (e.g. including studies into the survival rates of incidentally caught and released turtles)? [INF, PRI]

☐ YES ☐ NO ■ **UNSURE**

There were records of stranding sea turtles during 1991-2006 obtained from Phuket Marine Biological Center (Andaman Sea) and Mannai Seaturtle Conservation Center (Gulf of Thailand). However, there is no direct observation from fishing vessels.

3.1.6 Has research been conducted on the frequency and pathology of diseases in marine turtles? [INF, PRI]

■ **YES** ☐ NO ☐ UNSURE

Research has been done on captive green turtles at Mannai Island Sea Turtle Conservation (DMCR).

3.1.7 Is the use of traditional ecological knowledge in research studies being promoted? [BPR, PRI]

☐ YES ■ **NO** ☐ UNSURE

3.2.1 List any regional or sub-regional action plans in which your country is already participating, which may serve the purpose of identifying priority research and monitoring needs. [INF]

1. Cooperative research and conservation on sea turtles - Southeast Asia Sea Turtle Association Research (SEASTAR 2000) started in 2000-2004.
2. Cooperative research by SEAFDEC on regional tagging, hatchery management and regional database.

3.2.2 On which of the following themes have collaborative studies and monitoring been conducted? Use the text boxes to describe the nature of this international collaboration or to clarify your response. Answer 'NO' if the studies/monitoring undertaken do not involve international collaboration. [INF, PRI]

a) Genetic Identity ■ **YES** ☐ NO ☐ NOT APPLICABLE

Population genetics research with in Southern Asian countries.

b) Conservation status ■ **YES** ☐ NO ☐ NOT APPLICABLE

Nesting sites and nesting population monitoring survey.

c) Migrations ■ **YES** ☐ NO ☐ NOT APPLICABLE

Inconel and microchip tagging programmes
Satellite tracking programme within Southeast Asian countries.

d) Other biological and ecological aspects ■ **YES** ☐ NO ☐ NOT APPLICABLE

Captive breeding biology
Monitoring sex ratios, size, growth rates in hatcheries
Research of diseases in hatchery tanks
Nesting behavior of Olive Ridley, Green and Hawksbill.

☐ **Other**

3.3.1 List, in order of priority, the marine turtle populations in your country in need of conservation actions, and indicate their population trends. [PRI]

1. Olive Ridley and Leatherback due to critically low population numbers (only ~5% of historical numbers remaining)
2. Hawksbill turtle, decrease of up to ~60%
3. Green turtle, decrease of up to ~80%

No detailed statistical analysis; only monitoring of trends for nesting populations.

3.3.2 Are research and monitoring activities, such as those described above in Section 3.1 periodically reviewed and evaluated for their efficacy? [SAP]

■ **YES** ☐ NO ☐ UNSURE

Every year, SEAFDEC/MFRDMD by Japan.
Trust Found reviews all data on tagging and genetic research on each country in SEAFDEC Member.

3.3.3 Describe how research results are being applied to improve management practices and mitigation of threats (in relation to the priority populations identified in 3.3.1, among others). [SAP]

Research results are being used to improve the efficacy of conservation actions through the assessment of hatchery management practices.

References are not available on head-starting programmes run in the country.

3.4.1 Has your country undertaken any initiatives (nationally or through collaboration with other Range States) to standardise methods and levels of data collection? [BPR, INF]

■ **YES** ☐ NO ☐ UNSURE

Responsible staff use standardized data, but no special agreed protocols.

3.4.2 To what extent does your country exchange scientific and technical information and expertise with other Range States? [SAP, IND]

☐ OFTEN (SYSTEMATICALLY) ■ **OCCASIONALLY** ☐ RARELY ☐ NEVER

3.4.3 If your country shares scientific and technical information and expertise with other Range States, what mechanisms have commonly been used for this purpose? Comment on any positive benefits/outcomes achieved through these interactions. [INF]

Seminars, publications, website, and proceedings of meetings (for SEASTAR, satellite tracking data and SEAFDEC/MFRI)

3.4.4 Does your country compile and make available to other countries data on marine turtle populations of a regional interest? [INF]

■ **YES** ☐ NO ☐ UNSURE

Compilation of data on migration and shared feeding grounds are shared upon request.

OBJECTIVE IV. INCREASE PUBLIC AWARENESS OF THE THREATS TO MARINE TURTLES AND THEIR HABITATS, AND ENHANCE PUBLIC PARTICIPATION IN CONSERVATION ACTIVITIES

4.1.1 Describe the educational materials, including mass media information programmes that your country has collected, developed and/or disseminated. [INF, PRI]

General materials on awareness developed include:
Booklets, brochures, videos, presentations to schools and community groups, T-shirts, posters, etc.

Database and websites are under construction.

4.1.2 Which of the following groups have been the targets of these focused education and awareness programmes described in above in Section 4.1.1? [PRI, INF]

- ☐ Policy makers
- ☐ Fishing industry
- ■ **Local/Fishing communities**
- ☐ Indigenous groups
- ■ **Tourists**
- ■ **Media**
- ■ **Teachers**
- ■ **Students**
- ☐ Military, Navy, Police
- ■ **Scientists**
- ☐ Other:
- ☐ None of the above

4.1.3 Have any community learning / information centres been established in your country? [BPR, SAP]

■ **YES** ☐ NO

The Department of Marine and Coastal Resources (DMCR) established information centers at various places for public learning.

Plans to establish a local natural resource museum and information center.

Conservation center is now established at Lion village Ko Phra Thong, run by Naucrates and PMBC.

4.2 Alternative livelihood opportunities [IND, BPR] Describe initiatives already undertaken or planned to identify and facilitate alternative livelihoods (including income-generating activities) for local communities.

None

4.3.1 Describe initiatives already undertaken or planned by your country to involve local communities, in particular, in the planning and implementation of marine turtle conservation programmes. Please include details of any incentives that have been used to encourage public participation, and indicate their efficacy. [BPR, IND]

Local volunteer group involved in conservation of sea turtle in the areas.

4.3.2 Describe initiatives already undertaken or planned to involve and encourage the cooperation of Government institutions, NGOs and the private sector in marine turtle conservation programmes. [IND, BPR]

Efforts have been made to involve coastal residents in turtle conservation and monitoring nesting beaches.

OBJECTIVE V. ENHANCE NATIONAL, REGIONAL AND INTERNATIONAL COOPERATION

5.1.1 Has your country undertaken a national review of its compliance with Convention on International Trade in Endangered Species (CITES) obligations in relation to marine turtles? [SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE

Thailand signed CITES in 1991 and listed all kinds of marine turtle as protected animals in the wildlife preservation acts of 1992.

5.1.2 Does your country have, or participate/cooperate in, CITES training programmes for relevant authorities? [SAP]

☐ YES ■ **NO** ☐ NOT APPLICABLE

5.1.3 Does your country have in place mechanisms to identify international illegal trade routes (for marine turtle products etc.)? Please use the text box to elaborate on how your country is cooperating with other States to prevent/deter/eliminate illegal trade. [SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE

Sea turtle products, including their by-products, cannot be imported or exported abroad without permission and according to CITES regulations. Source: FAO (2009). NATIONAL FISHERY SECTOR OVERVIEW: THAILAND. FAO. FCP/CP/THA (on-line)

5.1.4 Which international compliance and trade issues related to marine turtles has your country raised for discussion (e.g. through the IOSEA MoU Secretariat, at meetings of Signatory States etc.)? [INF]

5.1.5 Describe measures in place to prevent, deter and eliminate domestic illegal trade in marine turtle products, particularly with a view to enforcing the legislation identified in Section 1.5.1. [INF]

Strengthen enforcement of laws and legislation concerning protected animals.

5.2.1 Has your country already developed a national action plan or a set of key management measures that could eventually serve as a basis for a more specific action plan at a national level? [IND]

■ **YES** ☐ NO

Now, Thailand is trying to develop a national plan for sea turtle conservation and management, in which DMCR is participating (on behalf of Government) along with and Thailand Wildlife Foundation (NGO representation).

Also Wildlife Reservation and Protection Act B.E., 2535 (1992) covers general conservation protection for sea turtles.

See; FAO (2009). NATIONAL FISHERY SECTOR OVERVIEW: THAILAND. FAO. FCP/CP/THA (on-line)

5.2.2 From your country's perspective, which conservation and management activities, and/or which particular sites or locations, ought to be among the highest priorities for action? [PRI]

1. Database on marine turtle (3.4)
2. Assessment of each population of marine turtle species (3.1)
3. Reducing incidental catch (1.4)
4. Promoting public participation (4.3)
5. Developing nesting beach management programmes (2.1)

5.2.3 Please indicate, from your country's standpoint, the extent to which the following local management issues require international cooperation in order to to achieve progress. [PRI]

Illegal fishing in territorial waters	■ **ESSENTIAL** ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Incidental capture by foreign fleets	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL
Enforcement/patrolling of territorial waters	☐ ESSENTIAL ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Hunting/harvest by neighboring countries	☐ ESSENTIAL ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Poaching, illegal trade in turtle projects	■ **ESSENTIAL** ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Development of gear technology	☐ ESSENTIAL ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Oil spills, pollution, marine debris	☐ ESSENTIAL ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Training / capacity-building	■ **ESSENTIAL** ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Alternative livelihood development	☐ ESSENTIAL ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Identification of turtle populations	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL
Identification of migration routes	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL
Tagging / satellite tracking	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL
Habitat studies	■ **ESSENTIAL** ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Genetics studies	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL

5.3.1 Identify existing frameworks/organisations that are, or could be, useful mechanisms for cooperating in marine turtle conservation at the sub-regional level. Please comment on the strengths of these instruments, their capacity to take on a broader coordinating role, and any efforts your country has made to enhance their role in turtle conservation. [INF, BPR]

Prohibition of harvest and trade of sea turtles and their products, both nationally and internationally.

5.3.2 Has your country developed, or is it participating in, any networks for cooperative management of shared turtle populations? [BPR, INF]

☐ YES ■ **NO** ☐ NOT APPLICABLE

5.3.3 What steps has your country taken to encourage Regional Fishery Bodies (RFBs) to adopt marine turtle conservation measures within Exclusive Economic Zones (EEZs) and on the high seas? [SAP]

None

5.4.1 Describe your country's needs, in terms of human resources, knowledge and facilities, in order to build capacity to strengthen marine turtle conservation measures. [PRI]

Patrol boats with accessories and equipment such as dehooking devices.

5.4.2 Describe any training provided in marine turtle conservation and management techniques (e.g. workshops held, training manuals produced etc.), and indicate your plans for the coming year. [PRI, INF]

Training is conducted regularly on marine turtle research and conservation for Government sectors, teachers, school children and the private sector.

Training programmes on the national level are organized by the DMCR.

Regional or international training will be approved by the Ministry of Natural Resources and Environment.

5.4.3 Specifically in relation to capacity-building, describe any partnerships developed or planned with universities, research institutions, training bodies and other relevant organisations. [BPR]

Marine and Coastal Resources Research and Development Institute

5.5.1 National policies and laws concerning the conservation of marine turtles and their habitats will have been described in Section 1.5.1. Please indicate their effectiveness, in terms of their practical application and enforcement. [SAP, TSH]

5.5.2 Has your country conducted a review of policies and laws to address any gaps, inconsistencies or impediments in relation to marine turtle conservation? If not, indicate any obstacles encountered in this regard and when this review is expected to be done. [SAP]

■ **YES** ☐ NO ☐ UNSURE

Legislation concerning conservation of marine turtle has been improved and is now considered sufficient.

5.5.3 From the standpoint of law enforcement, has your country experienced any difficulties achieving cooperation to ensure compatible application of laws across and between jurisdictions? [TSH]

☐ YES ☐ NO ■ **UNSURE**

OBJECTIVE VI. PROMOTE IMPLEMENTATION OF THE MoU INCLUDING THE CONSERVATION AND MANAGEMENT PLAN

6.1.1 What has your country already done, or will it do, to encourage other States to sign the IOSEA MoU? [INF]

Nothing

6.1.2 Is your country currently favourable, in principle, to amending the MoU to make it a legally binding instrument? [INF]

☐ YES ■ **NO** ☐ NO VIEW

6.1.3 Would your country be favourable, over a longer time horizon, to amending the MoU to make it a legally-binding instrument? [INF]

☐ YES ☐ NO ☐ NO VIEW

6.2 Secretariat and Advisory Committee

6.2.1 What efforts has your country made, or can it make, to secure funding to support the core operations of the IOSEA MoU (Secretariat and Advisory Committee, and related activities)? [IND]

Not considered yet

6.3.1 What funding has your country mobilised for domestic implementation of marine turtle conservation activities related to the IOSEA Marine Turtle MoU? Where possible, indicate the specific monetary values attached to these activities/programmes, as well as future plans. [IND]

Not at present, but we use our regular budgets from DMCR to do research and conservation programme on these matters.

6.3.2 Has your country tried to solicit funds from, or seek partnerships with, other Governments, major donor organisations, industry, private sector, foundations or NGOs for marine turtle conservation activities? [IND]

■ YES ☐ NO

Collaborative research and conservation of marine turtles by JSPS, funded through the Kyoto University, Japan, and by Japan Trust Fund (via SEAFDEC).

Phuket Mariotte Hotel established a Mai Khao Sea Turtle Conservation Foundation to support Mai Khao beach sea turtle conservation activities.

Dusit & Laguna Co. Ltd. And Le Meridien Hotel, Phuket, provides a sea turtle conservation awareness campaign and arranges an annual sea turtle releasing festival. A donation is collected for the PMBC Sea Turtle Conservation Project.

6.3.3 Describe any initiatives made to explore the use of economic instruments for the conservation of marine turtles and their habitats. [BPR]

None

6.4.1 Has your country designated a lead agency responsible for coordinating national marine turtle conservation and management policy? If not, when is this information expected to be communicated to the IOSEA MoU Secretariat? [IND]

■ **YES** ☐ NO

6.4.2 Are the roles and responsibilities of all government agencies related to the conservation and management of marine turtles and their habitats clearly defined? [IND]

■ **YES** ☐ NO ☐ UNSURE

6.4.3 Has your country ever conducted a review of agency roles and responsibilities? If so, when, and what was the general outcome? If not, is such a review planned and when? [SAP],

■ **YES** ☐ NO ☐ UNSURE

An attempt to develop a national action plan for conservation is under progress. Two workshops were conducted to gather information on protocols employed by each responsible organization. Further meeting will be held in order to develop a common conservation strategy. The implementation of the plan is expected after an MoU is signed among responsible organizations.

Comments/suggestions to improve the present reporting format:

Additional information not covered above: