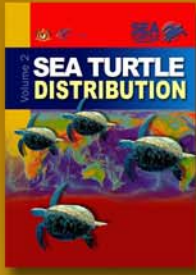


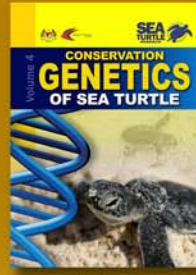
Volume 1



Volume 2



Volume 3



Volume 4



Volume 5

Sea Turtle Information Kit

Sea turtles are valued by people around the world. They are symbol of longevity, fertility, strength and protection from harm. However, sea turtles have also been exploited for their meat, eggs, shell and oil for years. This negatives impacts have accelerated the decline of the sea turtles population worldwide. The Sea Turtle Information Kit is specifically aimed at enhancing awareness, knowledge and understanding of the sea turtles among the public. It is hoped that the Sea Turtle Information Kit will help spread awareness among the public to protect and conserve the sea turtles and also the marine environment as a whole.



**Message from the Honourable
Dato' Junaidi bin Che Ayub,
the Director-General of Fisheries Malaysia**

The Southeast Asia holds a strong appeal to a myriad variety of sea creatures and one of these is the sea turtles. The region produces six of the seven living sea turtle species found worldwide and four of them are found nesting in Malaysia: green turtle (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), hawksbill (*Eretmochelys imbricata*), and olive ridley (*Lepidochelys olivacea*).



Malaysia has, as early as in 1961, initiated and implemented conservation and management programs for the four species of sea turtles that occur in her waters. All the species which constitute a unique heritage in Malaysia have been accorded special attention through various conservation strategies to ensure their adequate conservation and protection.

In a world of diminishing natural heritage caused, in some cases by man-made pollution and overexploitation for commercial reasons, any effort to conserve the sea turtle from total annihilation is a virtuous idea that should be supported by all parties.

The Sea Turtle Information Kit is published to develop awareness, knowledge and understanding of sea turtles among the people. It is not easy to make people understand the serious and complex problems facing the sea turtles. However, with the publication of the Sea Turtle Information Kit it is hoped that it will drive home the message concerning the importance of sea turtles conservation.

I wish to congratulate the team for coming up with the Sea Turtle Information Kit. It is timely that such publication is produced to highlight the plight of the sea turtle. The sea turtles have been around since the dinosaurs' era. Let us protect these remarkable creatures and the habitats that they need to survive.

A handwritten signature in black ink, appearing to read 'Junaidi', written in a cursive style.

Dato' Junaidi bin Che Ayub
Putrajaya

1 December 2006



Foreword
Chief of
SEAFDEC-MFRDMD

The sea turtles have roamed Earth's oceans and sea for million of years. They were on Earth 150 millions years ago, and they have outlived almost all of the prehistoric animals with which they once shared the planet. Sea turtle survived the extinction of the dinosaurs and are still present in the world's ocean today.

Sea turtles once were found by the millions, but the demand for turtle meat, eggs, shell, leather and oil has greatly reduced their numbers. Their populations continue to decline because of the trade in sea turtle product and the loss of essential habitats.

Conservation is about reducing and removing the threat. But in reality, the work of conservation does not lie principally with the animals, plants and ecosystem but actually lies in dealing with humans. Although conservation programs are in existence, results in general have not been encouraging. The Sea Turtle Information Kit is produced with the intention of spreading awareness, knowledge and understanding to make people realize the importance of sea turtles conservation. It is our duty to make sure that the sea turtles still exist for our future generation to see.

I would like to take this opportunity to congratulate the team members headed by Ms Hjh. Mahyam bte Mohd Isa who have worked tirelessly to come up with this Sea Turtle Information Kit. Without their initiatives and sincere commitments, the Sea Turtle Information Kit would not have been realized.

Finally, I would like to express our thanks and gratitude to the Honorable Dato' Junaidi bin Che Ayub, the Director-General of Fisheries Malaysia, for the continuous support and confidence in the team members.

A handwritten signature in black ink, appearing to be 'Raja Mohammad Noordin bin Raja Omar'.

Raja Mohammad Noordin bin Raja Omar
Kuala Terengganu

1 December 2006



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Introduction

The core aspect of public awareness in every action and activities is education and using relevant knowledge for the best possibility of outcomes. It is a continuous process that is never ending, passing from one generation to another generation. So, public awareness campaign will be more efficient if society is more knowledgeable and educated. Public awareness and education are



conservation awareness programs. Turtles must be portrayed as a conservation priority, as animals with an intrinsic value to share the earth, not just a commodity to be exploited. Culture-sensitive information can contribute greatly to turtle conservation in source and consumer countries.

important tools in any long-term conservation strategy.

Public interpretation is an important component in sea turtle conservation efforts. Various organizations, including agencies from state and federal authorities, universities and NGOs have made contributions toward this matter. Turtles can serve as a focal point in general



Goals and Objectives

The primary goals of the Sea Turtle Conservation Programs are to determine distribution and abundance of sea turtles, to conserve foraging and nesting populations of sea turtles, to enhance public awareness of the need for sea turtle conservation, and to promote sustainable, non-consumptive use of sea turtles at least until populations have recovered sufficiently for controlled harvest to be resumed. For the goals and objectives of the Programs to be realized, sea turtles and their nesting and foraging habitats must be adequately protected by national legislations.

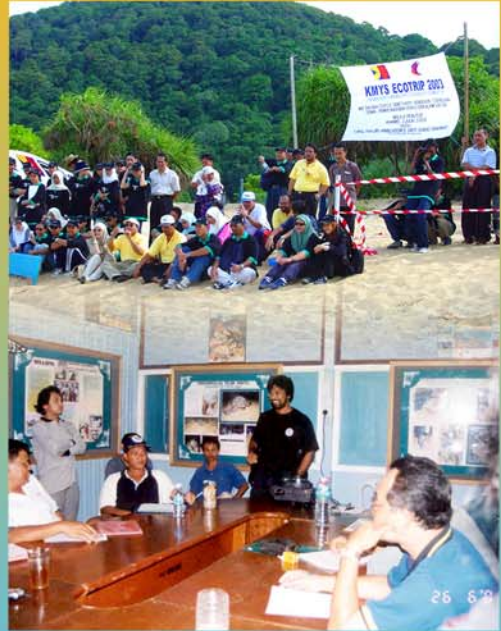


Conservation Goals

The threats facing sea turtles are numerous and, for most part, humans are the problem. For those of us trying to protect sea turtles, it is a mixed blessing that so many threats are human-caused. On one hand, it is very hard to change human behavior. On the other hand, at least there is hope for eliminating threats. If sea turtles were extinct because of geological or climatic changes, there would be very little we could do to help.

Some immediate goals for protecting sea turtles include:

- Crack down on illegal international trade in sea turtles and their products by enforcing laws and agreements.
- Decrease turtle deaths caused by commercial fishings through enforcement of Turtle Excluder Device (TED) and gill net regulations.
- Protect nesting beaches by establishing parks and refuges or through regulations combined with public education initiatives.



- Eliminate disturbances at nesting beaches by decreasing artificial lighting, halting beach armoring, regulating beach nourishment and limiting the impacts of people on the beach.
- Enforce national and international laws to minimize the dumping of pollutants and solid wastes into the ocean and nearshore waters.
- Continue research and monitoring activities so that the population can be monitored and conservation efforts can be focused where they are.

Establishments and Activities of Public Awareness Programs in Malaysia

No	Activities	Year Conducted / Established	Agency
1.	Turtle Information Centre (TIC), Rantau Abang, Terengganu	1985	Department of Fisheries Malaysia (DoFM)
2.	TIC, Melaka	1989	DoFM
3.	TIC, Perak	1995	DoFM
4.	TIC, Pahang	1998	DoFM
5.	Week-end Camping (dialogues, talks, slide/video shows)	Periodically	DoFM, Governmental Dept., NGO's, and Private Sectors
6.	Educational material (CD/videos, pamphlets, brochures and posters)	Occasionally	Private Sectors, NGO's
7.	<ul style="list-style-type: none"> Educational syllabus (incorporating titles about sea turtle conservation in Primary and Secondary schools) 	One time	Ministry of Education, Malaysia (MoE)
	<ul style="list-style-type: none"> Educational syllabus in Sarawak (Environmental education) 	One time	MoE and Sarawak Forest Dept.
8.	Adopt-A-Nest Programs	1993	Univ. Pertanian Malaysia

9.	Adopt-A-Turtle Programs 1993		Univ. Pertanian Malaysia
10.	<ul style="list-style-type: none"> National and International Volunteer Program in Peninsular Malaysia (assisting in tagging, hatchery works and beach cleaning in Terengganu and Pahang) 	Periodically (active in year 2000 onwards)	DoFM, EARTHWATCH and BP.
	<ul style="list-style-type: none"> Volunteer Program in Sarawak (Pulau Talang-Talang Kecil) 	1999 - 2003	Sarawak Forest Dept. and Malaysian Nature Society
11.	Promotion through local press and media	Periodically	Local Press and TV
12.	Marine Education Kits	One time	Sarawak Forest Dept. and Dept. of Marine Fisheries Sarawak
13.	Deployment of Artificial Reef - reef balls in inter-nesting habitats of sea turtle (Pulau Satang Besar and Pulau Satang Kecil, Sarawak)	One time	PETRONAS
14.	Turtle Brochures sponsored by private sector	1999	Protekon Sdn. Bhd.

What to Do if You Encounter a Nesting Sea Turtle

Sometimes people encounter sea turtles on their own while walking on beach at night during nesting season.

If this happens to you, here are some simple rules to follow:



**PLEASE
DO NOT**



- Kill or harm turtles in any way.
- Take eggs from the turtles' nests.
- Sell or buy sea turtles (dead or live, their eggs, their meat or any product made from turtle shells).
- Remove the tag if the turtle is alive.
- Walk on the beach with a flashlight or shine a light towards a sea turtle's face.
- Take pictures using flashes.
- Handle the eggs or put any foreign objects into the nest.
- Handle or ride the sea turtle.
- Disturb tracks left by turtles.

Stay away from the turtle's head. Sea turtles, especially loggerheads, have very strong jaws and can harm you if provoked.

How to Help?

- Report any trade in turtles and turtle products to the nearest responsible office.
- Inform the nearest office in your area even if the turtle you find does not have a tag.
- If you happen to come upon a live turtle with a metal tag attached to one of its flippers, please write down the following information:



- * the number(s) carved onto one side of the metal tag(s);
 - * the return address carved onto the other side of the tag;
 - * the species;
 - * the condition of the turtle and what it was doing if it was alive when spotted;
 - * the date and place where you spotted the turtle
- Put your garbage into designated bins or containers.
 - Report any person engaged in illegal, destructive fishing to the proper authorities
 - Release any sea turtle hatchlings found entangled in fishing nets.

Stay clear and out of sight of the turtle until she begins laying eggs, otherwise you may scare her back into the sea.

Global and Regional Initiatives on Sea Turtle Conservation and Enhancement (Areas for future awareness programs)

A. Information Exchange, Capacity Building and other Cooperative Actions

- Exchange scientific, technical and legal information and expertise with other signatory States in order to develop and implement best practice approaches to sea turtle conservation;
- Cooperate on initiatives for increasing public awareness of the threatened status of sea turtles and the consequences of human activities for sea turtle populations and their habitats;
- Conduct collaborative research and monitoring on conservation status of shared populations of sea turtles, and the stability of sea turtle populations and their habitats;
- Conduct studies to identify threats to particular turtle populations, and best practice approaches to minimize threats, including developing mechanisms to minimize the impact of fisheries activities and coastal developments on turtles and their habitats;
- Standardize methods and levels of data collection and data dissemination among signatory States;
- Collaborate with scientific and international organizations and other Range States in order to facilitate sea turtle conservation internationally;
- Assist other signatory States, upon request, to increase the capacity of existing national institutions to implement marine turtle conservation and management measures;
- Assist other signatory States, upon request, to regulate trade in sea turtle products;
- Assist other signatory States, upon request, to develop and implement national programs for protection, management and conservation of sea turtles and their habitats.

B. Habitat Protection

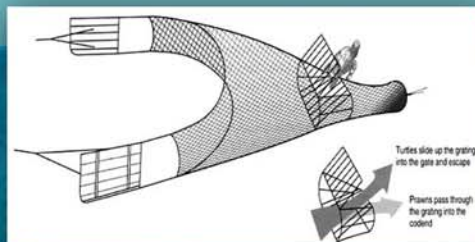
- Protect and conserve sea turtle habitats, particularly nesting, inter-nesting and feeding areas;
- Establish any necessary restrictions on human use of sea turtle habitats, including designation of protected areas or other management prescriptions.

C. Mitigate Threats and Reduce Bycatch

- Regulate activities that have impact on sea turtles, particularly during the periods of reproduction, nesting and migration;



- Reduce incidental capture and mortality of sea turtles in the course of fishing activities to ensure that any incidental take is sustainable, through regulation of fisheries and development and implementation of measures such as turtle excluder devices (TEDs) and seasonal or spatial closures of waters.



<http://www.arbec.com.my/sea-turtles/image/art34f63.jpg>

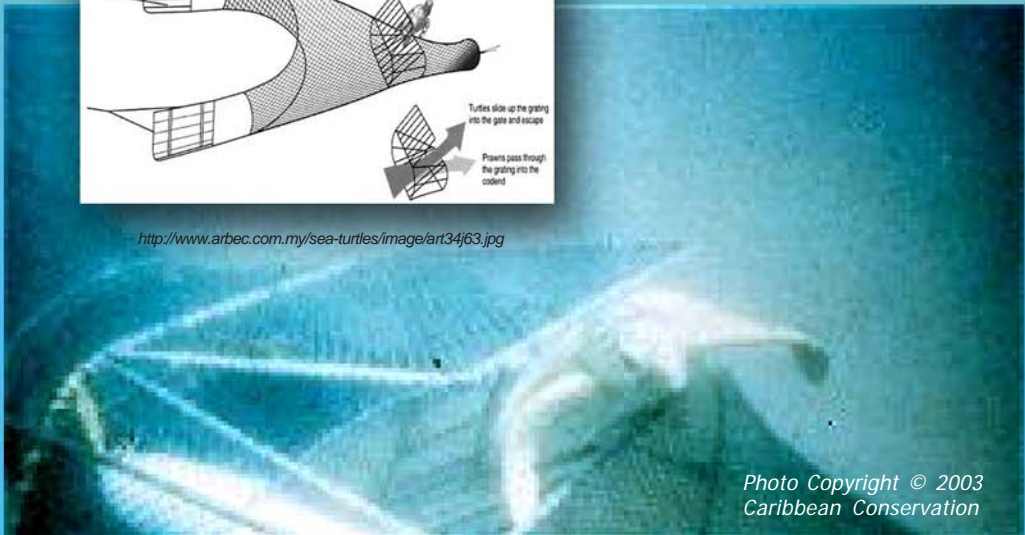


Photo Copyright © 2003
Caribbean Conservation

D. Protecting Sea Turtles, Saving Your Livelihood



Many sea turtle populations are declining sharply. In particular, leatherback and loggerheads sea turtles may disappear from the Pacific Ocean within the next two decades unless we reduce their mortality rates. Over the past 20 years, the number of nesting leatherback and loggerheads turtles in the Pacific has dropped by 95% and 80%, respectively. The killing of sea turtles in pelagic longline gear, although only part of the whole problem, is a big concern.

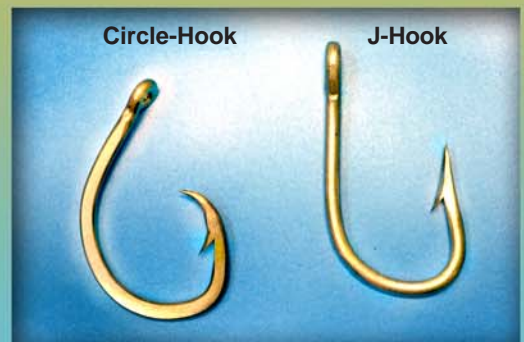
There is a movement to close down pelagic longline fisheries, in part because of the concerns about harming sea turtles. Some longline fleets have been banned from large areas and temporarily closed because of the capture of turtles. This may have serious impact on the global longline industry. Longline fishermen are among the most qualified people to develop and improve methods to reduce sea turtle capture. Fishermen and longline boat-owner and exporter associations need to take part in finding solutions to the problem.

Possible Solutions

It should be possible to reduce sea turtle capture and mortality in pelagic longline gear to negligible levels. In the last few years, researchers and fishermen have developed new techniques that significantly reduce turtle capture and injury and are acceptable to industry. Using large 18/0 circle hooks and setting gear below 40m appear to be the solutions for some fisheries. But these results are preliminary. More research and commercial demonstrations are needed, especially for fisheries where large hooks and deeper setting are not commercially possible.

I. Reduce capturing and injuring turtles - use a large circle hook

- The wider the hook, the less likely a turtle will be able to swallow it.
- Circle hooks may cause fewer hooking to the turtle's body than J and tuna hooks. Hard-shelled turtles are most often caught by ingesting a hook. Soft-shelled leatherback turtles tend to get entangled in gear.
- Circle hooks are more likely to hook hard-shelled turtles in the mouth, versus being hooked deeply as typically occurs with J hooks. If the turtles still alive when gear is retrieved, turtles released after being hooked in the mouth survive better than more deeply hooked turtles.



II. Reduce interactions with turtles-set gear deep

Set your gear as deep as possible to minimize interactions with turtles. Setting gear below 40 m (22 fathoms) is expected to reduce turtle captures. For starters, don't place branchlines near floats. To minimize the risk of entangling turtles, keep the amount of gear between 0-40 m to a minimum by increasing the length of buoy lines rather than having short buoy lines and longer branch lines.

E. Releasing Captured Turtles

If you catch a turtle, you can increase its chance for survival by employing the following steps below. Most turtles caught on shallow-set longlines are alive when hauled aboard, and if handled properly, they can be successfully released.

The following guidelines are designed to be broad enough to apply to small-scale artisanal fisheries, small domestic commercial fleets, as well as modern, mechanized, distant-water fleets. Check with your fishery management authority to see if turtle handling guidelines designed specifically for your fishery are available.

- If the turtle is too large to bring onboard, bring the boat as close to the turtle as possible. Avoid putting too much strain on the line.
- If the turtle is small and can be handled safely, use a dip net to bring it onboard. Do not use a gaff, pull on the line, or grasp the eyes sockets.
- Remove entangled fishing gear. If the turtle is hooked externally, such as on flipper or in the break, use bolt cutters to remove the hook.
- If the hook is in the mouth or has been swallowed, place a gag, such as a wooden handle or rope, in its mouth so it cannot bite.
- If the turtle is lethargic and weak or unconscious, keep it on board until signs of strength return, such as responding to gentle touching of the eye and pulling of the tail. If the turtle is sluggish and inactive when brought on board, it may have some water in its lungs. In this case, raise the rear flippers about 20 cm. While it recovers, place the turtle in a safe, shaded, cool location and keep it moist as previously described.
- As soon as the turtle regains its strength and has rested, release it. Even if the turtle fails to regain consciousness or strength after 24 hours, release it carefully as it may still recover.
- Record the turtle capture in your logbook, identify the turtle species, record any tag numbers. If the turtle was hooked, record the location where it was hooked, and record the location where the turtle was captured and released, including the state the turtle was when released.

F. Research and Education

- Promote research on sea turtles and their habitats that will provide reliable information useful for mitigation of threats or will lead to a more profound understanding of sea turtles and their habitats;
- Promote research into sea turtle reproduction, in order to determine the effectiveness of activities aimed at increasing turtle populations;
- Promote environmental education and dissemination of information in an effort to encourage the participation of government institutions, non-governmental organizations and general community, in the protection, conservation and recovery of sea turtle populations and their habitats.



Legislation and Regulation in Malaysia

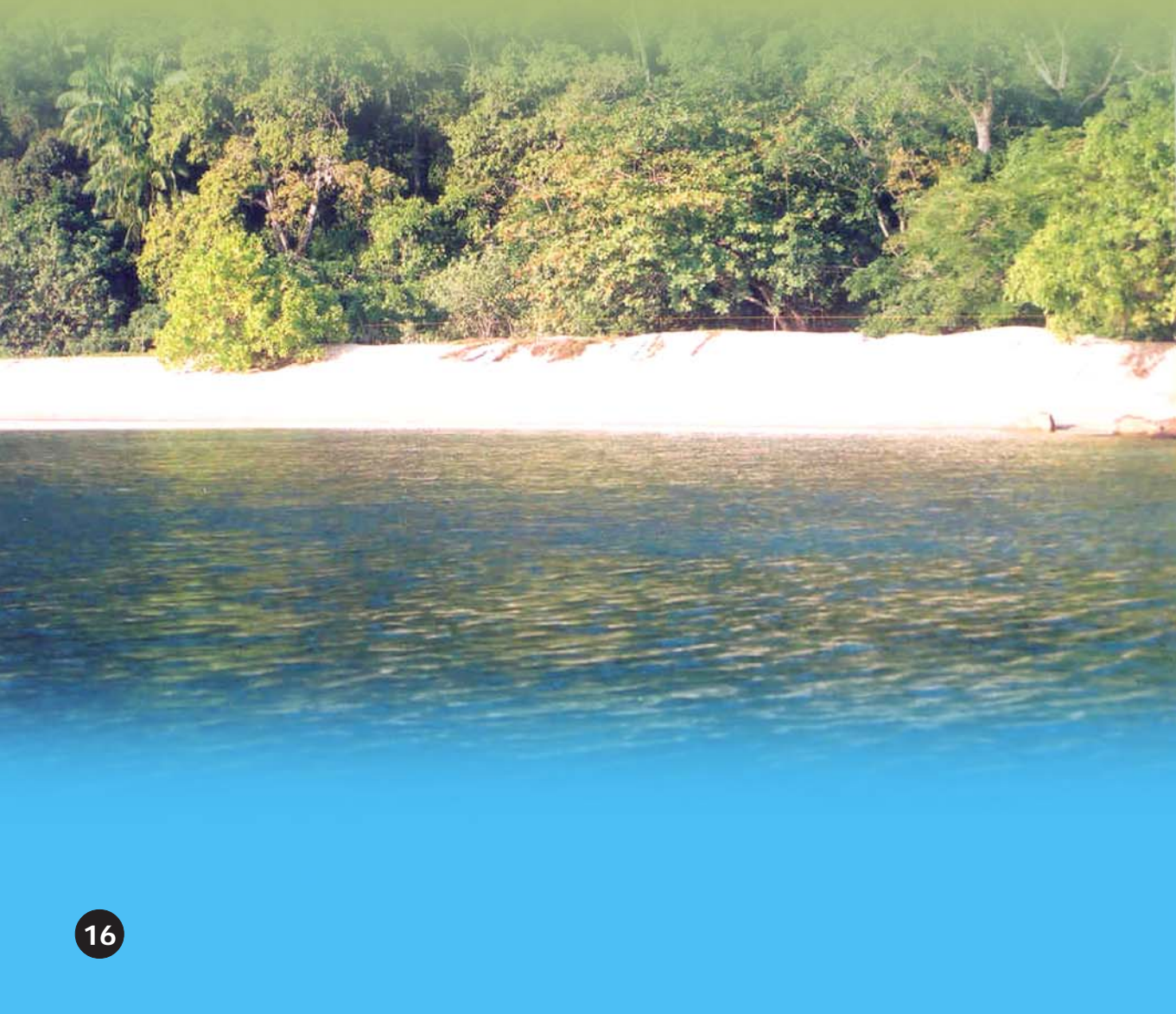
FEDERAL/STATE	LEGISLATION
FEDERAL	Fisheries Act 1985, Wild Life Protection Act 1990, Fisheries (Prohibited Areas) (Rantau Abang) Regulations 1991, Fisheries (Prohibited of Method of Fishing) (Amendment) Regulations 1990 Customs (Prohibition of Exports) Order 1988, Customs (Prohibition of Import) Order 1988.
JOHOR	Fisheries (Turtle and Eggs) Rules 1984
KEDAH	Turtle Enactment 1972, Turtle' Rules 1975
KELANTAN	Turtles and turtles Eggs of 1932 (amended 1935, Enactment No.8), Fisheries Turtle and Turtles' Eggs Rules 1978.
MALACCA	Fisheries (Turtle and Turtles, Eggs) Rules 1989
NEGERI SEMBILAN	Fisheries (Turtle and Turtles, Eggs) Rules 1976
PAHANG	Fisheries (Turtle and Turtles, Eggs) Rules 1996
PENANG	Fisheries (Turtle and Turtles, Eggs) Rules 1999
PERAK	(Legislation in Draft), River Rights Enactment 1915
PERLIS	(No Legislation)
SABAH	Fauna Conservations (Turtle Farms) Regulations 1964, Fauna Conservations Ordinance 1963 9Act. No.11, Parks Enactment 1984, Customs (Prohibition of Imports) And Prohibition of Exports (Amendment) Order 1971, Wildlife Conservations Enactment 1997.
SARAWAK	Turtle Trust Ordinance 1957, Turtle (Prevention of Disturbance) Rules 1962, Wildlife Protection Ordinance 1958,(Amended 1973), Wildlife Protection Ordinance 1990,(Amended 1995), Wildlife Protection Rules,1998,National Parks and Nature Reserves Ordinance 1998,
SELANGOR	(No Legislation)
TERENGGANU	Turtle Enactment 1951 (Amendment) 1987, Turtle Enactment 1951 (Amendment) 1989, Section 3A Notification Under Turtle Enactment 1951.

Legislation and Regulation in Other Parts of the World

COUNTRY	LEGISLATION
BRUNEI DARUSSALAM	Wildlife Protection Act, 1978 (Revised 1984), Fisheries Act of 1973
CAMBODIA	The Department of Fisheries has no law and regulations for protecting and conserving this endangered species. In the near future, a fishery act will be annexed to include this species in the conservation.
INDONESIA	The Indonesia Constitution of 1945, Act no.5 of 1967, Act no.4 of 1982, Act no.9 of 1985, Act no.5 of 1990 (Conservations of Living Resources and Theirs Ecosystems), The Governments Regulations of the Republic of Indonesia No.7/1999, The Governments Regulations of the Republic of Indonesia No.8/1999, Act No.43 of 1978 (CITES), Act No.5 of 1994 (Ratifications of the United Conservations on Biodiversity).
MYANMAR	Ministry of Livestock and Fisheries of sea turtle (1986), DoF the Fishing Rights of Foreign Fishing Vessels Section 32b,32c, Section 36(1989), Myanmar Marine Fisheries Law, Section 39, 40(1990), Turtle and Tortoises Conservations (1993), Wildlife Protection Act of 1936.
PHILIPPINES	Republic Act no.8550(Fisheries Code of 1998), Republic Act No.7586(National Integrated Protected Areas System (NIPAS) Act).
THAILAND	Ministry of Agriculture and Cooperative Enactment 1947, National Park Act 1961, Fisheries Act 1972, Ministry of Commerce Enactment 1980, Conservation and Protection of Living Resources Enactment 1992, Act No 19, Wildlife Reservation and Protection Act 1992, Section 6, Turtle Excluder Devise (TED) in 1996.
VIETNAM	Ordinance dated 25 April 1989 on Protection and development of Fisheries resources, Enactment No 195 - HDBT (Council of Ministers) dated 2 June 1990 guiding on execution of the Ordinance dated 25/April/1989, Decision No 130-CP dated 20 April 1991 on Establishment of the Fisheries Protection Department under ministry of fisheries, National Law on Environment Protection issued in 1993, Provisions N 415/TTg dated 20 August 1994 of Prime-minister promulgating the statute on the organization and activities of State Inspectors in the field of protection of fisheries resources.

Public Awareness of the Extent and Impacts of the Turtle Trade

Awareness of trade in turtles and other wildlife works at different levels. Culturally, emotionally and unsustainable trade lead to the loss of a group of species from peoples' daily lives, customs and conceptual world, thus leaving a poorer world for their children. Financially, short-term exploitation of a limited resource with very slow recovery is inappropriate, since local collectors gain very little financial benefit from selling off their resources and compromise their options for sustainable developments like eco-tourism or perhaps wildlife ranching.





Research for Stock Enhancement of Sea Turtles in the Southeast Asian Region SEAFDEC-MFRDMD (2005-2008)

- Identification the Stock / Population of Green Turtles (*Chelonia mydas*) and Hawksbill Turtles (*Eretmochelys imbricata*) in the Southeast Asian Region.
- Detection on Multiple Paternity of Green Turtles (*Chelonia mydas*) at Redang Island.
- Preliminary Study on Cloning of Sea Turtles.
- Sea Turtles Tagging Programs in the Southeast Asian Region.
- Satellite Telemetry Study of Sea Turtles in the Southeast Asian Region.

Identification the Stock/Population of Sea Turtles in the Southeast Asian Region

Eighteen (18) selected sampling sites were selected for collecting tissue samples of sea turtles in the region.

Brunei Beach (Brunei Darussalam), Sihanouville (Cambodia), Orinoco Island, Pangubahan and Segamat Island (Indonesia), Mak Kapir, Keradut, Saben Turtles Island and Serawak Turtles Island (Malaysia), Thamee Ha Island and Laing Lion Isak Island (Myanmar), Apo Reef Park, Piesikan Island and Turtles Island (The Philippines), Kiyam Island and Haying Island (Thailand) Min Chu Island and Con Dao Island (Vietnam).

Objective

To determine the stock / population on green turtles (*Chelonia mydas*) and hawksbill turtles (*Eretmochelys imbricata*) in the Southeast Asian region through DNA profiling.

Expected Output

- To produce the Standard Operating Procedure (SOP) on collecting tissue samples of sea turtles in the Southeast Asian region.
- To determine the suitable primers for PCR amplifications and sequencing reactions.
- To establish laboratory working protocols on DNA study of sea turtles.



Collecting tissue should be conducted after the turtles had completed laid their eggs.



Scanners and肥皂 should be used to avoid infection.



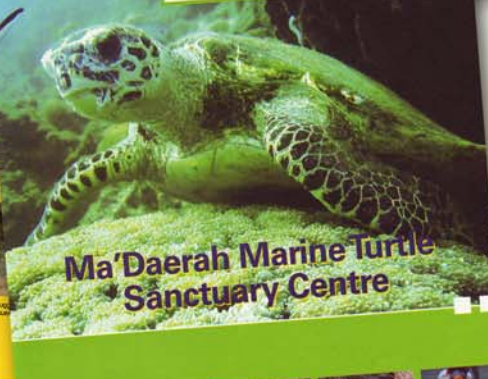
Scanners and肥皂 should be used before collecting the tissue.



The size of tissue is approximately 1cm².



SOP was produce as a guideline for collecting tissue samples.



Ma'Daerah Marine Turtle Sanctuary Centre



PRELIMINARY STUDY ON CLONING OF SEA TURTLES

Objectives

- To identify and discuss with the local experts on the possibility on cloning of sea turtles.
- To establish the methodology on the cloning of sea turtles.
- To produce a master plan on the cloning of sea turtles.
- To apply advanced reproductive biotechnology and genomics in sea turtle research.
- To multiply sea turtles through captive breeding.
- To establish Advanced Reproductive Biotechnology and genomics in sea turtle research.
- To provide excellence in scientific discovery and technology development in sea turtle breeding.
- To develop human capital and expertise in sea turtle breeding and management.
- To commercialise products and technologies developed from the sea turtle research.

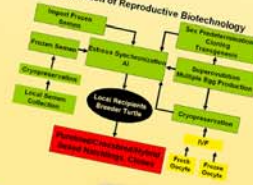
Research Panel for Cloning of Sea Turtles

- Dato' Junaidi Che Ayub - Dof (Chairman)
- Dr. Raja Mohammad Noordin Raja Omar - DPPSP/MFRDMD
- Syed Abdullah Ibrahim - Dof
- Zulkifli Taib - DPPSP/MFRDMD
- Hajidah Abdul Syed A. Kadir - DPPSP/MFRDMD
- Dr. Ramli Mohamad - UKM
- Dr. Mazni Osman - UKM
- Harum Shamsuddin - USM
- Syreen Farida Niewati Rachmat - DVS
- Dr. Tajul Arifin - UKM

Roles of the Agencies on Research Implementation Cloning of Sea Turtles



Application of Reproductive Biotechnology



Output and Expected Benefit

- Increase in sea turtle hatching rate and survival.
- Successful rearing of sea turtle in captivity.
- Improved breeding and multiplication.
- New technologies in sea turtle reproductive biology.
- Trained manpower.
- New management approaches in sea turtle conservation and breeding.
- Intellectual properties.
- Commercialization of products and technologies.
- Development of eco-education industry focusing on sea turtles.
- New knowledge (scientific publications, newsletter/website).



Calendar of the Turtle



Protected marine species and the tuna longline fishery in the Pacific Islands

