

**Progress Report to the United States Fish and Wildlife Service**  
**for the**  
**Rapid Nesting and Threats Assessments for the Recovery of Hawksbill Nesting**  
**in the Gulf of Thailand**  
**USFWS-MTCF Award #F18AP00206**

**A Mid-Term Progress Report**

by

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## Progress Summary

Funds provided by the USFWS – MTCF have facilitated a very successful first half of the ‘Rapid Nesting and Threats Assessments for the Recovery of Hawksbill Nesting in the Gulf of Thailand.’ During this first year of the project, we have been able to survey 833 km of the Gulf of Thailand (GoT) coast, and have assessed several beaches that have appropriate nesting characteristics for both hawksbill (*Eretmochelys imbricata*) and green (*Chelonia mydas*) turtles. We have developed ‘living maps’ of beach areas assessed, as well as markets that have been assessed for sea turtle products for sale (hawksbill shell products, as well as turtle meat and eggs of any marine turtle species) through the use of the TURT smartphone app. Throughout the first year of the project, we have also interviewed and met with numerous community members, village committees, and provincial government officials of the Department of Marine and Coastal Resources (DMCR), the Department of National Parks (DNP), and the Thai Royal Navy (TRN) to discuss steps forward in developing a GoT-wide Nesting Recovery Network. We have, thus far, confirmed at least five active hawksbill nesting sites, four active green nesting sites, and one leatherback (*Dermochelys coracia*) nesting site in the surveyed area of the GoT. Another major step forward in the first year of the project has been the capacity building of a Thai team of marine turtle leaders. We were able to select and support five Thai nationals (four from the eastern GoT, and one from the Andaman Sea side of Thailand), to attend the Fauna and Flora (FFI) and USFWS-MTCF – supported South East Asia Turtle Training Workshop held in Kep, Cambodia from 29 October – 02 November, 2018. Our Thai team was well received, and also provided reports back to FFI on national needs for future conservation, and past and present threats to turtles in the GoT.

Our current plan is to continue the GoT assessments for threats and potential nesting habitats in the area, as well as to hold the first Thailand Sea Turtle Workshop in July, 2019 on Koh Talu (a current and active hawksbill nesting area). The owner of the Koh Talu Island Resort is eager to support the workshop, and future nesting and migration research (one US graduate student and one Thai graduate student working together) based

the resort. This two-year study will form the basis for an active capacity building and research effort in the GoT.

#### Project Summary

Sea turtles in the waters and on the beaches of Thailand have undergone precipitous decline since the 1970s despite efforts by government agencies to establish laws, protected areas, and management strategies (Groombridge and Luxmoore 1989, Meylan 1999). Additionally, after the declaration of sea turtles under Appendix I of the Convention for International Trade of Endangered Species (CITES), several small and disconnected in-water research studies and surveys were initiated to improve understanding and conservation efforts for sea turtles. Still, turtle population numbers continued on a downward trend toward critically low levels (Piyakarnchana 1985, Jackson et al. 2001, Charuchinda et al. 2002). Reporting on the sea turtle crisis in Thailand, WWF Thailand made the recommendation in 1998 that a national program of nesting recovery and beach protection be undertaken in place of hatchling head-starting programs. However, no efforts were initiated at that time to establish a regional nesting recovery plan for sea turtles of any species and no tangible outcomes have resulted from recommendations made by the report. Although Thailand has drafted and implemented a national action plan for in-water protection of sea turtles, no such plan has been developed to improve the status and numbers of nesting turtles on community managed nesting beaches in the country.

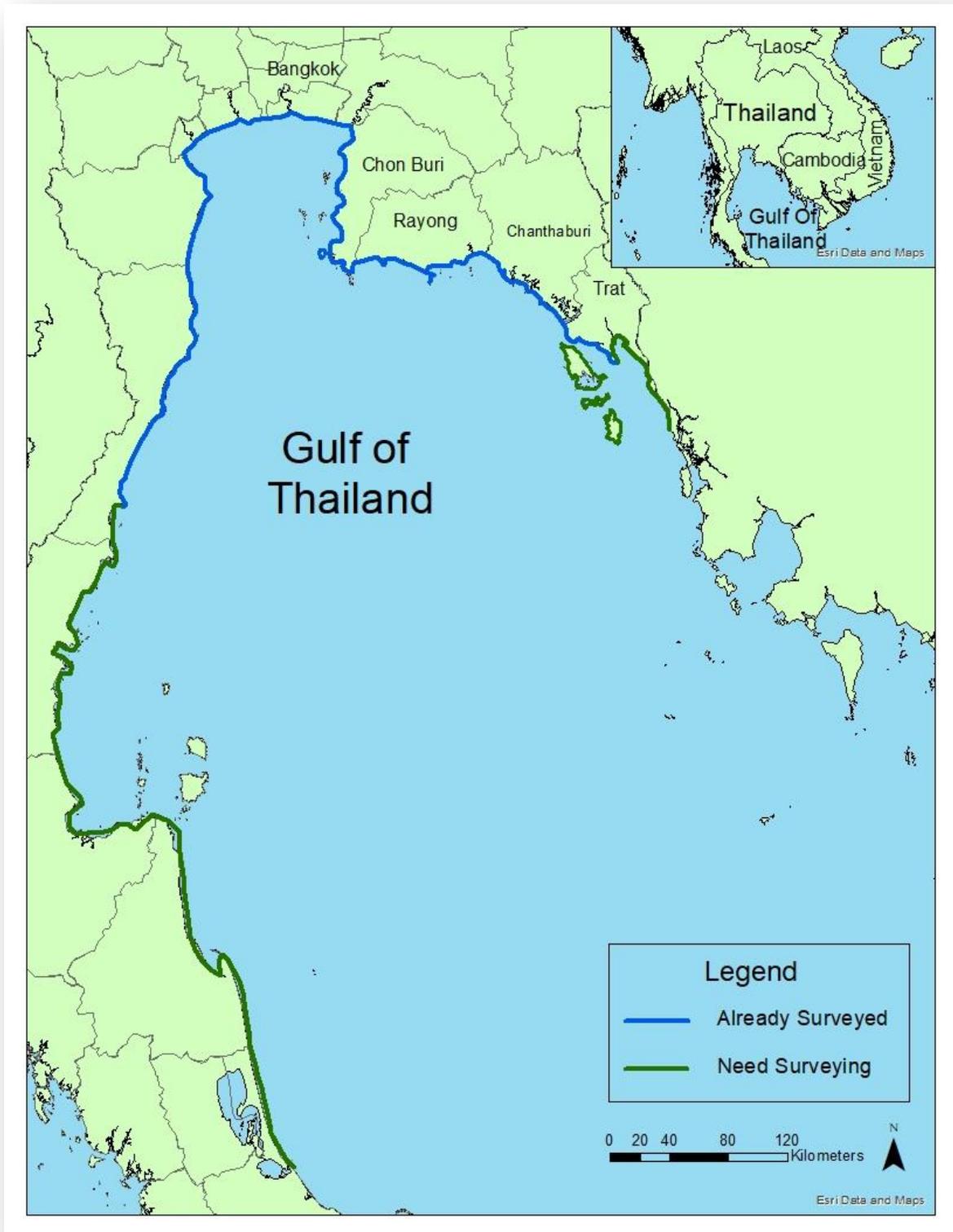
The problem of declining nesting activity in Thailand is especially pronounced in the case of the hawksbill (*Eretmochelys imbricata*) sea turtle. Not only are turtles inadvertently caught as bycatch in artisanal and commercial fisheries in coastal waters of the Gulf of Thailand (GoT), but hawksbill eggs have traditionally been harvested as a delicacy. Additionally, hawksbill shell products were once prized and openly traded in local and national markets, stimulating a wide-ranging underground trade in turtle shell use both nationally and throughout South East Asia. Thus, we stressed the immediate need for a current rapid assessment for nesting turtles that could provide a point of reference for community involvement, and develop a nesting recovery network supporting local and national conservation efforts on behalf of nesting hawksbills and their nesting habitat along the east coast of the Gulf of Thailand.

## Project Update Brief

Supported by the USFWS-MTCF, we have undertaken the initial phase of our rapid nesting and threats assessment for the recovery of hawksbill nesting in the Gulf of Thailand. Funds provided to ProTECTOR, Inc. through Loma Linda University have facilitated the gathering of significant and relevant information on both hawksbill and green (*Chelonia mydas*) nesting locations within the Gulf of Thailand. Between July, 2018 and April, 2019, our project team has surveyed approximately 833 km of the coast of the GoT (Fig. 1, Table 1) for appropriate nesting beach habitat, as well as interviewed 23 community members and government officials (Fig. 2) in several communities along the Gulf. In addition, we have located at least five locations in which there is strong evidence for, and actual observations of, hawksbill nesting, with additional good evidence for green turtle nesting at four of these sites, and one site where leatherback (*Dermochelys coriacea*) nesting has been observed in recent months. Mapping of potential nesting beaches, community interviews, and actual nesting observations have commenced. As well, we have investigated and mapped local community public markets, private shops, and restaurants for the presence and sale of turtle products, including hawksbill shell curios, and turtle (hawksbill and green) eggs and meat. Additionally, a team Thailand representatives attended the South East Asia Turtle Training Workshop held in Kep, Cambodia from 29 October – 02 November, 2018 (Fig. 3), and are in the process of preparing presentations and training exercises for a growing number of interested Thai nationals at our upcoming Thailand National Sea Turtle Training Workshop proposed for July, 2019.

As a result of the current USFWS-MTCF supported rapid assessment project, there is a growing interest in local communities, as well as within provincial office personnel from the Department of Marine and Coastal Resources (DMCR), the Royal Thai Navy (RTN), and the Department of National Parks (DNP) around the GoT to develop a coordinated Nesting Recovery Network for the GoT, and to link this network with sea turtle conservation efforts on the Andaman coast of Thailand, as well. In one case, a resort owner who has been collecting hawksbill hatchlings for a head-starting program on

Koh Talu, has expressed interest in facilitating Thai and US graduate students in undertaking research work on the island, and to provide guidance for his hawksbill conservation efforts.



**Figure 1.** Map of the Gulf of Thailand indicating where project surveys for nesting beach habitat, as well as historical and current sea turtle nesting have taken place, to date. Inset, a regional view of the Gulf of Thailand.

**Table 1.** Coastal distances surveyed to date, along the Gulf of Thailand, as well as coastal areas still requiring surveying in the 2019 - 2020 season.

	Already surveyed (km)	Needed to be surveyed (km)
East Side	433	109
West Side	359	654
Trat Islands	0	252
Chonburi Island	22	0
Rayong Island	19	0
<b>Total</b>	<b>833</b>	<b>1015</b>



**Figure 2.** Local community member interviews. Some interviews were conducted as pre-arranged meetings with local fishers (A), while others were opportunistic interviews with community members during beach assessments (B).



**Figure 3.** Participants from the Thailand team take part in the USFWS-, and Fauna and Flora International (FFI) – sponsored sea turtle workshop in Kep, Cambodia from 29 October – 02 November, 2018.



**Figure 4.** Participants at the sea turtle workshop in Kep, Cambodia pose together as an international group at the end of the first day of the workshop.

### **Year 1 Goals.**

Our Year one goals were as follows (see Table 2):

Goal 1) to undertake and map a rapid assessment for hawksbill nesting sites along the four provinces of the east coast of the Gulf of Thailand (GoT). Objectives and Activities: Community integration to map rapid assessment of current nesting and hawksbill products use. Goal 2) to identify 4 provincial representatives from the GoT to prepare for and attend the Fauna and Flora International Regional Training Workshop (FFI-RTW) in Cambodia, Fall of 2018. Objectives and Activities: select and train representatives, then utilize them in Year 2 for organizing and helping to carry out our Nesting Recovery Network (NRN) workshop in Thailand. Goal 3) to use the TURT smartphone app to develop a national geo-referenced “living” map of hawksbill shell products, as an initial part of a threat assessment for hawksbills in Thailand. Objectives and Activities: Map shell product uses on east GoT and train community members to use TURT for nesting records.

During the first year of the project (May, 2018 – May, 2019), we have made significant progress on the proposed goals and objectives of the study, including

establishing databases of potential and confirmed hawksbill nesting sites, mapping surveyed beaches, development of a ‘living’ map of turtle products surveys through the use of the TURT smartphone app, engaging provincial government agencies (Figure 5), recruiting and supporting representatives from the GoT to attend the FFI-RTW turtle workshop in Cambodia, and planning for the first GoT sea turtle workshop on Talu Island (a confirmed and active hawksbill nesting site) in July, 2019 (Table 2).



**Figure 5.** (A) Department of Marine and Coastal Resources (DMCR) notice of the USFWS Rapid Nesting and Threats Assessments for the Recovery of Hawksbill Nesting in the Gulf of Thailand’ project, with our project team during local government meetings, and at a confirmed hawksbill nesting beach location, and (B) at a meeting with Department of National Parks (DNP) officials

**Table 2.** Year 1 and 2 Goals and objectives for the USFWS ‘Rapid Nesting and Threats Assessments for the Recovery of Hawksbill Nesting in the Gulf of Thailand’ project. The additional column (far right) has been added to demonstrate project progress and success, to date, and to provide updates on planned work for the second year of the project.

Goal/Objective	Indicator	Monitoring Method	Current Status	Desired Status	Progress Status to Date (May, 2019)
<b>Year 1 Goal 1</b>					
Obj 1 Pre-assessment database of community contacts	Database established and updated prior to rapid assessment	Will review and add to each week in 6-8 weeks prior to rapid assessment	Does not exist	Establish	Established with field plan database in place. Continuing.
Obj 2 Database of reported nesting over past 5 years	All accessible reports with localities mapped in GIS	Vet Chula team to work with DMCR and RTN to collect and record all reports in database. Dunbar to map in GIS	Map of reports does not exist	Produce “living” GIS map of past and current reports of nesting along east GoT.	Established with current reports from communities and government agencies.
Obj 3 and Obj 4 Confirm and include new reports of hawksbill nesting through rapid assessment	Current reports from rapid assessment assembled in GIS map	Updated daily by assessment team after nightly patrols with community members.	No latitudinal rapid assessment map for hawksbill nesting along east GoT exists	Production of GIS map with confirmed, current hawksbill nesting activity	Five locations of current hawksbill nesting assessed and confirmed. Continuing surveys for additional locations.
<b>Year 1 Goal 2</b>					
Obj 1 Evaluate community individuals as provincial reps for FFI-RTW meetings Cambodia	Four reps selected with supporting confidence from communities. Begin selecting other reps for NRN workshop in Year 2	Vet Chula team to remain in contact with chosen reps. Provide them with reading materials to prepare for FFI-RTW meetings	We know of no process by which GoT provincial reps for the FFI-RTW have been selected before	Four reps selected and prepared to attend FFI-RTW meetings in Fall 2018. Begin selection of four reps from each province to attend the NRN workshop in Year 2	Thailand representatives to FFI-RTW meetings selected from communities and government.
Obj 2 Reporting of provincial reps after FFI-RTW meetings	Brief reports presented one month after FFI-RTW meetings	Vet Chula team to assist reps and provide draft reports to Dunbar for editing at days	No known formal reporting by community reps to FFI-RTW	Presentation of community rep reports to communities, government agencies, and	Five Thai representatives attended the FFI-RTW meetings and have provided

		15 and 30 after FFI-RTW		USFWS	reports back to FFI, and to the current project.
<b>Year 1 Goal 3</b>					
Obj 1 and Obj 2 Rapid assessment of hawksbill shell products. Map to government agencies	TURT map of product use. Tally of approximate value of product sales	Review of TURT map for GoT each day through rapid assessment, then every two weeks through post assessment period	Does not exist	Map of product status provided to government agencies	Several sites have been assessed and mapped for hawksbill shell products. On completion of assessments, map will be provided to government agencies.
Obj 3 Interim report to USFWS and publications	Report and manuscript submitted	Co-PIs will write and monitor progress of report and manuscripts production	Few recent reports and publications. None to USFWS-MTCF	Published papers and mid-term report. Presented at ISTS	Publication manuscript of historical and current status of hawksbill nesting in the GoT is <i>in prep.</i>
<b>Year 2 Goal 4</b>					
Obj 1 Organize and carry out community capacity workshop	Four selected representatives from each Province to attend. Plan for establishment of GoT NRN	Workshop arrangements monitored by Vet Chula team	Scattered, infrequent, uncoordinated workshop efforts	Initial workshop and development of plan to establish GoT NRN	Plans have been developed with the owner of the Talu Island Resort to hold the first GoT-wide sea turtle workshop in July, 2019. Thai reps to FFI-RTW meetings prepare and present to GoT workshop in July, 2019.
Obj 2 Develop plan for NRN to government agencies	Report document of plan to establish NRN	Rapid assessment team will record and collate information. Provide report back to communities for feedback before submission	Does not exist	Plan for GoT NRN to go to government agencies.	Will develop plan for NRN at GoT-wide workshop in July, 2019.
Obj 3 Identify potential funding to support	Spreadsheet of potential funding	Co-PIs work with government	No current sources of funding	Provide list of potential funding to	Initiate process at GoT-wide workshop in

establishment and growth of GoT NRN	sources for NRN	agencies to further identify funding sources and applications.	identified for east GoT	government agencies for assistance in applying	July, 2019.
Obj 4 Continue information collection on hawksbill nesting during peak season	Updated map of nesting activities through September of Year 2	Use of TURT app will allow research team to monitor report inputs	No current immediate form of recording and reporting nesting activities	Current map and information on nesting activities through TURT	Will continue and further map results through completion of project in May, 2020.
Obj 5 Final report to USFWS and publications	Report and manuscripts submitted	Co-PIs will write and monitor progress of report and manuscripts production	No current assessment of east coast GoT	Published papers and presentations at ISTS	June, 2020.

### **Second Year Funding Allocation**

Through the additional funding allocated to this project for Year 2, we will be able to complete the rapid assessment of the Gulf of Thailand for potential nesting beach locations, as well as sites at which both past and current nesting has occurred. We will likewise be able to fund the first Thailand Sea Turtle Workshop to be held at Koh Talu with in-kind support from the Koh Talu Island Resort owner, who has agreed to host the workshop. In addition, additional allocated USFWS funds will facilitate the completion of the rapid assessment of beaches along the entire GoT, as well as to work with communities around the GoT to establish a GoT-wide Nesting Recovery Network.