

# REGIONAL MARINE TURTLE TAGGING AND STATISTICS IN SOUTHEAST ASIA

By

Ahmad Ali, Kamarruddin Ibrahim and  
Syed Abdullah Syed Abdul Kadir

Marine Fishery Resources Development and Management Department  
Southeast Asian Fisheries Development Center  
21080 Chendering, Terengganu, Malaysia

## INTRODUCTION

According to the recommendations from the First Workshop on Marine Turtle Research and Conservation held at MFRDMD in January 1996, there is a need to compile the statistics on sea turtle resources and to initiate and coordinate the tagging programme in this region. To initiate the above, MFRDMD had conducted a meeting in Kuala Terengganu from 21-23 December 1997. The meeting was attended by turtle researchers from Vietnam, Brunei, Indonesia, Thailand, Malaysia and the Philippines. The main output of the meeting was the agreement by all participants to use the standard regional statistic format and similar tagging equipment.

MFRDMD has proposed two regional projects for the 3 year program beginning in 1998. The projects are Regional Marine Turtle Statistics in Southeast Asia and Regional Marine Turtle Tagging in Southeast Asia.

## OBJECTIVES AND METHODS

### Regional Marine Turtle Tagging in Southeast Asia

Marine turtles are highly migratory and are known to move through the waters of the Southeast Asian Region. Thus, regional cooperation among member countries for the purpose of conserving marine turtles is vital to ensure their continued survival. Comprehensive biological information such as migration, growth, mortality, reproduction and other relevant information that may be derived from tagging experiments is crucial for a proper regional management of the endangered marine turtles. This project was collectively agreed to be undertaken as a continuous regional activity by SEAFDEC member countries during the 1<sup>st</sup> SEAFDEC Workshop on Marine Turtle Research and Conservation held in January 1996.

Marine turtles will be externally tagged on their both front flippers using inconel tags. Tag recoveries can be obtained from the countries in and outside the region. Various analyses and interpretation of tagging data can then be made through the assistance of relevant experts.

### Regional Marine Turtle Statistics in Southeast Asia

Baseline information on the population statistics of marine turtle is greatly needed in a proper regional management. The main objectives of the regional marine turtle statistics are to compile all available marine turtle population statistics in the region and to collect, update and disseminate these information to countries in and outside the region.

Quantitative data on nesting, population size by rookery, distribution and level of exploitation of marine turtles in this region will be gathered from the member countries. Regular meetings will be conducted for the purpose of data analyses.

## **SCHEDULE OF ACTIVITIES JANUARY 1998 - JUNE 1999**

The details of activities schedule for Regional Marine Turtle Tagging in Southeast Asia and Regional Marine Turtle Statistics in Southeast Asia are shown in Appendix 1 and Appendix 2 respectively.

### **EXPECTED OUTPUT**

#### **Tagging**

- (a) A considerable ecological information could be derived from tagging studies. These includes geographical range and migratory path, breeding and inter-nesting frequencies, reproductive philopatry, longevity beyond the time when first tagged, growth rates, population size etc.
- (b) A standardised tagging technique, data collection and reporting would allow a comparison of data and information within and outside the region.
- (c) Collective tagging would allow the identification of management unit (MU) of turtle species in the region. This information may then be used in formulating regional conservation measures for the management of the endangered species.

#### **Statistics**

- (a) Statistics information (abundance, distribution, rates at which turtles are changing over time and other relevant information) is a prerequisite condition for the development of any conservation strategy, which is urgently required to protect this endangered animal.
- (b) A standardised statistics gathering and reporting will provide a great advantage in terms of allowing comparison between the obtained data and information.
- (c) Management of highly migratory species such as marine turtle should not be attempted in isolation. A standardised statistic information would allow the formulation of collective and holistic approaches in developing the conservation management strategies.

**The schedule of activities for the Regional Marine Turtle Tagging in Southeast Asia  
December 1997-June 1999**

Year	Month	Activities
1997	Dec	<p>i. Meeting on the Regional Tagging Program and Data Collection on Marine Turtle, 21-23 December, 1997 MFRDMD, Malaysia. The list of participants is shown below:</p> <p>Brunei: Mr. Sabri bin Haji Taha</p> <p>Indonesia: Mr. Matheus H. Halim</p> <p>Malaysia: Mr. Syed Abdullah bin Syed Abdul Kadir Mr. Kamarruddin Ibrahim Mr. Abdul Rahman bin Kassim</p> <p>Sabah Park: Mr. Muhamad Saini Suliana</p> <p>Sarawak Forest Dept.: Mr. Ian Butler</p> <p>Thailand: Mr. Mickmin Charuchinda Mr. Suport Chantrapornsyl</p> <p>Vietnam: Dr. Pham Thuoc Mr. Lam Truong Giang</p> <p>MFRDMD: Mr. Ismail Taufid Md. Yusoff Dr. K. Mori</p> <p>Output of the meeting: All participants agreed to use the standard regional statistic format.</p>
1998	Jan-June	<p>i. Planning and establishing contacts with personnel of member countries.</p> <p>ii. The standardized manual on tagging program was prepared.</p> <p>iii. Tagging equipment had been ordered.</p>
1998	July-Sept.	<p>i. Regional Training Course on Sea Turtle Research and Conservation 24-30 August 1998 Kuala Terengganu. 16 participants from ASEAN Countries and 7 observers.</p> <p>The objectives were to enhance the scientifically knowledge on the research, management and conservation of marine turtle for scientists in the region and to adopt and practice a proper management and conservation measures for marine turtles in the region.</p> <p>Speaker: Dr. Colin Limpus</p> <p>The course includes lectures and hands-on experiences in tagging, in-situ hatchery management, artificial hatchery management etc were made available through practical session on the field.</p> <p>ii. Publication: Marine turtle tagging program continues in Peninsular Malaysia (SEAFDEC Newsletter, Volume 21, Number 3 July-Sept 1998, page 8-9).</p>

1998	Oct-Dec	<p>i. A standard manual and tags on turtle tagging were distributed to the researchers in the region</p> <p>Tag Information:</p> <table border="0"> <thead> <tr> <th>Country Code</th> <th>Institution</th> <th>Serial Number</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MY: Malaysia</td> <td>DOF</td> <td>MY001-MY1000</td> </tr> <tr> <td>Sabah Park</td> <td>MY(S)0001-MY(S)1000</td> </tr> <tr> <td>S'wak F. Dept.</td> <td>MY(Sa)0001-MY(Sa)0500</td> </tr> <tr> <td rowspan="2">TH: Thailand</td> <td>Queen Project</td> <td>TH0001-TH0500</td> </tr> <tr> <td>PMBC</td> <td>TH(P)0001-TH(P)0500</td> </tr> <tr> <td>PH: Philippines</td> <td>DOE</td> <td>PH0001-PH1000</td> </tr> <tr> <td rowspan="4">VN: Vietnam</td> <td>North Vietnam</td> <td>VN(N)0001-VN(N)0100</td> </tr> <tr> <td>South Vietnam</td> <td>VN(S)0001-VN(S)0100</td> </tr> <tr> <td>Central Vietnam</td> <td>VN(C)0001-VN(C)0100</td> </tr> <tr> <td>(RIMP)</td> <td></td> </tr> <tr> <td>ID: Indonesia</td> <td>PHPA</td> <td>ID0001-ID1000</td> </tr> <tr> <td>BN: Brunei</td> <td>DOF</td> <td>BN0001-BN0200</td> </tr> </tbody> </table> <p>ii. Collaborative research on marine turtle survey and tagging program in Vietnam Date: 6-14 Nov. 1998 Country: Vietnam Research Officer: Syed Abdullah</p> <p>Activities:</p> <ol style="list-style-type: none"> <li>i. Beach survey at Hon Bay Canh Island</li> <li>ii. Sampling on the population genetics of marine turtle at Con Dao National Park</li> <li>iii. Seminar on marine turtle tagging and hatchery management</li> <li>iv. Seminar on regional marine turtle statistics and information</li> </ol>	Country Code	Institution	Serial Number	MY: Malaysia	DOF	MY001-MY1000	Sabah Park	MY(S)0001-MY(S)1000	S'wak F. Dept.	MY(Sa)0001-MY(Sa)0500	TH: Thailand	Queen Project	TH0001-TH0500	PMBC	TH(P)0001-TH(P)0500	PH: Philippines	DOE	PH0001-PH1000	VN: Vietnam	North Vietnam	VN(N)0001-VN(N)0100	South Vietnam	VN(S)0001-VN(S)0100	Central Vietnam	VN(C)0001-VN(C)0100	(RIMP)		ID: Indonesia	PHPA	ID0001-ID1000	BN: Brunei	DOF	BN0001-BN0200
Country Code	Institution	Serial Number																																	
MY: Malaysia	DOF	MY001-MY1000																																	
	Sabah Park	MY(S)0001-MY(S)1000																																	
	S'wak F. Dept.	MY(Sa)0001-MY(Sa)0500																																	
TH: Thailand	Queen Project	TH0001-TH0500																																	
	PMBC	TH(P)0001-TH(P)0500																																	
PH: Philippines	DOE	PH0001-PH1000																																	
VN: Vietnam	North Vietnam	VN(N)0001-VN(N)0100																																	
	South Vietnam	VN(S)0001-VN(S)0100																																	
	Central Vietnam	VN(C)0001-VN(C)0100																																	
	(RIMP)																																		
ID: Indonesia	PHPA	ID0001-ID1000																																	
BN: Brunei	DOF	BN0001-BN0200																																	
1999	Jan- June	<p>i. Tagging activities in Peninsular Malaysia:</p> <p>(a) Tagging activities in Terengganu until June 1999</p> <table border="0"> <thead> <tr> <th>Place</th> <th>Tag Series</th> <th>New tag</th> <th>Old tag</th> </tr> </thead> <tbody> <tr> <td>Mak Kepit (Pulau Redang)</td> <td>MY0001-0100</td> <td>10</td> <td>20</td> </tr> <tr> <td>Geliga</td> <td>MY0101-0200</td> <td>14</td> <td>7</td> </tr> <tr> <td>Ma' Daerah</td> <td>MY0201-0300</td> <td>9</td> <td>0</td> </tr> <tr> <td>Tg. Batu</td> <td>MY0501-0525</td> <td></td> <td></td> </tr> <tr> <td>Rhu Kudong</td> <td>MY0526-0550</td> <td></td> <td></td> </tr> <tr> <td>Cakar Hutan</td> <td>MY0551-0600</td> <td></td> <td></td> </tr> <tr> <td>Rantau Abang</td> <td>MY0601-0700</td> <td></td> <td></td> </tr> </tbody> </table> <p>(b) Tagging activities in Pahang Chendor MY0301-0400 14 24</p> <p>(c) Tagging activities in Johor Mersing MY0401-0500</p> <p><i>Note: MFRDMD paid about RM200/month to local temporary staff for tagging activities at Geliga and RM150/month at Ma' Daerah.</i></p> <p>ii. Publication: Marine turtles surveyed in Vietnam in SEAFDEC Newsletter, Volume 22 Number 1, January-March 1999 page 4.</p>	Place	Tag Series	New tag	Old tag	Mak Kepit (Pulau Redang)	MY0001-0100	10	20	Geliga	MY0101-0200	14	7	Ma' Daerah	MY0201-0300	9	0	Tg. Batu	MY0501-0525			Rhu Kudong	MY0526-0550			Cakar Hutan	MY0551-0600			Rantau Abang	MY0601-0700			
Place	Tag Series	New tag	Old tag																																
Mak Kepit (Pulau Redang)	MY0001-0100	10	20																																
Geliga	MY0101-0200	14	7																																
Ma' Daerah	MY0201-0300	9	0																																
Tg. Batu	MY0501-0525																																		
Rhu Kudong	MY0526-0550																																		
Cakar Hutan	MY0551-0600																																		
Rantau Abang	MY0601-0700																																		

**The schedules of activities for the Marine Turtle Statistics in Southeast Asia  
(Jan. 1998-June 1999)**

Year	Month	Activities																										
1998	Jan-June	Planning and establishing contacts with personnel of member countries. Format on the population census and statistics of marine turtle has been prepared. The population census and statistics on marine turtles in Peninsular Malaysia were gathered and compiled according to the standardized format.																										
1998	July-Dec.	<p>Format on the population census and statistics was distributed to the turtle researchers of ASEAN member countries for their action to obtain the current status of marine turtles in the region. The list of the format is shown below:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Code</th> <th style="text-align: center;">Title</th> </tr> </thead> <tbody> <tr> <td>Statistics 01</td> <td>Turtle Nesting Site</td> </tr> <tr> <td>Statistics 02</td> <td>Annual Landing</td> </tr> <tr> <td>Statistics 02A</td> <td>Annual Nesting</td> </tr> <tr> <td>Statistics 03</td> <td>Monthly Landing</td> </tr> <tr> <td>Statistics 03A</td> <td>Monthly Nesting</td> </tr> <tr> <td>Statistics 04</td> <td>Number of <i>in-situ</i> and artificial hatcheries</td> </tr> <tr> <td>Statistics 05</td> <td>Total of annual production, egg incubation, Hatchlings and emergence success</td> </tr> <tr> <td>Statistics 06</td> <td>Total annual egg incubation, hatchling and emergence success by <i>in-situ</i> hatcheries</td> </tr> <tr> <td>Statistics 07</td> <td>Total annual egg incubation, hatchling and emergence success by artificial hatcheries</td> </tr> <tr> <td>Statistics 08</td> <td>Monthly statistics on egg production at every nesting site.</td> </tr> <tr> <td>Statistics 09</td> <td>Monthly statistics on egg production, egg incubation, hatchling and emergence success.</td> </tr> <tr> <td>Statistics 10</td> <td>Monthly record on mortality for every species</td> </tr> </tbody> </table> <p>List of receivers: Thailand: Mr. Mickmin Charuchinda and Mr. Suport Chantrapornsyl</p> <p style="padding-left: 40px;">Sarawak Forest Dept: Mr. Ian Butler Sabah Park: Mr. Muhammad Saini Suliana Malaysia: Mr. Syed Abdullah Syed Abdul Kadir Indonesia: Mr. Matheus H. Halim Brunei: Mr. Sabri Haji Taha Philippines: Mr. Renato D. Cruz Vietnam: Dr. Pham Thuoc and Mr. Lam Truong Giang</p> <p>ii. Sending letters on 10 December 1998 to all turtle researchers requesting for sea turtle population statistics. All information should arrive at MFRDMD before 31 Mac 1999.</p>	Code	Title	Statistics 01	Turtle Nesting Site	Statistics 02	Annual Landing	Statistics 02A	Annual Nesting	Statistics 03	Monthly Landing	Statistics 03A	Monthly Nesting	Statistics 04	Number of <i>in-situ</i> and artificial hatcheries	Statistics 05	Total of annual production, egg incubation, Hatchlings and emergence success	Statistics 06	Total annual egg incubation, hatchling and emergence success by <i>in-situ</i> hatcheries	Statistics 07	Total annual egg incubation, hatchling and emergence success by artificial hatcheries	Statistics 08	Monthly statistics on egg production at every nesting site.	Statistics 09	Monthly statistics on egg production, egg incubation, hatchling and emergence success.	Statistics 10	Monthly record on mortality for every species
Code	Title																											
Statistics 01	Turtle Nesting Site																											
Statistics 02	Annual Landing																											
Statistics 02A	Annual Nesting																											
Statistics 03	Monthly Landing																											
Statistics 03A	Monthly Nesting																											
Statistics 04	Number of <i>in-situ</i> and artificial hatcheries																											
Statistics 05	Total of annual production, egg incubation, Hatchlings and emergence success																											
Statistics 06	Total annual egg incubation, hatchling and emergence success by <i>in-situ</i> hatcheries																											
Statistics 07	Total annual egg incubation, hatchling and emergence success by artificial hatcheries																											
Statistics 08	Monthly statistics on egg production at every nesting site.																											
Statistics 09	Monthly statistics on egg production, egg incubation, hatchling and emergence success.																											
Statistics 10	Monthly record on mortality for every species																											
1999	Jan - June	<p>i. Received sea turtle population statistics for 1998 only from Mr. Suport and Mr. Mickmin - Thailand (1 Mac 1999)</p>																										

Year :

Country:

**REGIONAL MARINE TURTLE  
STATISTICS & POPULATION**

Statistics  
01

**Turtle Nesting Site**

Location/Sites Rookery (name)	Latitude	Longitude	Leatherback	Green	Hawksbill	Olive ridley	Loggerhead	Kemp's ridley	Flatback	Black

Year :  
Country:

**REGIONAL MARINE TURTLE  
STATISTICS & POPULATION**

Statistics  
02A

**Annual Nesting**

Location/Sites Rookery (name)	Leatherback	Green	Hawksbill	Olive ridley	Loggerhead	Kemp's ridley	Flatback	Black

Year :  
Country:

**REGIONAL MARINE TURTLE  
STATISTICS & POPULATION**

Statistics  
02

**Annual Landing**

Location/Sites Rookery (name)	Leatherback	Green	Hawksbill	Olive ridley	Loggerhead	Kemp's ridley	Flatback	Black



Year :

Country:

**REGIONAL MARINE TURTLE  
STATISTICS & POPULATION**

Statistics  
03A

**Monthly Nesting of Sea Turtle**

Location/Site/ Rookery	Species	Jan	Feb	Mac	Apr	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Total
	Leatherback													
	Green													
	Hawksbil													
	Olive Ridley													
	Loggerhead													
	Flatback													
	Kemp's ridley													
	Black													
	Total													

Year :  
Country:

**REGIONAL MARINE TURTLE  
STATISTICS & POPULATION**

Statistics  
03

**Monthly Landing of Sea Turtle**

Location/Site/ Rookery	Species	Jan	Feb	Mac	Apr	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Total
	Leatherback													
	Green													
	Hawksbil													
	Olive Ridley													
	Loggerhead													
	Flatback													
	Kemp's ridley													
	Black													
	Total													

Year :  
Country:

**REGIONAL MARINE TURTLE  
STATISTICS & POPULATION**

Statistics  
04

**Number of *In-situ* and artificial hatcheries**

Hatcheries (name of location)							Total
In-situ (nature)							
Styrofoam (artificial)							
Re-allocate (artificial)							
Others							

Year :  
 Country :  
 Location :

**REGIONAL MARINE TURTLE  
 STATISTICS & POPULATION**

Statistics  
 05

**Total of annual egg production, egg incubation, hatchlings and emergence success**

Species	Egg Production	Egg Incubation	Hatchling	Emergence Success
Leatherback				
Green				
Hawksbil				
Olive Ridley				
Loggerhead				
Flatback				
Kemp's ridley				
Black				

Year :  
 Country :  
 Location :

**REGIONAL MARINE TURTLE  
 STATISTICS & POPULATION**

Statistics  
 06

**Total of annual egg incubation, hatchlings and emergence success  
 by *in-situ* hatcheries**

Species	Egg Production	Egg Incubation	Hatchling	Emergence Success
Leatherback				
Green				
Hawksbil				
Olive Ridley				
Loggerhead				
Flatback				
Kemp's ridley				
Black				

Year :  
Country :  
Location :

**REGIONAL MARINE TURTLE  
STATISTICS & POPULATION**

Statistics  
07

**Total of annual egg incubation, hatchlings and emergence success  
by artificial hatcheries**

Species	Egg Production	Egg Incubation	Hatchling	Emergence Success
Leatherback				
Green				
Hawksbil				
Olive Ridley				
Loggerhead				
Flatback				
Kemp's ridley				
Black				

Year :  
 Country :  
 Location :

**REGIONAL MARINE TURTLE  
 STATISTICS & POPULATION**

Statistics  
 03A

**Monthly Statistics on Eggs Production at Every Nesting Site**

Species	Jan	Feb	Mac	Apr	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Total
Leatherback													
Green													
Hawksbil													
Olive Ridley													
Loggerhead													
Flatback													
Kemp's ridley													
Black													
Total													

Year :  
 Month :  
 Country :  
 Location :

**REGIONAL MARINE TURTLE  
 STATISTICS & POPULATION**

Statistics  
 09

**Monthly Statistics on Egg Production, Egg Incubation, Hatchling and emergence Success**

Species	Egg Production	Egg Incubation	Hatchling	Emergence Success
Leatherback				
Green				
Hawksbil				
Olive Ridley				
Loggerhead				
Flatback				
Kemp's ridley				
Black				



**REGIONAL MARINE TURTLE  
STATISTICS & POPULATION**

Year : \_\_\_\_\_  
Country : \_\_\_\_\_

**Monthly Record On Mortality  
For Every Species**

Statistics  
10

Species	Date	Incident Location	Causes