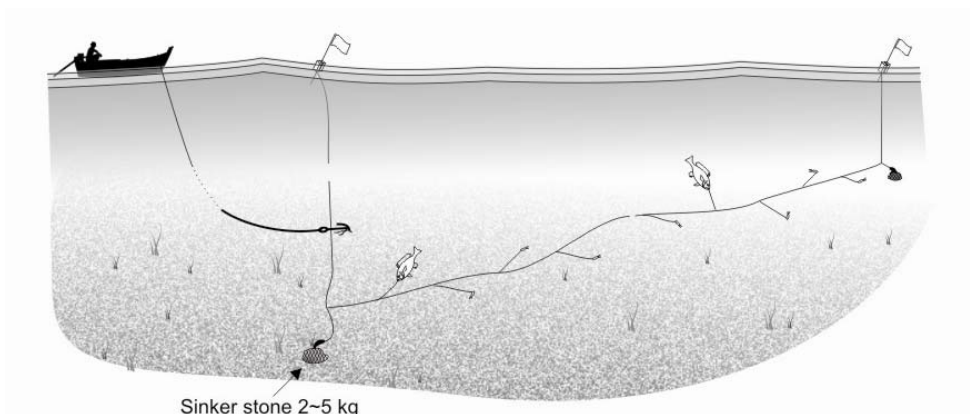




Report on the On-Site Training for Introduction of C-Hook for Bottom Longline

14– 16 November 2008
at Institute of Fisheries Technology, Yangon,
Myanmar



Department of Fisheries, Myanmar



Southeast Asian Fisheries Development Center

TD/RP/121



Report on the On-Site Training for Introduction of C-Hook for Bottom Longline

14– 16 November 2008
at Institute of Fisheries Technology, Yangon, Myanmar

Background:

Sea turtle interaction from fishing activities is recognized as serious problem at the international level which related to the reducing of the sea turtle populations. Regarding to support the implementation for mitigation of the sea turtle mortality from the fishing activities, SEAFDEC was proposed the research study on the effective of C-hook used in longline fishing activities since 2004. Up to date, SEAFDEC under the JTF project has been promoted the use of C-hook in various countries such as Indonesia, Thailand, Vietnam, the Philippines, and Malaysia with the successful oriented by pelagic longline and bottom longline fishers.

From the results of the fishing gears and methods survey in the Southeast Asian Region for Myanmar found that there are many small scale fishing boats operate the bottom longline using J-hook at the coastal areas. Therefore, SEAFDEC plan to promote the c-hook for bottom longline in Myanmar in the year 2008.

Activity brief:

The official letter to conducting the On-site training was sent to Director General of Department of Fisheries, Myanmar, Mr. Khin Maung Aye on 20 October 2008. With the kind coordination form DOF, Myanmar. Mr. Aung Htay Oo, Senior Fisheries Officer and Mr. Khin Maung Aye, Principle of Institute of Fisheries Technology were representative from the department to be coordinator and translator of the training course under supervise of Mr. Khin Maung Sue, Director of R&D division. The training schedule is in table 1.



Fig. 1. Group photo.

There were thirty-five participants, which include 19 DoF staffs, 16 fishermen and five observers from Department of Fisheries and journalist. The participant list is in table 2.



Fig. 2. Opening ceremony (Opening address by Mr. Khin Maung Aye, Director General of Department of Fisheries, Myanmar).



Fig. 3. In the class room.

Presentations of all presenters are in annex I to V. During the training on fishing gear construction, participants were divided into six groups. Each group were assign to construct the bottom longline (BLL) with 200 hooks by setting C-hook and J-hook alternately under guidance of SEAFDEC staffs.



Fig. 4. Practice on fishing gear construction.

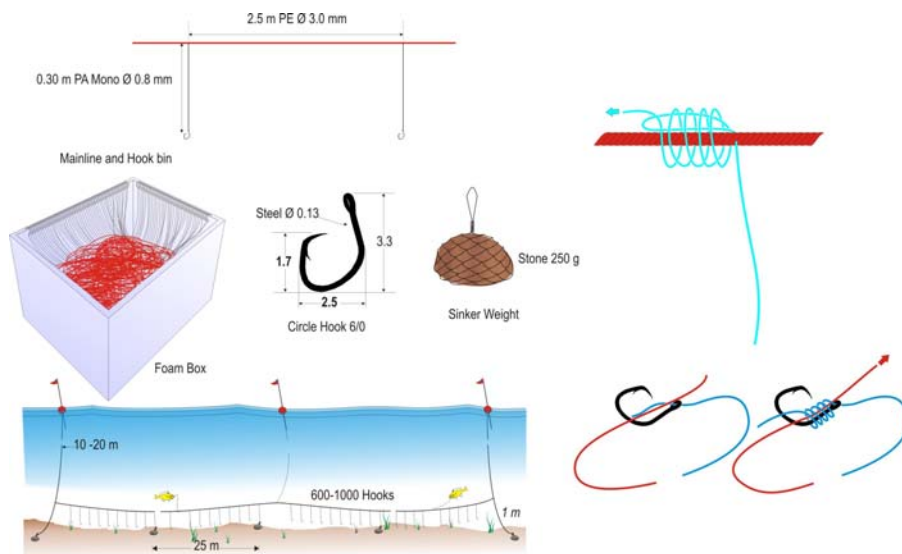


Fig. 5. BLL construction design for the On-site training to introduce the C-hook in Myanmar.

Four sets of BLL were set along Irrawaddy River near the Institute of Fisheries Technology on 15 November 2008. Chicken intestine was used as bait. The BLL was deployed at time about 2 pm for 1 hour. Fig. 6 shows the BLL demonstration area and deployed positions. Four small fishing boats and one observer boat were rental to support the activities. However, a strong current, short immersion times and too short of branch line (35 cm.) were discussed as reasons of no catch operations. Therefore, branch line were

changed to be one meter long and set at the same fishing ground in the early morning of 16 No(2 am). Two catch fish *Pangasianodon hypophthalmus* were caught, one from C-hook and other from J-hook.

Species	<i>Pangasianodon hypophthalmus</i>	<i>Pangasianodon hypophthalmus</i>
Type of hook	J-hook	C-hook
Length (cm)	94	97
Wight (kg)	8.1	9.3

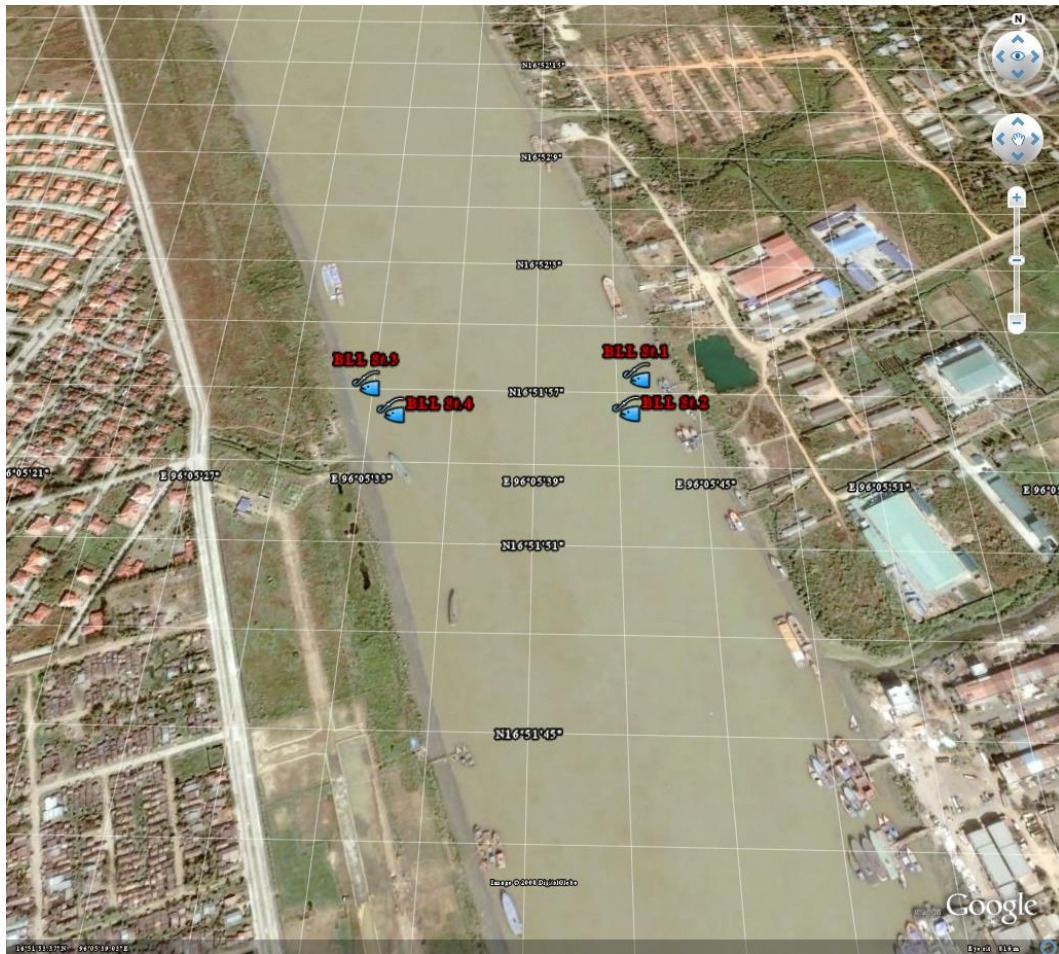


Fig. 6. Position of bottom longline demonstration.



Fig. 7. Bottom longline operation on 15 November 2008.



Fig. 8. River catch fish (*Pangasianodon hypophthalmus*) caught from bottom longline at night operation.

Conclusion and Recommendation:

1. Most of fishermen have no information about C-hook before.
2. They are agreed that the use of C-hook can reduce sea turtle mortality from line fisheries. However, C-hook is not supply in Myanmar market
3. Fisherman request to DOF Myanmar to provide the micro credit from the government for the changing of J-hook to C-hook.
4. DOF Myanmar request SEAFDEC/TD to support more C-hook for study on the efficiency of C-hook in Myanmar. SEAFDEC/TD will send 1,000 C-

hook to Myanmar within December 2008. DOF Myanmar will send those C-hooks to the fisherman in Yangon. The information of the fishing ground (fishing location), number of J-hook and C-hook, and number of fish by species or by group that were caught by J-hook and C-hook (to calculate hook rate) will submit to SEAFDEC/TD for further analysis. Mr. Khin Maung Sue will be coordinator for this activity.

Training team member:

SEAFDEC Team

- | | |
|----------------------------|-------------|
| 1. Ms. Penchan Laongmanee | Team leader |
| 2. Mr. Sayan Promjinda | Instructor |
| 3. Mr. Nakaret Yasook | Instructor |
| 4. Mr. Narong Ruangsivakul | Instructor |
| 5. Mr. Suchart Kitsamut | Instructor |

DoF Myanmar Team

- | | |
|-------------------------|--------------------|
| 1. Mr. Khin Maung Soe | Advisor |
| 2. Mr. Aung Tae Oo | Course coordinator |
| 3. Mr. Khin Maung Aye | Translator |
| 4. Mr. Maung Maung Lwin | Instructor |



Fig. 9 Presenting certificates

Table 1. Activity schedule

Date/Time	Activity	Responsible person
13 Nov 08, Thu		
09:00	Arrive Yangon	
10:00-11:00	Detail discussion on training schedule with Myanmar coordinator	
11:00-12:00	Discuss with Deputy director of Department of Fisheries, Myanmar	
13:00 – 17:00	Training material preparation	
	Dinner host by Director general of Department of Fisheries, Myanmar : Mr. Khin Maung Aye	
14 Nov 08, Fri		
08:30 – 09:00	Opening ceremony: Opening address by Director general of Department of Fisheries, Myanmar	
09:00 - 09:30	Tea break and Group photo	
09:30 - 09:40	Introduction to the onsite-training workshop (annex I)	Ms. Penchan Laongmanee
09:40 - 10:00	Interaction between sea turtle and fisheries in Southeast Asian (annex II)	Mr. Sayan Pramjinda
10:00 – 10:30	Interaction between sea turtle and fisheries in Myanmar (annex III)	Mr. Maung Maung Lwin
10:30 - 11:00	Introduction to gear and device for relieve sea turtle (annex IV)	Mr. Sayan Promjinda
11:00 - 11:30	Fishing gear construction : bottom longline using C-hook (annex V)	Mr. Nakaret Yasook
11:30 – 13:00	Lunch break	
13:00 - 17:00	Practice on bottom longline construction (Fisherman will group into 6 group to construct longline with 200 hooks)	All participant
15 Nov 08, Sat		
08:30 – 11:00	Cont: Practice on bottom longline construction	All participant
11:00 – 12:00	Baiting	
13:00 - 17:00	Set C-hook and J-hook longline at river for observing catch comparison and hook position	All participant
02:00 – 04:00	Set C-hook and J-hook longline at river	Fishermen
16 Nov 08, Sun		
08:00 - 10:00	Discussion on the catch result	All participant
14:00 – 16:00	SEAFDEC team observed fishery activity in Yangon	All participant
17:00 – 19:00	Group dinner host by SEAFDEC	All participant
17 Nov 08, Mon		
09:50	Leave Yangon for Bangkok	


Table 2.Participants list

No	Name	Rank	Department /Unit	State & Division
1	Daw Moe Moe Myint	Assistant Deputy Staff Officer	R&D, DoF	Yangon
2	U Min Khine	Research Staff	R&D, DoF	Yangon
3	U Aung Hlaing Win	Assistant staff officer	R&D, DoF	Yangon
4	U Kyaw Naing Htwe	Assistant Deputy staff officer	R&D, DoF	Yangon
5	Daw Yin Yin Than	Assistant Fishing technologist	IFT	Yangon
6	Daw Khin Myo Nwe	Assistant Deputy staff officer	R&D, Turtle conservation Unit	Yangon
7	U Soe Thant	Township officer, DoF	Longlon,DoF	Tanintharyi Division
8	U Tun Thein	District Fishery Officer	Sittwe, DoF	Rakhin state
9	U Hlaing Oo	Township officer, DoF	Min Pya, DoF	Rakhine state
10	U Tun New	Deputy staff officer	Thandwe, DoF	Rakhine state
11	U Kyaw Aung	Fisherman	Thandwe	Rakhine state
12	U Soe Min Naing	Assistant Deputy staff officer	Mye pon, DoF	Rakhin state
13	U Thu Ya Aung	Fisherman	Thandwe,	Rakhine state
14	U Ne Win Oo	Assistant Deputy staff officer	Tha Mee Hla Island, DoF	Ayeyarwaddy
15	U Cho Hla Aung	Fishery Officer, Turtle	Kadongani DoF	Ayeyarwaddy Divisipon,
16	U Aung Win Sein	Deputy Staff Officer	Moulmein, DoF	Mon State
17	U Aung Zaw Win	Township officer	Tha Hnat Pin, DoF	Pago Division
18	U Wai Naing Hein	Assistant Deputy Staff Officer	Tha Hnat Pin, DoF	Pago Division
19	U Yan Naing Oo	Fisherman	Hein Gyi	Ayeyarwaddy division
20	Maung Pi Soe Thu	Fisherman	Hein Gyi	Ayeyarwaddy division
21	Maung Tun Lin Aung	Fisherman	Pya Pon	Ayeyarwaddy division
22	Ko Kyaw Thu Aung	Fisherman	Pya Pon	Ayeyarwaddy division
23	Maung Chit Oo Maung	Fisherman	Pya Pon	Ayeyarwaddy division

No	Name	Rank	Department /Unit	State & Division
24	Maung Kyaw Thu Naing	Fisherman	Latputta	Ayeyarwaddy division
25	Ko Maung Maung	Fisherman	Latputta	Ayeyarwaddy division
26	Ko Tin Htwe	Fisherman	Latputta	Ayeyarwaddy division
27	Ko Ye Htut Aung	Fisherman	Latputta	Ayeyarwaddy division
28	Ko Thein Than	Fisherman	Latputta	Ayeyarwaddy division
29	U Ko Htay	Fisherman	Latputta	Ayewaddy division
30	U Phyon Cho	Fisherman	Insein township	Yangon
31	U Htay Win	Fisherman	Insein township	Yangon
32	U Maung Oo	Fisherman	Insein township	Yangon
33	U Than Min	Fisherman	Insein township	Yangon
34	U Aung Htoo	Fisherman	Insein township	Yangon
35	U Zaw Linn Oo	Fisherman	Insein township	Yangon
36	Daw Min Min Thein	Observer	staff, IFT, DoF	Yangon
37	Daw Cho Zin Thet	Observer Research staff	R&D, DoF	Yangon
38	Daw Khin Thet Khine	Observer Research staff	R&D DoF	Yangon
39	Daw Thandar Htun	Observer Research staff	R&D, DoF	Yangon
40	Ma Su Latt Htwe	Reporter	Ngwe Pin Lae, Fisheries Journal, MFF	Yangon


Annex I


Training Course



**Introduction to On-Site Training Workshop
of C-hook for bottom longline**

**14 – 16 November 2008
Yangon, Myanmar**






Introduction of C-hook for bottom longline

Content

- Background
- Agenda
- Status of sea turtle in SEA
- Major treat
- Life cycle of sea turtle

2




Introduction of C-hook for bottom longline

Background

Sea turtle interaction from fishing activities is recognized as serious problem at international level where related to the reducing of the sea turtle population.

SEAFDEC under Japanese trust fund had conducted research study on effective of C-hook used in longline fishing activities since 2004. The study result shown that C-hook can mitigation of the sea turtle mortality from fishing activities, up to date SEAFDEC has promoted the use of C-hook in various countries such as Indonesia, Thailand, Vietnam, the Philippines and Malaysia with the successful oriented by pelagic longline and Bottom longline fishers.

3




Introduction of C-hook for bottom longline

Background

For Myanmar, there are many small scale fishing boats operate the bottom longline with J-hook in the coastal areas based on the fishing gears and methods survey in the Southeast Asian Region. Recently, SEAFDEC provide fishing gear that include longline to Myanmar fishermen that was effected by cyclone Nagis through DOF Myanmar. Therefore, SEAFDEC plan to promote the c-hook for bottom longline in Myanmar in 2008.

4




Introduction of C-hook for bottom longline

Agenda

14 November 2008

- 08:30 – 09:30 Opening ceremony
- 09:30 – 10:00 Tea break and group photo
- 10:00 – 10:30 Introduction to the on-site training workshop
- 10:30 – 11:00 Interaction between sea turtle and fisheries in Southeast Asian
- 11:00 – 11:30 Interaction between sea turtle and fisheries in Myanmar
- 11:30 – 12:00 Introduction of gear and device for relieve sea turtle
- 12:00 – 13:30 Lunch break
- 13:30 – 14:00 Fishing gear construction : bottom longline using C-hook
- 14:00 – 17:00 Practice on bottom longline construction (6 group , 200 hooks each)

5



Introduction of C-hook for bottom longline

Agenda

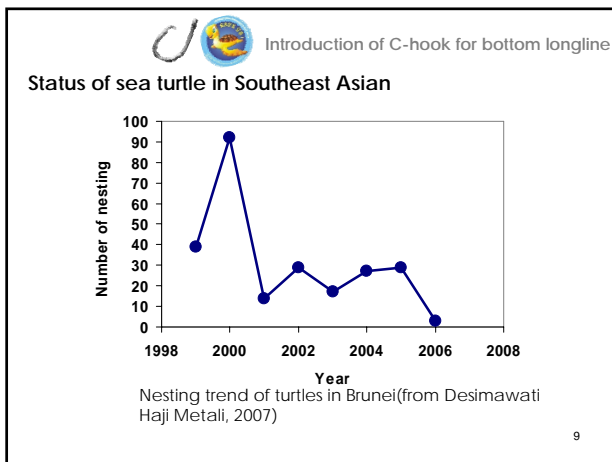
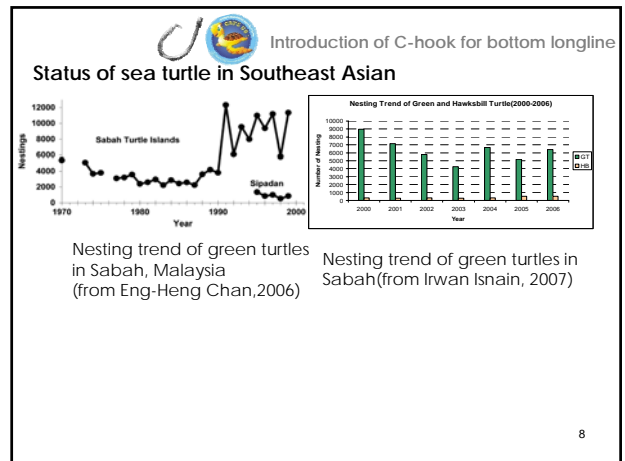
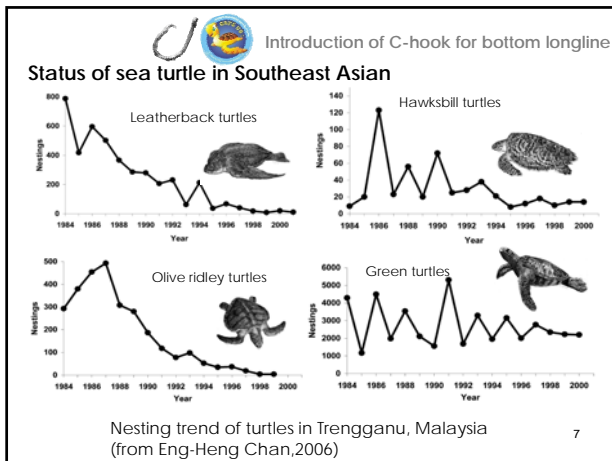
15 November 2008

- 07:00 – 15:00 Set C-hook and J-hook (traditional) longline at sea for observing catch comparison and hook position
- 17:00 – 19:00 Group dinner

16 November 2008

- 09:00 -11:00 Discussion on catch result

6

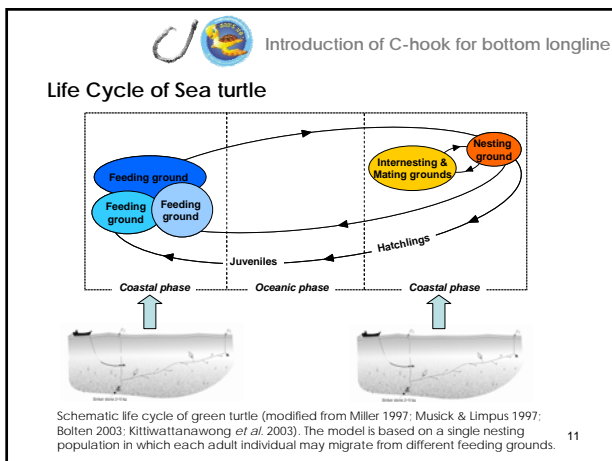


Introduction of C-hook for bottom longline

Major treats

- Harvesting of egg
- Harvesting of turtles
- Destruction or modification of habitats
- Pollution
- Tourism
- Fisheries related mortality

Seizure from Indonesian waters
Photos from: <http://www.turtle-foundation.org/pages/news.html>

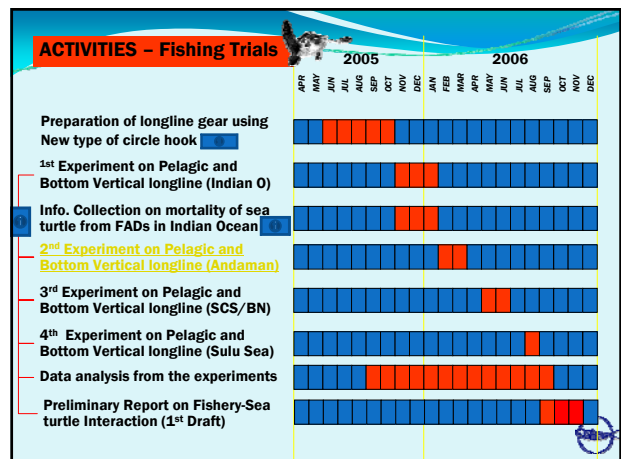
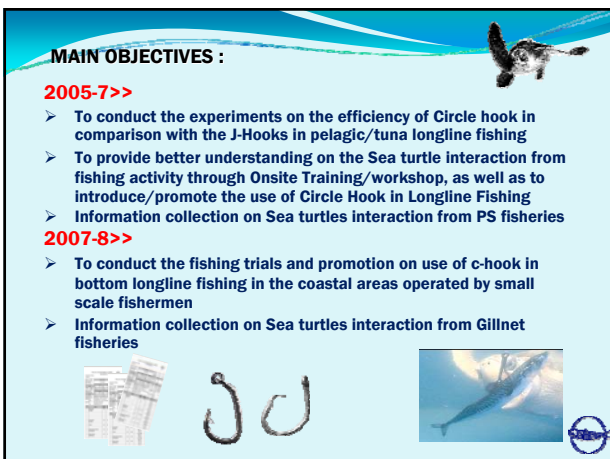
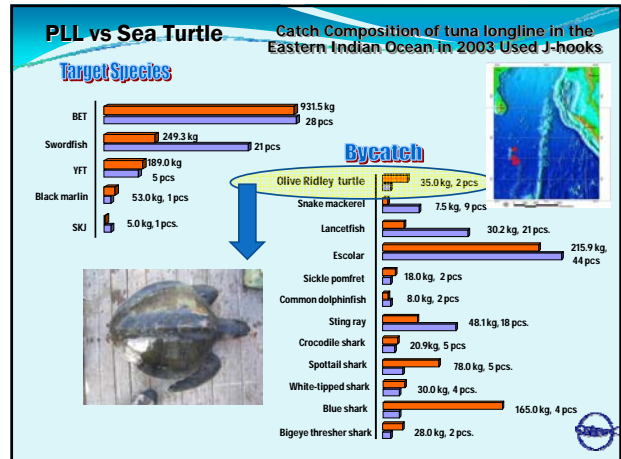
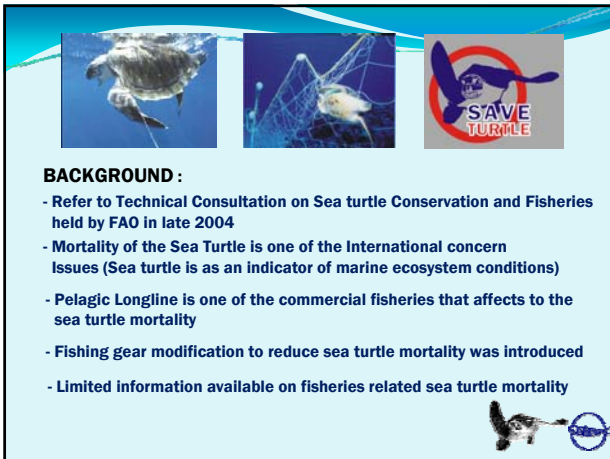
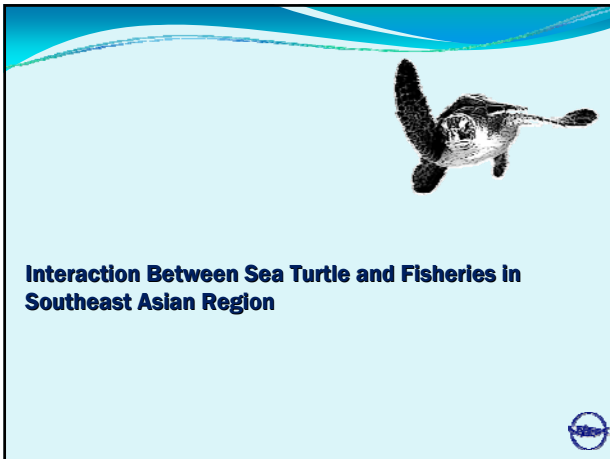


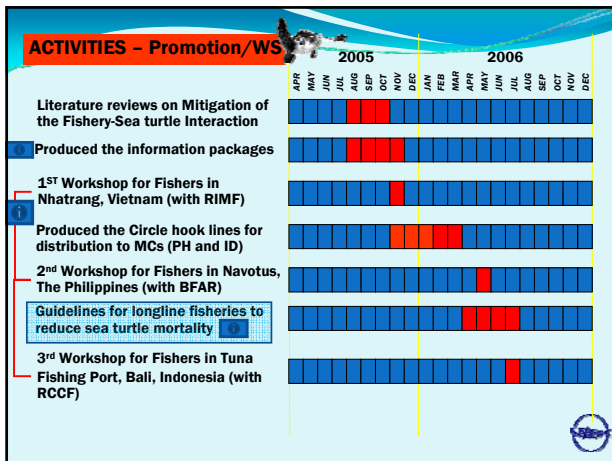
Introduction of C-hook for bottom longline

Thank you

12

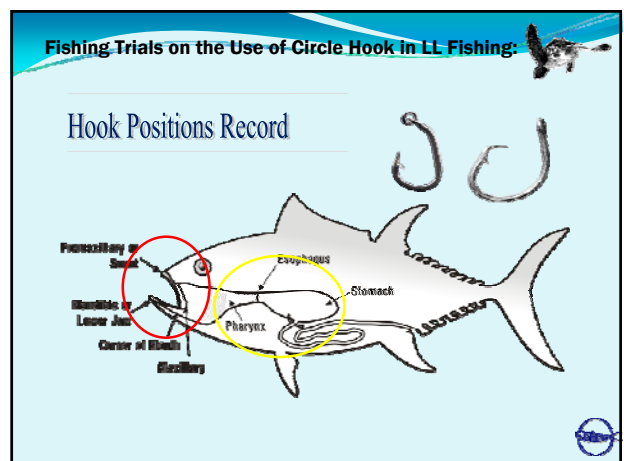
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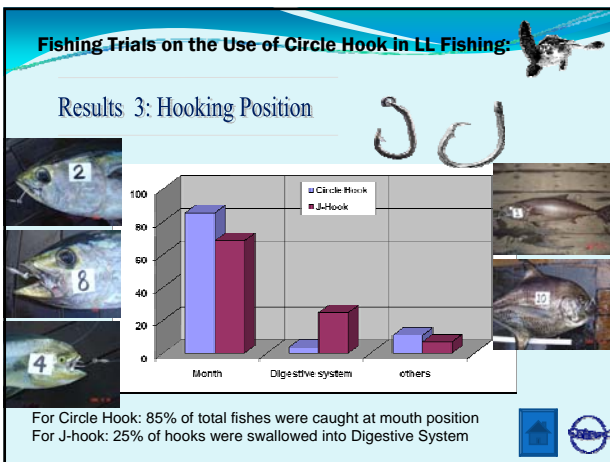
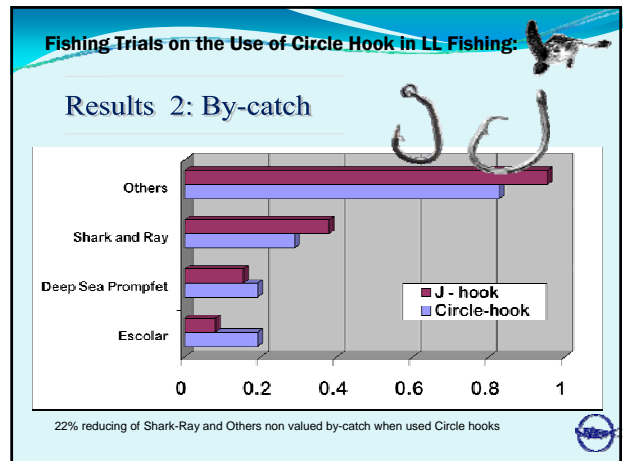
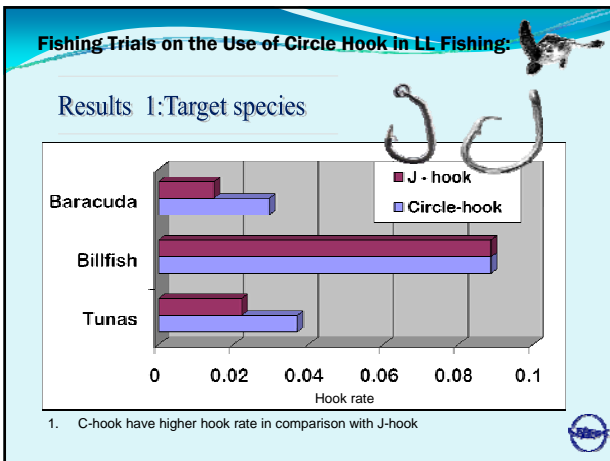




- ### Fishing Trials on the Use of Circle Hook in LL Fishing:
- #### Fishing Areas
- 1) Indian Ocean: Eastern Indian Ocean (Dec 05)
 - 2) Andaman Sea (Jan-Feb 2006)
 - 3) The South China Sea : Brunei Darussalam waters (June 06)
 - 4) Sulu Sea : The Philipines waters (Oct 2006)
-

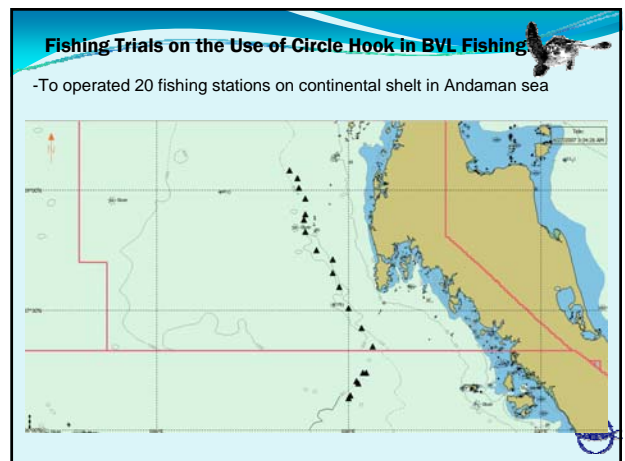
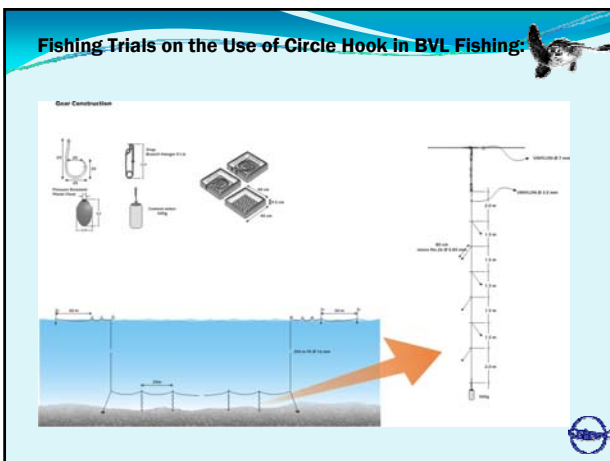
- ### Fishing Trials on the Use of Circle Hook in LL Fishing:
- #### Objectives
- 1) To investigate the efficiency of 18/0 10o offset circle hook in comparison with J-hook
 - 2) To investigate the hooking positions between two different types of hook
 - 3) To investigate the impact of LL on sea turtle mortality
-

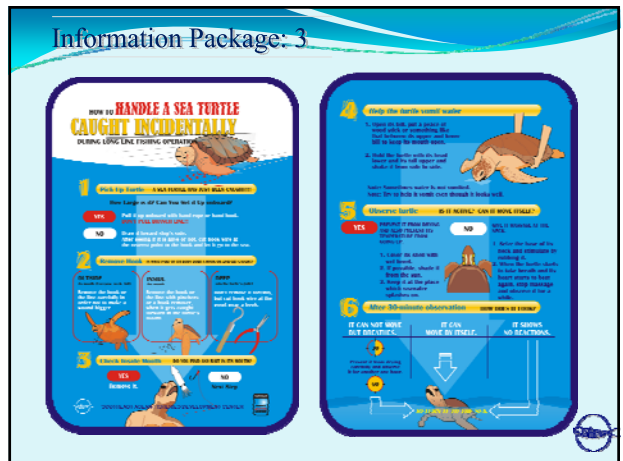
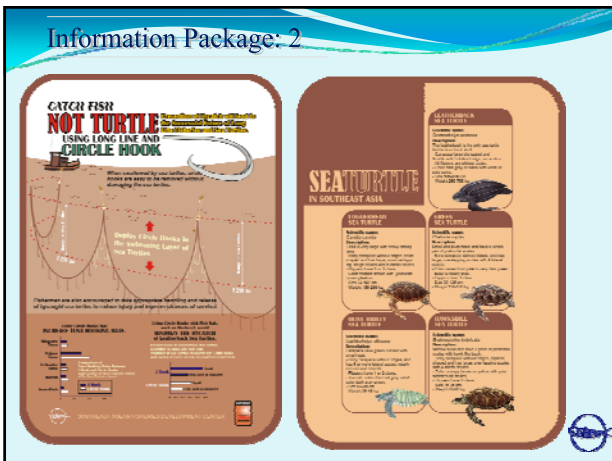
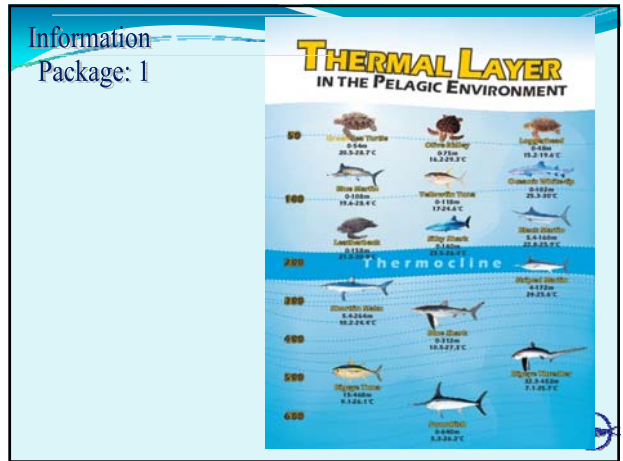




Solution to Reduce Sea Turtle Mortality

- ❖ Purse Seine :
 - ❖ Avoid encirclement of sea turtle to the extent practical
- ❖ FADs: Selected net materials
 - ❖ Avoid encirclement of sea turtle
 - ❖ by using small mesh size





Information Package: 4

The ENDANGERED SPECIES

Of all the species of marine turtles, the most are listed as Endangered or Critically Endangered, and the network is increasingly poor.

All seven species of marine turtles are listed on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), thus international trade is prohibited amongst the 180 CITES member nations. Three of them are classified as Critically Endangered on the IUCN Red List.

Many offspring, few survive. Many appear to have the potential to reproduce abundantly because they lay hundreds of eggs in one nesting season.

But even under "natural" conditions, relatively few young turtles survive their first year of life.

Predators such as sharks, birds, and humans kill the hatchlings as they make their way from the nest to the sea, and when they reach the shallow, beach areas small turtles are taken by fish. When humans harvest turtle eggs, chicks or dead and sick turtles, the adults become trapped and more heavily against young turtles.

DELADES TO DELAHS

It takes decades for surviving juveniles to reach maturity and start to breed, and adult turtles need five to reproduce over many years if the population is to thrive. But mortality remains on the high side, in the 90% and 100% of hatched eggs, and from pollution and disease. Most fish and marine birds are being fished enough to reproduce.

Guidelines for Longliner

To Reduce Sea Turtle Mortality

- Circle hook size 18/0 with minimum offset (0-10°)** which significantly reduce the rate of hook ingestion by sea turtle should be used instead of the traditional J hook to reduce sea turtle interaction in the pelagic longline fishing.
- De-hooker and line cutter device should be available** on longline fishing vessel. De-hooker and line cutter facilitate the quick and efficient release of hooked and entangled sea turtle, thereby increasing their chance of post release survival.
- The understanding and ability to comprehend each **step of procedure to handle the hooked sea turtle** which hauled aboard would help minimizing the mortality greatly.
- One or more of the following avoidance measures should be applied, taking into account the situation of sea turtle is found in fishing ground.
 - Avoid unintentional catches of sea turtles by **reducing the time their hooks are in the water during daylight hours**.
 - Use mackerel for bait rather than squid.

Which Gears affected Sea Turtle Mortality ?

Coastal Area :

- Coastal Trawl
- Gill net
- Bottom Longline

Offshore/ Deep Sea Area :

- Drift Gill Net
- Pelagic/ Tuna Longline
- Purse Seine with FADs

Solution to Reduce Sea Turtle Mortality

- ❖ **Coastal Trawl :** such as Shrimp Trawl
 - ❖ Promote the use of TEDs for Shrimp Trawl
- ❖ **Other Trawl Fisheries**
 - ❖ Collect data to identify sea turtle interaction

Solution to Reduce Sea Turtle Mortality

- ❖ **Purse Seine :**
 - ❖ Avoid encirclement of sea turtle to the extent practical
- ❖ **FADs: used net materials**
 - ❖ Avoid encirclement of sea turtle by using small mesh size

Solution to Reduce Sea Turtle Mortality

- ❖ **Longline :**
 - ❖ Use appropriate combination of hook design, type of bait, depth and other fishing practise
 - ❖ Retention and use of necessary equipment for appropriate release of Sea turtle

Solution to Reduce Sea Turtle Mortality

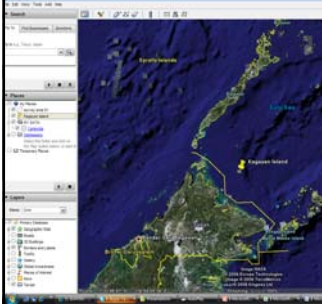


Gill Net :

- ❖ Refrain from fishing near turtle nesting beaches during turtle nesting season
- ❖ Carefully set the turtle free from the net, if necessary use clippers to cut the net





Sea-Turtle Interaction from Drift Gillnet

USAGE OF CIRCLE HOOK IN B.I.J. Fishery: Fishing Trails On its Efficacy GEARS AND METHODS




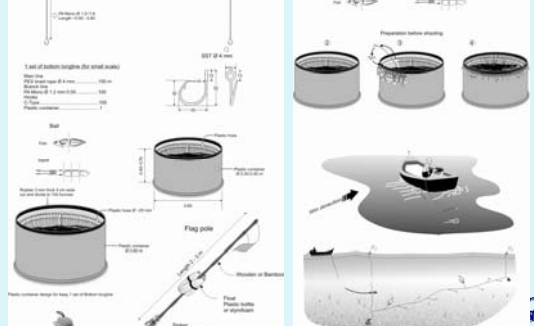

USAGE OF CIRCLE HOOK IN B.I.J. Fishery: Fishing Trails On its Efficacy GEARS AND METHODS




RESULTS USAGE OF CIRCLE HOOK IN B.I.J. Fishery: Fishing Trails On its Efficacy




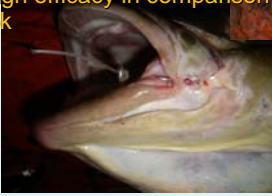


USAGE OF CIRCLE HOOK IN Small Scale Bottom Longline

USAGE OF CIRCLE HOOK IN Bottom Longline

Merit of Circle Hook

- ✓ Ease of operation
- ✓ Safety
- ✓ Low possibility of harvest losses
- ✓ High efficacy in comparison with traditional J-hook



This is the last Workshop for to promotion on C-hook in Bottom Longline which is planned to be implemented in November 2008 in Myanmar

THANK YOU FOR ATTENTION

By Somboon Siriraksophon



Annex III



Overview of Interacting of Fisheries with Marine Turtles and Conservation

MAUNG MAUNG LWIN
Research and Development Division
Department of Fisheries

Introduction

- 1963-DoF propagate and conserve marine turtles on Thameehla Island



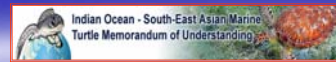
- 1986-87- hatchery established.



- 1999- member of (SEAFDEC) 1999.



- Myanmar - participate in trainings and workshops conducted by SEAFDEC.



2001 - IOSEA (MoU)

www.ioseaturtles.org



At present, Myanmar is being cooperating and collaborating with institution namely ASEAN-SEAFDEC, and IOSEA (MoU).

- Nesting of turtles -Andaman Sea, Gulf of Mottama (Gulf of Mottaban), Thameehla Island and Bay of Bengal.



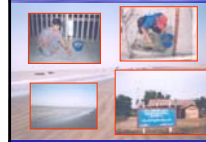
DOF signed - 35 nesting sites



Htaung Gyi Tan



Thameehla



Amott Gyi (Kwin Bank)



Long Lon Bok



Gayet Gyi



Kadongohy

- Among those, six are closely conserved by undertaking monitoring and surveillance of turtles landing sites, clutches and magnitude of hatchlings enable to return to the sea.

Distribution of Marine Turtles

Five species :
olive ridley, loggerhead, leatherback, hawksbill and green turtles.

loggerhead & leatherback are assumed almost extinct.

Objective

- To preserve and restore spawning, feeding and nesting habitats;
- To make nesting beaches acceptable to turtles by eliminating the adverse impact through law enforcement;
- To implement beaches cleaning program and prevent exploitation activities;
- To minimize waste and to prevent pollution of the marine environment, and
- To increase public awareness and participation in marine turtle conservation through extension and education activities.

Marine Turtles Conservation and Management

- Although Myanmar has many islands and sandy marine turtle banks,
- DoF conducting marine turtle hatching and hatchling releasing program .

- Nevertheless since the law enforcement is so strong that illegal collecting of eggs and fishing turtle along the coastal region is efficiently protected.

Hatching practice and hatchling releasing

(a) Hatching in their original natural nests (In-situ)

(b) Hatching in man-made nest after transferring the eggs from natural nests. (Transplanting)

Law, Regulation and Notification

- In the Fisheries Act (III – 1905), protection for the turtle hatching areas and turtles was included and who trespassing on those areas without official consent was effectively penalized.
- In 1924, the Government of Burma, Agriculture (Forest Department) Notification No.1 made an official announcement, not to trespass within 3 miles radius from the turtle hatching area.
- In 1990, Myanmar Marine Fisheries Law (DoF); no person shall search for and collect any marine products without a License (Article 40).
- In 1993, the Department of Fisheries issued the Notification No.2/93 for "Sea Turtle Conservation".
- The new protection of Wildlife, Wild plants and Conservation of Natural Areas Law replacing the old Myanmar Wildlife Protection Act of 1936 was enacted in 1994 (Forest Department).

Tagging and Tracking System Activities

Thameehla			Coco Island
Gayetgyi			Tin Pann (Oyster)
Kadongalay			Long Lon Bok
Amatt Gyi Beach			

Inconel Tagging Programme

- SEAFDEC-MFRDMD provided - Applicators and Inconel Tags in November 2001.
- Applicators and Inconel Tags MFRDMD were sent to Sea Turtle Conservation Centers
- Tagging
 - 323 green turtles,
 - 245 olive ridley turtles
 - 12 hawksbills turtles






Passive Integrated Transponders (PIT)

DoF received PIT Microchips and Scanner from SEAFDEC -MFRDMD (2003)



Thameehla Island- 25 green turtles





Platform Transmitter Terminals (PTTs)



In line with the Japanese Trust Fund IV PTTs was installed on olive ridley Turtle in Kadongalay Island on 1 January 2007

Signal of Platform Terminal Transmitter (PTTs) was lost at 94° 35' E 15° 25' N on 14 January 2007.



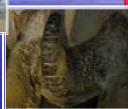

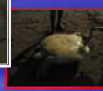

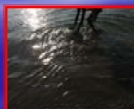

Tissue Sampling for Population Genetics

- In Coco Island and Thameehla Island 30 green turtle tissue samples each were obtained for DNA analysis.
- Also in Tin Pann (Oyster Island), Coco Island and Long Lon Bok Island Hawksbill turtle's tissues are still in collecting stage.

Fisheries interacting with Marine Turtles

- Incidentally caught
- Prohibited harmful Fishing Gears
- Fishermen-Learn to use a type of fishing gear
- Some villagers and Fishermen-release turtles back to the Sea

Licensed Offshore Fishing Gears in Myanmar by Fiscal Year

Fiscal Year	Fishing Gears					
	Trawl	Purse seine	Stowed Net	Drift Gill Net	Longline (Other)	Longline (Tuna)
2002-2003	984	76	Not available	1126	58	-
2003-2004	839	78	573	542	47	4
2004-2005	884	89	619	449	60	9
2005-2006	798	106	564	228	40	37
2006-2007	848	123	472	363	2	46
2007-2008	990	163	597	159	1	11

- Large-scale turtles mortality - incidental catch in fishing gears.



- To counteract these arguments quantitative information or observed captures on sea turtles and the rate of mortality of these individual offshore fishing operations is absolutely essential.



- In the interim, strict enforcement of Myanmar Marine Fisheries Law (1990), which prohibits any kind of mechanized fishing within five miles (in Rakhine) and 10 miles (in Ayeyarwaddy and Tanintharyi) of the shore along the coast, is needed.



- A blanket ban on near shore-mechanized fishing should be significantly reduced the turtle mortality. In Myanmar there is no intentional catching of marine turtles in the sea.

Fishing activities can be divided three types namely: -

- a. In-shore Fisheries
 - 5 nautical mile from shore (in Rakhine coastal)
 - 10 nautical mile from shore (in Ayeyarwady & Taninthayi)
 - No more 12 h.p engine & 30 Feet length of the boat.
- b. Off-shore fisheries
 - Outer area of inshore to end of EEZ
 - More than 12 H.P engine boat
- c. Small-scale fisheries
 - Along the shores for livelihood of local fishermen and their family

Offshore fisheries - trawls, gill nets, purse seines, stowed nets, longlines and traps

Inshore fisheries - purse seines, stowed nets, drift gill nets, trammel nets, hooks and traps

local fisheries - beach surrounding nets, drift gill nets, trammel nets, hooks and traps



- As there are cases of marine turtle being incidentally caught and injured during the fishing season there are cases of killing and consuming of marine turtles which come to take shelter because of adverse weather conditions.

- Eggs are also poached and consumed.

- In some areas the fishermen believe that killing and eating of turtle meat can have adverse effect on their income, consider unlucky and mishaps could befall them.

Public Awareness, Information gathering, Education and Training

- Public needs: Educated and informed for the conservation and protection of sea turtles.
- DOF - educating the fishermen and public living in the coastal areas on the conservation and protection of marine turtles by:-

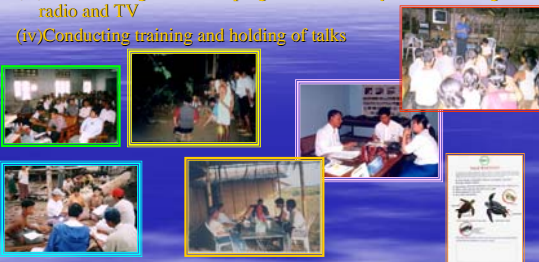
(i) Distributing pamphlets and posters

(ii) Erecting educational signboards at fish landing jetties and in the rural areas



(iii) Broad casting awareness programs both in Myanmar and English on radio and TV

(iv) Conducting training and holding of talks



- The DOF through its offices in State/Division/District Township level is distributing questionnaires and Tag Wanted posters to the fishing communities in order to receive the feed back..

- As preservation of sea turtles in Myanmar waters and their prosperity depend on the interest and the participation of the people, education program have been initiated targeting the fishery communities and the local people along the coastline.

The DOF is finding difficulties in getting the feed back

- (i) Inaccuracy of the feed back
- (ii) holding back what they knew (being afraid that action will be taken against them according to existing Laws and regulation)
- (iii) insufficient transportation and communication equipments
- (iv) the fishing vessel owners and the fishermen are placing their personal interests in the frontlines.

- The fishermen and their families living near the turtle conservation stations of DOF, on the other hand reported to DOF and released the turtles which are captured incidentally after treating them showing their cooperation with DOF .As an incentive to small scale fishermen who cooperate in marine turtle conservation and volunteer, the DOF has allowed them to fish without license.

- To lesson the death of marine turtles due to fishing activities the DOF has laid down the following guide lines:-

- (i) to cooperate with Forestry Department, Universities and Sciences under Higher Education Department, Myanma Fisheries Federation(MFF), local authorities and Non Governmental Organizations(NGOs) which participate in the conservation activities

- (ii) to promote the cooperation between fishing entrepreneurs, fishermen, local fishers regarding the marine turtle conservation

- (iii) to identify programs for cooperation with International and Regional agencies

- Although DOF is carrying out the marine turtle conservation through many difficulties it is also (with whatever source available) is protecting the decrease in population of marine turtles because of death and injury caused by the fishing activities.

- One of the main factors which causes decrease in population of marine turtles is the fishing activities in the sea and draw the awareness of the importance of marine turtles is to organize the people living in the coastal areas to cooperate in conservation activities, in order to know the population of the marine turtles.



- The use of TEDs alone will not be mitigating turtle mortality resulting from fisheries. Additional factors, which must be considered, are that in areas of high fishing intensity, turtles that are captured and released several times may die and turtles are also caught and drowned in fishing nets. Therefore strict enforcement of the existing law, prohibiting near shore-mechanized fishing seems to be the best short-term solution to reduce turtle mortality.

- DOF understanding the importance of marine turtles will continue to carry out the activities such as:-

- (i) organizing the concerned people to cooperate in the conservation activities

- (ii) collect data on population

- (iii) to get feed back from the different levels in the coastal areas

THANK YOU FOR YOUR KIND ATTENTION



OUR OLDEST CREATURE OF THE OCEANS

Annex IV



Sea Turtle Handing

Equipment for Animals not Boated

ARC Dehooker

LaForce Line Cutter

Biopsy Pole and Corer

Equipment for Animals Boated

Mouth Openers and Gags

Equipment for Animals Boated

Shaw

Flip Stick or "J"

Scotty's

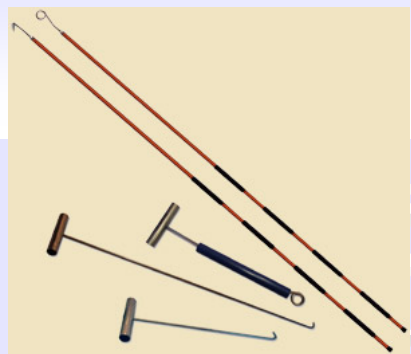
Bolt Cutters

Mono Cutters

ORA

Hook and Line Removers

Dehooker



Line Cutter



Annex V

FISHING GEAR CONSTRUCTION BOTTOM LONGLINE USING C-HOOK

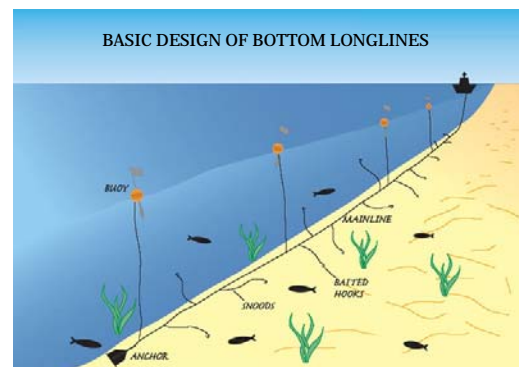
Nakaret Yasook

INTRODUCTION

- Hook gears have been used throughout history. They are cheap to purchase and use. They are also technologically simple, easy to mend and require little in the way of the equipment on board the vessels used for the fisheries. The gears may be set in areas with difficult bottom conditions, as are often found around coral reefs, in coastal rocky areas or in fresh water bodies where other gears cannot be used. For these reasons, longlines are commonly used in a number of artisanal fisheries from the tropics to the arctic. Longlines are also found to be economically advantageous in those fisheries targeting large and expensive fish species that are relatively thinly distributed, e.g. tuna and salmon.

THE BASIC DESIGN OF BOTTOM LONGLINES

- A Bottom longline consists of groundline (also called mainline) supplied with gangions (also called snoods) carrying baited hooks. The mainline is typically made of various synthetic materials typically of a diameter of 0.5–1 cm, while the snoods are thinner. The length of mainline and their spacing differ considerably depending on the fisheries. The buoyancy of the materials used is to dwell near the bottom.



- Hooks are manufactured in an extensive numbers of models and sizes. Overall one may distinguish between traditional J-shaped hooks and more modern circle shaped hooks introduced in the late 1970s



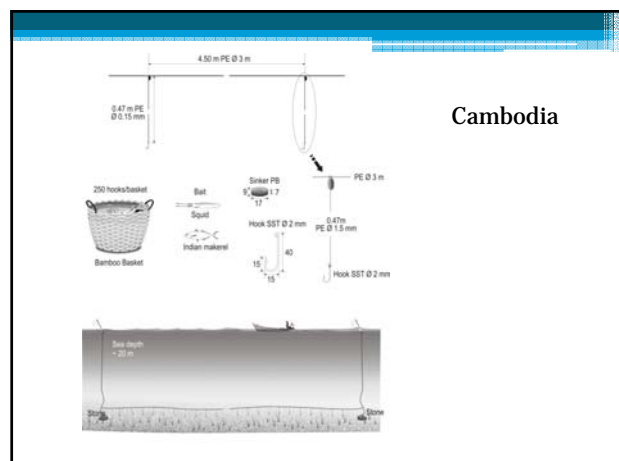
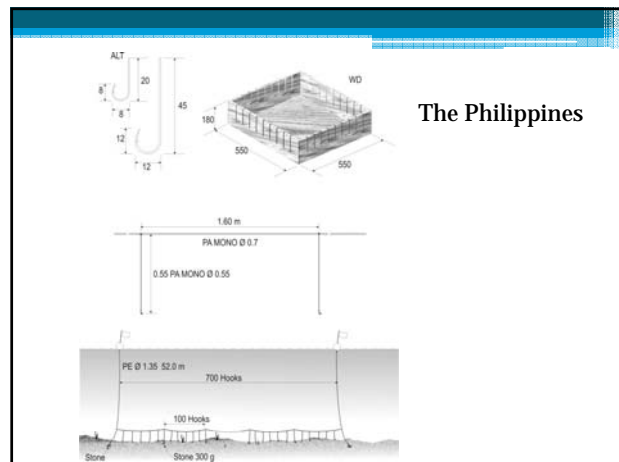
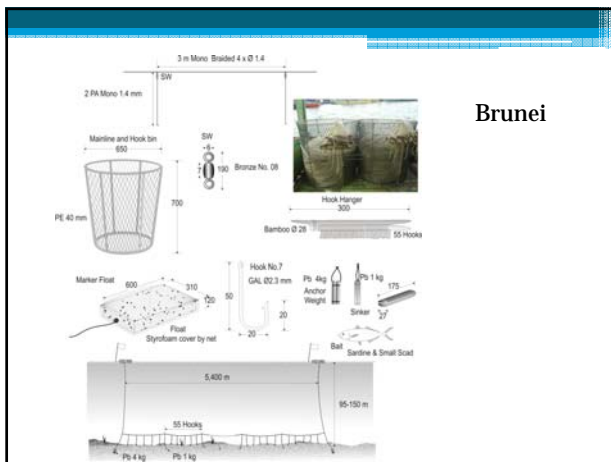
Shape of main hook types. A traditional J-shaped hook (left) and a circle-shaped hook (right).

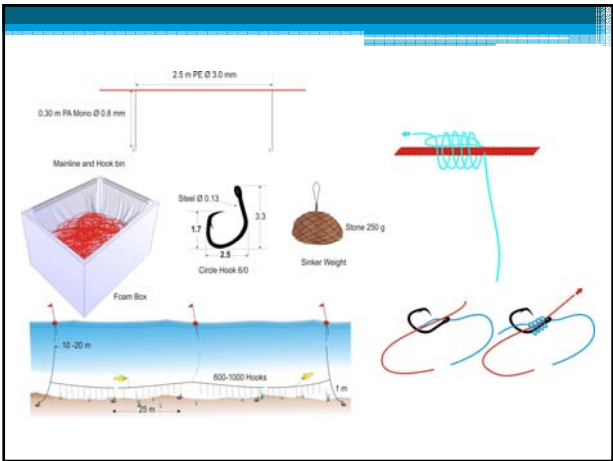
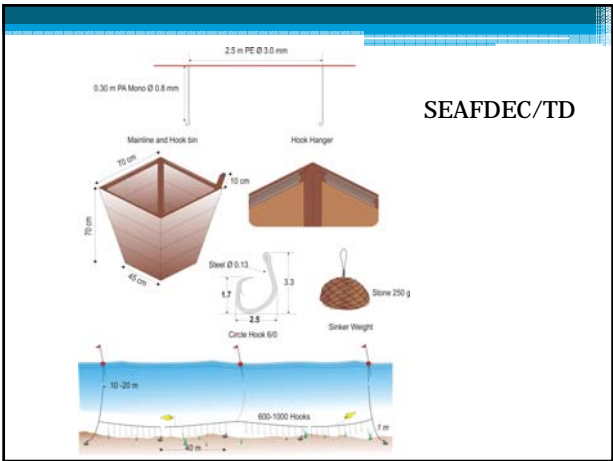
- The traditional 'J' shape hooks have in many fisheries been changed to types of 'circle' hooks. The circle hook has proven to be clearly superior to the traditional 'J' shaped hooks in a number of fisheries (Forster 1973, Skeide et al. 1986, Quinn et al. 1985).
- Bjordal (1989) infers that the higher fishing power of the circle hook designs are caused by both **a higher hooking efficiency and a lower level of escapement of hooked fish.**
- The higher hooking efficiency of circle hooks has been related to the pull exerted by a caught fish as being directly in the direction of the hook eye.

- Most fishermen consider bait probably the most important single factor for enhancing bottom longline catches and they often have good experience as to what kind of bait is particularly suited to their target fish.
- Comparisons of catch differences between bait types have shown that **squid and octopus are often superior to fish bait** (e.g. Martin and McCracken 1954, Hamley and Skud 1978, Bjordal 1983a). This may to some extent be attributed to the durability of these bait types at sea. This has been shown by underwater observations where squid and octopus are found to be less easily removed from the hook than fish (High 1980, He 1996). Lower bait loss of squid than of fish are also observed from retrieved longlines (Bjordal 1983, He 1996).
- The attractiveness of bait has been related to bait quality. For instance, pre-soaked bait, where attractants have been washed out, have shown a poorer catching performance than fresh bait (Løkkeborg and Johannessen 1992). Faeroes experiments using bait of different age and fat content have similarly shown the best catches to be the fresh bait with high fat content (J. Hjaltoostovu pers. comm.).

BOTTOM LONGLINE CONSTRUCTION

Some examples of bottom longline used in South East Asian Countries





THANK YOU