

REPORT OF THE SPECIAL MEETING ON SHARKS INFORMATION COLLECTION IN SOUTHEAST ASIA

Bangkok, Thailand
15-17 September 2011



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**Southeast Asian Fisheries Development Center
Training Department**

Preparation and distribution of this document

Report of the Special Meeting on Sharks information Collection in Southeast Asia was prepared based on the contribution of participants and discussion made at the Meeting among regional/national experts and country representatives during 15-17 September 2011 at Bangkok, Thailand. With an aim to update the information on shark fisheries in the region, this document is intended for SEAFDEC Department and Member Countries and concerned institutions.

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**REPORT OF THE SPECIAL MEETING ON
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I. Introduction

1. The Special Meeting on Sharks Information Collection in Southeast Asia was convened in Bangkok, Thailand, from 15 to 17 September 2011 to update the information on shark in the region. Compilation of meaningful regional information on shark production, utilization and management has been known as essential to the national fishery management planning, and to improvement of the national shark statistics. The Meeting was attended by authorities and shark experts from Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Philippine, Thailand, and Vietnam. The experts from Thailand's Department of Marine and Coastal Resources (DMCR), Bay of Bengal Large Marine Ecosystem (BOBLME) as well as SEAFDEC personnel from the Secretariat, Marine Fishery Resources Development and Management Department (MFRDMD), Training Department (TD), and members of the Regional Fisheries Policy Network. The list of participants appears as **Annex 1**.

1.1 Opening of the Meeting

2. In his opening remarks, the Deputy Secretary-General of SEAFDEC, Mr. Kenji Matsumoto, accentuated the urgent need for effective national and regional fisheries management measures to safeguard sharks. He shared with the Meeting the fact that as sharks have largely been caught by small-scale fisheries as by-catch, the larger number of fishers who are involved makes it somewhat difficult not only in the fishery management but also in gathering pertinent information to support scientific findings especially on the well-being of the shark stocks.

3. The Deputy Secretary-General also revealed a SEAFDEC plan to organize October 2011 Regional Technical Consultation (RTC) to discuss commercially-exploited aquatic species, and the technical proposition achieved at this Meeting would be used as an input. With such the anticipation, he urged the Meeting to actively discuss the matters that lead to a meaningful recommendation, and declared the Meeting opened. His opening statement appears as **Annex 2**.

1.2 Background and Agenda of the Meeting

4. Dr. Worawit Wanchana, Capture Fishery Technology Division Head of SEAFDEC TD summarized for the Meeting the shark research program under the Japanese Trust Fund. Under this program, SEAFDEC initiated in 2003 a regional study that covered the areas of 1) shark catch, local use and trade; 2) shark trade in Malaysia, Singapore, and Thailand; 3) species identification using dermal denticle technique; and 4) national plans of action for shark fisheries. The issues causing great concerns in Southeast Asian countries are largely environmental impacts on small-scale fisheries as well as shark by-catch by small-scale fisheries, and the increase in global trade of sharks. To ameliorate the situation, he urged the participants to share their national information on shark production, utilization, and management, which could serve as useful reference at the planned RTC as mentioned by the SEAFDEC Deputy Secretary-General.

II. SEAFDEC's Initiatives Related to Sharks

2.1 *Overview of Elasmobranch Fisheries in the Southeast Asian Region*

5. SEAFDEC Policy and Program Coordinator, Dr. Somboon Siriraksophon, presented to the Meeting an overview of elasmobranch fisheries in the Southeast Asian region (**Annex 3**). In his analysis, sharks comprised an insignificant by-catch by artisanal or small-scale fisheries, and ranked low among all commercial species landed. The reason for a great concern for sharks has recently stemmed from the sharp increase in shark capture fisheries owing to the expanding global trade of the lucrative shark fin commodity.

6. The paucity of information on the status of shark fisheries in Southeast Asia has been noted despite its recognition as the region blessed with the richest elasmobranch biodiversity in the world. The catch, landing, trade as well as biological and taxonomic data have yet to be compiled for any meaningful interpretation and utility. This shortcoming has made it difficult to carry out a shark stock assessment, the lack of such valuable information has made it impossible to plan and implement any worthwhile conservation or management measures. Sharks and other elasmobranchs have continued to feature the unregulated fisheries in the region as they are caught as by-catch by longline, gillnet, trawl, and purse seine fisheries, etc.

7. With the continuous support of the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks), all Southeast Asian countries have been encouraged to develop their National Plans of Action on Sharks (NPOA-Sharks). In this connection, the SEAFDEC program that aims to improve data collection of shark fisheries has been implemented, as a supporting activity, through field surveys and species identification assistance in its member countries.

2.2 *Fisheries Statistics of Sharks and Rays in Southeast Asia*

8. The progress of SEAFDEC's compilation of sharks and rays statistics in Southeast Asian region (**Annex 4**) was presented to the Meeting by Ms. Saivason Klinsukhon of SEAFDEC Secretariat. Starting in 2008, SEAFDEC has been working closely with its member countries in the compilation of sharks and rays fishery statistics by species. Although a new SEAFDEC Regional Framework for Fishery Statistics in Southeast Asia that covers sharks and rays statistics has been adopted, certain member countries have continued to experience difficulties in reporting their catch by species, or even by fishing areas.

9. The Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP), at its 13th Meeting in 2010, took it as a SEAFDEC priority activity to strengthen the national capacity of its member countries for shark fisheries data collection to the species level. As requested by the FCG/ASSP, a standard shark data collection format has been devised and shared by SEAFDEC with its member countries as a means for implementing the new Framework of Fisheries Statistics in Southeast Asia.

2.3 *SEAFDEC Research on Shark*

10. Research on sharks and rays (**Annex 5**) was presented to the Meeting by Mr. Ahmad Ali, senior researcher of SEAFDEC Marine Fisheries Research Development and Management (MFRDMD). According to Mr. Ahmad Ali, MFRDMD carried out during 1999-2011 the following pertinent activities on sharks and rays: 1) taxonomic data collection in Southeast Asian region; 2) biological research; 3) prominent habitats identification; 4) human resource

development for species identification; 5) conservation and management measures; 6) resource enhancement; 7) public awareness enhancement; and 8) shark species assessment. In this connection, the MFRDMD researcher reported that insufficient funding and a lack of proper coordination were found to hamper the progress of this endeavor.

III. Management of Data and Information on Sharks for Sustainable Utilization

3.1 International Discussions on the Conservation of Shark

11. Mr. Makato Yamauchi of the Fisheries Agency of Japan presented to the Meeting the progress on the international discussions on the conservation of sharks (**Annex 6**). He highlighted the argument and recommendations of the Working Group on Sharks under the Animals Committee of CITES at its 25th meeting in Geneva in July 2011. In accordance with a recommendation, all Parties will be invited to submit the list of shark species that require additional actions to enhance their current conservation and management. He stated that Japan strongly recommends for SEAFDEC member countries to participate in the 26th Meeting of the Animals Committee, which is scheduled in March 2012 to join the discussion on shark conservation to reflect their position. He also emphasized the importance of the data collection and analysis of shark's stock for appropriate fisheries management for their sustainable utilization, taking into account significant adverse impacts that can be possibly caused on the economy of the community of the Southeast Asian region in the case of inclusion of shark species in CITES Appendices.

3.2 Basic Information on Population Dynamics

12. The basic information on population dynamics (**Annex 7**) was presented by Dr. Kotaro Yokawa, Head of Tropical Tuna Resources Group of the National Research Institute of Far Sea Fisheries, Japan. He emphasized the purpose of population dynamics studies as a means to protect fish stocks and fisheries catching these stocks from collapsing, so that sustainable yield could be maintained. He listed the attributes of overfishing as: 1) decreasing average body size of fish; 2) greater composition of sexually immature fish in the catch; 3) reduction of sexual maturity age as a result of faster growth rate; 4) greater reliance of fisheries on the new recruits (0-1 year class); and 5) continued fishing despite the collapse in the catch. Owing to the difficulties in undertaking a population dynamics study, Dr. Yokawa suggested that the research should not be used as an exclusive measure to manage the fisheries.

IV. Sharks Production and Utilization in the ASEAN Countries

4.1 National Initiatives Related to Sharks and Rays: Cambodia

13. The status of shark information collection in Cambodia (**Annex 8**) was presented to the Meeting by Mr. Chann Sopheap, Deputy Chief of the Office of Fisheries Conservation, Fisheries Administration of Cambodia. At present, the information collected by Cambodia is recorded in 9 families of sharks and 6 families of rays. No records by species are made. According to Mr. Sopheap, sharks are traded and consumed locally larger sharks for human consumption as meat and fins, and smaller ones for animal feeds. Rays are largely exported to neighboring countries, but records of such the export have not been kept.

4.2 National Initiatives Related to Sharks and Rays: Indonesia

14. The shark information collection in Indonesia (**Annex 9**) was presented by Ms. Ria Faizah of Ministry of Marine Affairs and Fisheries, Indonesia. She reported that there are 134 major shark and ray species are recognized in Indonesia; and they are mainly caught by longline, gill net, and trawl. Indonesia published its NPOA-Sharks in 2010 with the funding support from the Australian Centre for International Agricultural Research (ACIAR) that also supports its publicity among all stakeholders. Training on shark data collection was conducted in 2011. According to Ms. Faizah, dearth of biological data on shark species exists in Indonesia despite the fact that the country has the world largest shark fishery and the richest biodiversity in the world. No stock assessment has ever been conducted by Indonesia; and landing statistics is inadequate as the landing information has not been reported by species.

4.3 National Initiatives Related to Sharks and Rays: Japan

15. The status of shark information collection in Japan (**Annex 10**) was presented to the Meeting by Dr. Kotaro Yokawa of Japan's National Research Institute of Far Seas Fisheries. He described the extensive collection of information on sharks. Auction records at wholesale markets, size sampling at landing sites and the information submitted by fishing vessels under the logbook system are collected for stock assessment and their monitoring for fisheries management. Information to the species (or genus) level has been collected for blue sharks, shortfin mako and salmon sharks since 1994 and also for thresher sharks and oceanic whitetip sharks since 1998. Once caught, all sharks are used exhaustively for domestic consumption and export meats and fins are processed into food products, skins into materials for leather products, and vertebrae into medicines or food supplements. In response to the adoption of the IPOA-Sharks, Japan adopted NPOA-Sharks in 2001, which was revised in 2009 to incorporate the relevant recommendations at meetings of RFMOs.

4.4 National Initiatives Related Rays: Lao PDR

16. Report on freshwater rays in Lao PDR (**Annex 11**) was presented by Mr. Dountavanh Sisombath of Lao PDR Department of Livestock and Fisheries. Two prominent species of riverine rays are known in Lao PDR: the papharai (*Dasyatis laoensis*) that could grow up to 20 kg, and the larger paphahang (*Himantura chaophraya*) at the recorded weight of 400-500 kg. Overfishing and habitat degradation were said to have contributed to a reduction of these freshwater rays' populations. No systematic collection of catch or biological data or information on these rays has been made, and no stock assessment of rays in Lao PDR has ever been carried out.

4.5 National Initiatives Related to Sharks and Rays: Malaysia

17. Mr. Ahmad bin Ali of Malaysia's Marine Fisheries Resource Development and Management Department presented to the Meeting the information on sharks and rays production and their utilization in Malaysia (**Annex 12**). There are 7 orders of sharks comprising of 62 species (18 families), 6 orders of rays comprising of 79 species (15 families) and one species of chimaera inhabiting Malaysian waters from freshwater to deepsea. He said trawl and deepwater trawl are the main fishing gear for elasmobranch in Malaysia. Once caught, sharks are sorted and finned at fish landing ports before distribution to local markets. All sharks and rays are consumed as food in Malaysia, except electric ray that is used for fishmeal. Apart from their valuable fins, shark meat is sold either fresh, salted, frozen or processed as fish balls; shark jaws are sold as souvenir, while shark heads are known as good

bait, and the skin of rays as leather materials. Under the Fisheries Act of 1985, the management and regulation of whale shark (*Rhincodon typus*) and all sawfishes (Family Pristidae) listed as endangered species under the Fisheries Regulation 1999 have come under the power of Agriculture Minister.

18. Malaysia NOPA-Sharks was crafted in 2005 under the guidelines provided by the FAO's IPOA-Sharks. The national plan of action was adopted and published in 2006. The challenges facing the NOPA-Sharks in Malaysia are insufficient information on their stocks, abundance, life history of most deepwater species and the present status of their stocks. Research on sharks and rays as being carried out by governmental, academic, and non-governmental institutions has been carried out under the wide variety of interests. They are largely suffering from a lack of funding. The conservation and management of freshwater sharks and rays has not been any better although they are endemic species and their demands have been on the rise. These shortcomings are cited as the main hurdles for effective sharks and rays management in Malaysia.

4.6 National Initiatives Related to Sharks and Rays: Myanmar

19. The present status of information on shark fishery in Myanmar (**Annex 13**) was presented to the Meeting by Mr. Aung Nyi, Myanmar's member of the Regional Fisheries Policy Network, based at the SEAFDEC Secretariat. Among the 60 known shark species reported to have occurred in Myanmar waters, only 36 species have been reported recently by various research works. These sharks and rays have been found in a wide array of habitats. They are largely caught as by-catch by longline, gillnet, trap, and bottom trawl. In their management, Myanmar has drafted the NPOA-Sharks since 2005, while the conservation and management of shark resources have been covered by the DOF Order No. 2/2004, issued under the current Marine Fisheries Law of Myanmar. Under the DOF Order, the marine protected area from the Ross Island (12°13'N, 98°05.2'E) to the Lampi Island (10°48.0'N, 98°16.1'E) is the off-limit to shark fishing. Myanmar has also made efforts to promote public awareness on the sharks and rays conservation.

4.7 National Initiatives Related to Sharks and Rays: Philippine

20. The collection of shark information in the Philippines (**Annex 14**) was presented to the Meeting by Mr. Joseph Christopher C. Rayos of the National Fisheries and Aquatic Resources of BFAR. Taxonomically, the Philippines' sharks and rays resources comprise 163 species of 3 chimaeras, 94 sharks, and 66 batoids. The domestic uses of sharks and rays are in the forms of fresh meat or processed products—fish balls or shark liver oil. In efforts to conserve and manage the sharks and rays resources, the Philippines has resorted to various legal measures: the Local Government Code of 1991 (RA 7160), the Philippines Fisheries Code of 1998 (RA 8550), FAO 193 series of 1998 that regulate the ban on taking, catching, selling, purchasing and possessing, transporting, and exporting of whale sharks and manta rays. Other relevant national regulations include the Wildlife Resources Conservation and Protection Act of 2001 (RA 9147). In addition, the Office of the President issued in 2010 the Administrative Order 282 (intensifying the protection of whale shark, popularly known as *butanding* in the Philippine waters) to further strengthen the existing legal measures.

21. The assessment of shark stocks has been carried out under the BFAR's National Stock Assessment Program since 1997. Landing records have been used in such the assessment. The Philippines published its NPOA-Sharks in 2009. Other conservation and management activities include necropsy analysis of stranded sharks, rapid assessment of mobula rays in

central Philippine, and intensified information campaigns (e.g. *butanding* festival in Donsol in central Philippine) to enhance awareness of stakeholders on the conservation and management of sharks and rays, and maintaining records of dead sharks and rays by burying them a fish cemetery with proper signage.

4.8 National Initiatives Related to Sharks and Rays: Thailand

22. Ms. Ratanawalee Phoonsawat of Thailand's Department of Fisheries presented to the meeting the status of shark information collection in Thailand (**Annex 15**). In an effort to strengthen the conservation and sustainable utilization of sharks, Thailand has published its NPOA-Sharks, based on the guidelines of the IPOA-Sharks. Data collection on shark fisheries has been carried out in three fishing areas: Samut Prakan and Songkhla provinces in the Gulf of Thailand, and Phuket province in the Andaman Sea. The expected outcome of this project is a solid and reliable set of data and information that can serve as a basic tool of the national policy on shark conservation and management.

23. According to the Department of Fisheries of Thailand, two new shark species (*Mustelus* sp. and *Orectolobus* sp.) have been added to the total shark records of 25 species in 10 families that have been found in the Thai waters. The catch, trade, and utility of sharks have not been well recorded in Thailand; no specific information on sharks has been segregated in the national fisheries statistics. Nonetheless, records on import and export of sharks as commodities have been kept by the Customs Department. Sharks and rays have been exhaustively used in Thailand: their meat is consumed domestically in fresh, dried, salted, or processed into fish balls. Dried shark fins are either exported or traded locally; shark head, skin, and viscera are processed as fishmeal, liver as shrimp feed, and teeth as decorative items.

4.9 National Initiatives Related to Sharks and Rays: Vietnam

24. The information on the state of shark resources in Vietnam, based on scientific surveys conducted from 2000 to 2004 (**Annex 16**) was presented to the Meeting by Mr. Dang Van Thi of Vietnam's Research Institute for Marine Fisheries. According to the survey, some 38 species of sharks and rays under 23 genera and 16 families have been found in the Vietnamese waters, largely in the southern region. No specific studies on sharks and rays have been conducted, and specific statistics on these species is not available. As a result, Vietnam has yet to develop a national policy, program, or activities in relation to sharks and rays.

4.10 Fishing Gear and Practices Targeting Sharks and Rays in the Southeast Asian Region

25. Fishing gear and fishing for sharks and rays in Southeast Asian waters (**Annex 17**) was presented to the Meeting by Mr. Isara Chanrachkij of SEAFDEC/TD. The presentation was based on a survey of small-scale fisheries that contributed to sea turtle mortalities in the Gulf of Thailand's eastern coast. The detailed information of the survey has been published for general consumption on the SEAFDEC website.

V. Improvement and Development of Sharks Data Collection

5.1 National Plans of Action Related to Sharks Fisheries

26. The summary on the improvement of shark fisheries information available in the NPOA-Sharks prepared by ASEAN countries (**Annex 18**) was presented by Mr. Isara Chanrachkij of SEAFDEC/TD. He reported the existence of NPOA-Sharks in Indonesia, Malaysia,

Philippines, and Thailand, while the remaining ASEAN members are still in the process of developing or finalizing it. As an exemplary document, Japan's NPOA-Sharks was cited as the document that has a provision for regular update based on new data/information from the following sources: 1) commercial catch data; 2) research data furnished by national research vessels, prefectural governments and other institutes; 3) specific scientific data obtained by onboard research; 4) catch landing data at ports; and 5) catch statistics of the national and prefectural governments.

27. The NPOA-Sharks of the ASEAN countries document the needs to improve the plans of action in the following areas: 1) research in fishery biology, physiology, and fishing grounds and habitats of sharks; 2) fishing effort and stock assessment that involve data compilation from various sources, e.g., catch landing, fishing boat enumeration, fishing technology, catch per unit effort (CPUE); 3) monitoring, collecting, and compiling information on shark utilization, trades, import and export statistics that shape the prospect of demands for sharks and rays; 4) effective methodologies in information collection at the national, regional and international levels to make it more reliable; and 5) sharing of information through the establishment of sharks network and database.

5.2 Relevant Initiatives of BOBLME on Improvement of Sharks Information Collection

28. Ms. Shahaama A. Sattar, the BOBLME's Sharks Working Group Coordinator, presented to the Meeting the result of the First Meeting of the Sharks Working Group of the BOBLME Project, held in Maldives in July 2011 (**Annex 19**). According to Ms Sattar, the Bay of Bengal is one of the most heavily fishing areas in the world for sharks, and India and Indonesia two countries bordering the Bay of Bengal have ranked in FAO statistics as top landing countries for sharks. Five other countries in the top 14 shark fishing nations are members of the BOBLME project. Considering the heavy reliance of millions of people around the Bay of Bengal on fisheries, including shark fisheries, for income and food security, it is apparent that appropriate management of the shark resources in the BOBLME is urgent.

VI. Plenary Discussion

6.1 Common data necessary for collection of shark data

29. Based on the information furnished to the Meeting, a summary of the resources by major species of sharks and rays found in the waters of Southeast Asia is given in Tables 1 to 8.

Table 1 Numbers of species of sharks and rays found in Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippine, Thailand, and Vietnam

Country	Sharks	Rays
Cambodia	19	22
Indonesia	110	Rays – 98, Chimaeras – 2
Lao PDR	0	2
Malaysia	62	Rays – 79, Chimaeras – 1
Myanmar	36	N/A
Philippine	94	Rays – 66, Chimaeras – 3
Thailand	60	60
Vietnam	38	N/A

Remark: in case of N/A, information should be referred to the "The Study on Shark Production, Utilization and Management in the Asean Region (2003-2004)" published in 2006 by the SEAFDEC Secretariat.

Table 2 Statistics³ of sharks and rays in 2009 in Indonesia, Malaysia, Philippine, and Thailand (unit: MT)

Country	Sharks	Rays
Indonesia	45,832	61,663
Malaysia	7,253	15,091
Philippine	2,635	2,591
Thailand	2,862	6,219

Table 3 Total marine fisheries production⁴ and sharing of sharks/rays production in Cambodia, Thailand, Lao PDR, Malaysia, Myanmar, Philippine, Thailand, and Vietnam

Country Name	Total Marine Fisheries Landing (MT)	% of Sharks	% of Rays
Cambodia	515,000	N/A	N/A
Indonesia	10,064,140	0.94	1.26
Lao PDR	105,000	N/A	N/A
Malaysia	1,303,226	0.50	1.10
Myanmar	3,491,103	N/A	N/A
Philippine	5,084,674	0.05	0.05
Thailand	3,137,672	0.20	0.50
Vietnam	4,782,400	N/A	N/A

Remark: in case of N/A, information should be referred to the “The Study on Shark Production, Utilization and Management in the Asean Region (2003-2004)” published in 2006 by the SEAFDEC Secretariat.

Table 4 Fishing gears for catching sharks/rays in Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Philippine, Thailand, and Vietnam

Country Name	Fishing Gear					
	Longline	Set Gillnet or Drift Gillnet	Trammel Net	Hook and Line	Trawl	Trap or Setnet
Cambodia	√	√	√		√	√
Indonesia	√	√	√	√	√	
Japan	√	√			√	√
Lao PDR				√		
Malaysia	√	√		√	√	√
Myanmar	√	√			√	√
Philippine	√	√			√	
Thailand	√	√			√	
Vietnam	√	√			√	

³ SEAFDEC. 2009

⁴ SEAFDEC. 2009

Table 5 Utilization of sharks and rays in Cambodia (C), Indonesia (I), LAO PDR (L), Malaysia (M), Myanmar (MM), Philippine (P), Thailand (T), and Vietnam (V).

Usage	C	I	L	M	MM	P	T	V
Dried shark meat	√	√	-	√	√	√	√	√
Dried ray meat	√	√	-	√	N/A	N/A	√	N/A
Fresh shark meat	√	√	-	√	√	√	√	√
Fresh ray meat	√	√	√	√	N/A	√	√	N/A
Frozen shark meat	-	N/A	-	√	N/A	-	√	-
Salted and frozen shark meat	-	N/A	-	√	N/A	-	N/A	-
Salted and dried shark meat	-	√	-	√	N/A	√	√	-
Salted and dried ray meat	√	√	-	√	N/A	-	√	-
Dried shark fin	√	√	-	√	√	√	√	√
Dried ray fin	√	√	-	√	√	√	N/A	N/A
Fresh shark fin	√	√	-	√	√	N/A	√	√
Fresh ray fin	√	√	-	√	√	N/A	N/A	N/A
Jaws or rostrum of saw fishes (Handicraft)	-	√	-	√	√	√	√	√
Shark liver oil	-	√	-	-	-	√	-	√
Shark or ray cartilage	-	√	-	√	-	√	√	√
Dried ray tail	-	√	-	-	-	-	-	-
Shark's teeth Handicraft (curio)	-	√	-	√	-	√	√	√
Shark or ray skin (leather and other products)	-	√	-	√	N/A	√	√	√
Head, skin, gill arches, stomach processed into fish meal, feed for fish in aquaculture, fish bait and others products	-	√	-	√	√	√	√	√
Recreational (shark feeding, diving with sharks/rays, whale shark watching)	-	√	-	√	√	√	√	-
Live trade (aquarium)	-	N/A	-	√	√	√	√	N/A
Tools, weapons (skins, ray tail, rostrum of sawfishes)	-	-	-	-	√	-	-	-

Remark: in case of N/A, information should be referred to the “The Study on Shark Production, Utilization and Management in the Asean Region (2003-2004)” published in 2006 by the SEAFDEC Secretariat.

Table 6. Market prices of sharks and rays in Cambodia, Indonesia, Malaysia, Philippine, Thailand, Myanmar, LAO PDR and Vietnam (prices /kg or per pack)

Country	Sharks meat	Sharks fin	Rays meat	Fish meal
Cambodia	2 USD		4 USD	1 USD
Indonesia	N/A	200,000 to 1,250,000 Rp	N/A	N/A
Malaysia	Fresh: 2 to 3 USD Dried/Salted: 2 USD/pack	30 to 50 USD	Fresh meat: 2 to 3 USD Dried meat (2 USD/pack) Dried fin: more than 100 USD	N/A
Philippine	(domestic: dried or fresh) 2 to 5 USD (export, depend on the species) 3 to 70 USD	N/A	(Only <i>Mobula</i> spp.) 2 to 3 USD	N/A
Thailand	N/A	17 to 500 USD	N/A	N/A
Myanmar	N/A	N/A	N/A	N/A
LAO PDR	-	-	N/A	-
Vietnam	N/A	N/A	N/A	N/A

Remark:

- In Cambodia, sharks/rays are utilized only for domestic consumption.
- In Japan, sharks/rays are utilized for domestic and export.
- Indonesia stops exporting shark fins beginning 2010. All fins are used for local consumption.
- In case of N/A, information should be referred to the "The Study on Shark Production, Utilization and Management in the Asean Region (2003-2004)" published in 2006 by the SEAFDEC Secretariat.

Table 7 National policy related to conservation and management of sharks/rays in the Southeast Asian region

Country	National policy/activity related to conservation and management of sharks and rays
Cambodia	-Study on species composition and habitat proposed -Whale shark declared as an endangered species in 2011
Indonesia	-NPOA-Sharks published in 2010 -Traning program for shark species data collection carried out
Japan	-NPOA-Sharks developed in 2001 and revised in 2009 -Entry into fisheries is limited by licensing system
Lao PDR	-Wildlife and Aquatic Animal Act. 2008 -Fisheries Laws 2009
Malaysia	-Published NPOA- Sharks in 2006 -Enhancing sharks and rays resources using big sizes artificial reefs -Enforcing Fisheries Act. 1985 -Promoting catch and release activities among recreational anglers -Listing whale shark and all Pristidae under Fisheries Regulation 1999 (control of endangered fish species)

Country	National policy/activity related to conservation and management of sharks and rays
	<ul style="list-style-type: none"> -Banning of drift net targeting for big size sharks and rays -Conduct training for enumerators in elasmobranch identification and taxonomy -Public awareness campaign on sharks and rays -Established zoning system -Established Marine Protected Area -Published book in national language on sharks -Enforcing International Trade in Endangered Species Act 2008 (Act 686)
Myanmar	<ul style="list-style-type: none"> -Wildlife Protection Law enforced -Signatory of Myanmar to the CITES -NPOA-Sharks developed -Restriction of fishing for shark species in marine protected areas
Philippine	<ul style="list-style-type: none"> -Total banned on taking or catching, selling, purchasing and possessing, transporting and exporting whale sharks and manta rays (FAO 193) -Intensifying the protection of whale shark (<i>Butanding</i>) AO 282 -NPOA-Sharks published in 2009 -Local Government Code of 1991 (RA 7160) -Philippine Fisheries Code of 1998 (RA8500) -Prohibition of taking or catching of any species dependent on CITES listings -Wildlife Resource Conservation and Protection Act of 2011 (RA9147)
Thailand	<ul style="list-style-type: none"> -Prohibiting trawlers and push netters within 3,000 m from shoreline and within 400 m from stationary gear -Fisheries Act of 1947 -New entry of trawlers limited -Banning of push netters -Declaration of conservation on area in Gulf of Thailand about 26,000 m² during spawning and breeding seasons -Wildlife Resource Conservation and Protection Act of 1992
Vietnam	<ul style="list-style-type: none"> -NPOA-Sharks -Prohibiting catching of whale shark -Marine National Park – 22 -Fish sanctuaries – 51

Table 8 Key issues/concerned related to conservation and management of sharks/rays in some countries of the Southeast Asian region

Country	Key issues and concerned related to conservation and management of sharks and rays
Cambodia	<ul style="list-style-type: none"> -Insufficient data on species composition of shark -Lack of understanding on biology and species of sharks and rays -Lack of understanding of local people on impact of climate change
Indonesia	<ul style="list-style-type: none"> -Insufficient catch and species composition data -Inadequate fisheries catch data (most fisheries do not report shark landings by species) -Insufficient knowledge on species identification -Dearth of information on biological data or size composition of species landed
Lao PDR	<ul style="list-style-type: none"> -Insufficient catch and species composition data -Inadequate research on biology and breeding of fresh-water rays

Country	Key Issues and Concerned Related to conservation and management of sharks and rays
Malaysia	<ul style="list-style-type: none"> -Insufficient information on stock structure, abundance, life history and reproductive rate of most deep water species of sharks and rays -Inadequate data on landings by species under the present data collection -Inadequate investments in research and management of sharks and rays -Inadequate information on freshwater sharks and rays -Very limited coordination on sharks and rays research among research institutions -Difficulty in managing elasmobranchs separately from 98% bony fishes -Inadequate funding and man power to enforced laws and regulations -Lack of taxonomist in elasmobranch
Myanmar	<ul style="list-style-type: none"> -Less of public awareness in the conservation of marine resources including sharks and rays -Inadequate data on sharks and rays landings -Very limited publication on taxonomy and identification of shark species -Insufficient activities to address management related issues on sharks species -Less information on sharks and rays species in catch, utilization and trade
Philippine	<ul style="list-style-type: none"> -Insufficient information on stock status of sharks and rays
Thailand	<ul style="list-style-type: none"> -Insufficient information on stock structure, abundance, life history and reproductive rate of most deep water species of sharks and rays -Inadequate investments in research and management of sharks and rays
Vietnam	<ul style="list-style-type: none"> -Catch rates by bottom trawl surveys insignificant -No specific study on sharks and rays -No statistics data on sharks and rays -No fisheries specific for sharks -No national policy, program and activity related to sharks

6.2 Identification of gaps in shark information collection

30. The identified shortcomings in information collection for sharks and rays in the region are: catch data (identification of species, species composition, average size, time-series data); fishing data (fishing gear and practices, design and construction, number of fishing vessels, fishing season and area, fishing efforts, fishing logbook with onboard observer program); and biological and ecological data (stock structure/status, habitat, spawning area, size at first sexual maturity). Such shortcomings have constrained countries in the region from undertaking stock assessment on sharks and rays. See Table 9.

Table 9 Current status of stock assessment for sharks and rays in the SEAFDEC Member Countries⁵

Cambodia	Indonesia	Japan	Lao PDR	Malaysia	Myanmar	Philippines	Thailand	Vietnam
Stock assessment not conducted yet	Stock assessment not conducted due to insufficient data and information	Participation in the stock analysis and assessment activities of pelagic sharks in tuna RFMOs	Stock assessment not conducted yet	Stock assessment not conducted yet	Stock assessment not conducted yet	Limited studies dedicated on the population research for sharks and rays	No stock assessment due to inadequate data	Stock assessment not conducted yet

⁵ Excluding Singapore

Cambodia	Indonesia	Japan	Lao PDR	Malaysia	Myanmar	Philippines	Thailand	Vietnam
		Conduct of full stock assessment for North Pacific Blue and Mako sharks		Only collecting landings data by group 'sharks' and 'rays'		The National Fisheries Observer Program (on-board assessment)		
						National Stock Assessment Program (collecting data from strategic landing sites)		

6.3 Identification of national needs for improvement of collection of shark information

31. The areas where improvement could be made for better collection of information on sharks and rays in the region are given in Table 10.

Table 10 Proposed activities to support national information collection of major species of sharks and rays found in some countries of the Southeast Asian region

Country	Proposed Activities
Cambodia	<ul style="list-style-type: none"> ○ No information
Indonesia	<ul style="list-style-type: none"> ○ Training on shark species identification for enumerators. ○ Development of NPOA-Sharks guidelines for stakeholders to implementation of NPOA-Sharks. ○ Standardization of format for data collection and evaluation of capture and utilization of sharks in fish landings and ports. ○ Implementation of logbooks for observer program. ○ Further research of shark fisheries.
Myanmar	<ul style="list-style-type: none"> ○ Development of NPOA-shark to support ASEAN common position on shark fisheries ○ Increasing public awareness about the conservation of marine resource, including sharks and rays.
Malaysia	<ul style="list-style-type: none"> ○ Review the 2006 NPOA-Sharks ○ Conduct regular training on elasmobranch biology and taxonomy for enumerators ○ Identify several landing sites as pilot project to collect and report catch data by species ○ Initiate repository for elasmobranch at Fisheries Research Institute, at Kg. Acheh, in Perak. ○ Improve of data recording at species level in fisheries statistic for implementation at national level ○ Raising awareness among decision makers and public through awareness campaigns which involve fishery managers and other decision makers, schools and university students, relevant NGOs, fishers and the public through mass media, museums and aquaria. ○ Publish books and pamphlets on sharks and rays in local languages ○ Improve effective communications between scientist and managers through series of consultations ○ Educate stakeholders on the vulnerability of some sharks and rays species to fisheries and the need for special conservation and management measurers
Japan	<ul style="list-style-type: none"> ○ Improvement of organization and system in Japan in terms of research, administration and other areas for management of shark stocks.

Country	Proposed Activities
Japan	<ul style="list-style-type: none"> ○ Accumulation and making fully available long-term catch statistical data for highly accurate stock assessment. ○ Giving allowance for errors in species identification when collecting catch statistical data from fishing vessels considering the huge number of shark species. ○ Strengthen/establish cooperation among concerned countries of the region on stock assessment of oceanic sharks.
Loa PDR	<ul style="list-style-type: none"> ○ Develop and implement NPOA-Rays. ○ Improvement of data collection and evaluation of capture and utilization of rays. ○ Conduct of further research on freshwater rays.
Philippine	<ul style="list-style-type: none"> ○ No information
Thailand	<ul style="list-style-type: none"> ○ Collaboration among member countries for data collection of species under CITES. ○ Development of applicable methodology for species identification of dried shark fins. ○ Identification of needs for improvement of sharks information collection.
Vietnam	<ul style="list-style-type: none"> ○ Set up sampling program for fisheries data collection including sharks in major landing sites ○ Conduct training on shark identification. ○ Conduct training on stock assessment. ○ National policy must be developed, issues, and implemented.

VII. Recommendations for future activities to support improvement of information collection on sharks in ASEAN countries

32. The issues and concerns, identified at the Meeting, that have deterred the national efforts of many Southeast Asian countries and SEAFDEC in improving the data and information collection for sharks and rays are summarized as follows:

- 1) Very high biodiversity of marine fish species, including sharks and rays, in the waters of the region;
- 2) Sharks and rays are not the target species of many fisheries (except sting rays that are targeted by bottom longline);
- 3) Reliable information on sharks and rays stock does not normally exist;
- 4) Dearth of information on stock structure, abundance, life history, and reproductive capacity of major marine and freshwater shark and ray species;
- 5) Sharks and rays statistics does not treat sharks and rays as a separate statistical group; and their catch is often recorded without reference to their fishing grounds inside or outside the EEZs;
- 6) Difficulties in sorting out the catch to species level as adequate taxonomic information is yet to be made available, especially for look-alike species;
- 7) Habitat status of sharks and rays has largely been a subject that attract little attention;
- 8) As a consequence, national policies, programs and support to effective management of sharks and rays are generally lacking;
- 9) Major stakeholders have continued to ignore the importance of information sharing, the matter necessary for an effective management of sharks and rays fisheries;

- 10) Gear technology and practices have continued to attract little attention of the stakeholders, especially their role in improving management measures of sharks and rays fisheries;
- 11) Policy/financial support and collaboration in research and management of sharks and rays are generally lacking;
- 12) No clear priority has been given to human resource development, especially for studying sharks and rays.

33. The recommendations as resolved at the Meeting for the improvement of sharks and rays information collection in the ASEAN countries are as follows:

Governance

- 1) Immediate stock assessment actions should be taken to ensure sustainable exploitation and management of sharks and rays; pragmatic indicator(s) such as changing in fish size, CPUEs, length at first sexual maturity, etc. should be employed, especially in the analysis of the existing data;
- 2) The national framework for improving the national fishery statistics should be taken as a longer term program; the logbook system and/or observer program may be used to support the stock assessment wherever possible;
- 3) Standard formats should be used by all concerning agencies for collection and analysis of the catch data, including sharks and rays;
- 4) An information exchange system should be established to facilitate integration of taxonomic information among SEAFDEC member countries under the SEAFDEC/MFRDMD data collection program framework;
- 5) Routine sampling program at landing ports/sites should be developed or improved to collect meaningful catch and biological data, particularly of sharks and rays;
- 6) The NPOA-Sharks and Rays should be formulated as soon as possible; and for countries with the Plans of Action, implementation of such the NPOAs should be strengthened;
- 7) To render listing of shark species in CITES Appendices redundant, the national shark management plans of SEAFDEC member countries should be harmonized;
- 8) The national database system for fisheries with landing, export and import data should be developed/improved.

Capacity Building and R&D Programs

- 1) Data collection should be treated separately from species identification in the data collection of major shark and ray species;
- 2) Assessment of dominant sharks and rays stocks should employ appropriate models/methodologies;
- 3) Genetic studies and other applicable methodology should be developed to identify shark species of their fins that have been dried or landed;
- 4) Reduction of by-catch of sharks and rays as well as other endangered species should be made achievable through effective fisheries management tool and fishing techniques;

- 5) Collaborative studies on the distribution and abundance of oceanic and freshwater shark/ray populations should be conducted;
- 6) Collaboration among SEAFDEC member countries should be strengthened to improve data collection and assessment of shared stocks at sub-regional or regional areas;
- 7) Modification of fishing gears should be promoted as a means to address fish exploitation and as reference for formulating fisheries management measures;
- 8) Historical data should be used in stock assessment and in formulation of management measures;
- 9) Guidelines for sharks and rays species identification should be developed through harmonizing information available in all SEAFDEC member countries;
- 10) Methods or existing formulae for estimating sharks body weight from the fin data should be identified or developed;
- 11) Catch data for fishing ground within the national jurisdiction (territories waters and EEZs) and outside should be segregated in the national fishery database system.

Socio-Economic Aspects

- 1) Advantages and disadvantages of recreational fisheries and eco-tourism activities as well as international trades of sharks and rays should be investigated, taking into consideration the socio-economic well-being of concerned communities and of the sharks and rays stocks;
- 2) Potential of certain species of sharks and rays as aquarium/ornamental fishes (through breeding in captivity) should be evaluated;
- 3) Awareness of regional and global stakeholders should be enhanced to appreciate the efforts made for the improvement of sharks and rays data and information collection as well as other measures undertaken to ensure the sustainable management of elasmobranchs in the region.

VIII. Conclusion and Closing of the Meeting

34. The Meeting resolved that in order to improve the collection of reliable information and data on sharks and rays in the region, actions to mitigate shortcoming in more areas should be recommended to SEAFDEC by its member countries. These recommendations would be useful for the promotion of relevant SEAFDEC activities pertinent to collection of reliable information and data on sharks and rays in the region.

35. In conclusion, the SEAFDEC Secretary-General, Dr. Chumnarn Pongsri, delivered his closing speech, during which he thanked all the participants for their articulation on the subject matters and for sharing and exchanging experiences in the collection and compilation of sharks and rays information as well as the utilization of the catch. He said he considered their contributions extremely useful especially for the upcoming RTC that would address technical issues related to the selected commercially-exploited aquatic species and its discussion on sharks and rays data collection in the region. With that note, the Secretary-General declared the Meeting closed. His closing statement appears as **Annex 20**.

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OPENING STATEMENT

Mr. Kenji Matsumoto
SEAFDEC Deputy Secretary-General

Special Meeting on Sharks Information Collection in Southeast Asia
15-17 September 2011
Bangkok, Thailand

Distinguished Resource Persons and Participants,
Representatives from SEAFDEC Member Countries,
Observers, SEAFDEC Staff,
Ladies and Gentlemen, Good Morning.

On behalf of SEAFDEC, it is indeed a great pleasure for me to welcome all of you to this three-day Special Meeting on Sharks Information Collection in Southeast Asia. During this meeting, we will endeavor to update the data and information on sharks and their management for sustainable utilization as well as to improve the collection system.

As all of you may already know, SEAFDEC initiated a “*regional ad-hoc study on sharks*” in 2003 with the financial support from Japanese Trust Fund Program on Environmental-related Tasks in the Southeast Asian Region. Such regional study confirmed that shark catches in ASEAN region are mostly from small-scale fisheries and serve as source of supplementary “cash” for the fishers. Small-scale fishers make their living from sharks and it could be noted that they do not even have to practice “shark finning” since every part of sharks are valuable and fully utilized. We are also all aware that in order to promote the sustainable of shark utilization in the region, statistics and information collection should be systematically and harmoniously developed. However, the present situation is far away from the envisaged information management not only in terms of administrative matters but most especially on the technical aspects of collecting the necessary information.

Ladies and Gentlemen, several commercially-exploited aquatic species have already been listed or proposed to be listed in the CITES Appendices including sharks which will be potentially discussed at the forthcoming CITES COP-16 in 2013. ASEAN and SEAFDEC have been considering the issues seriously since most of the commercially-exploited aquatic species are important and have close relationship with the traditional practices of fishers particularly in small-scale fisheries. Considering the insufficient data on sharks and the inadequate scientific evidence in many countries of our region, it is too early to consider these aquatic species to be listed in the CITES Appendices since such measures would directly or indirectly affect the trade and livelihoods of the small-scale fishers.

Furthermore, please be informed that SEAFDEC plans to organize a follow-up Regional Technical Consultation on the Improvement of Technical Issues Related to CITES and Commercially-Exploited Aquatic Species sometime in October. The Consultation would aim to identify the technical problems on selected commercially-

exploited aquatic species related to CITES issues for further policy suggestions and recommendations. Therefore, the results from this meeting will be very useful as important inputs during the discussions on CITES related issues at the forthcoming Consultation in October.

Finally, I would also like to take this opportunity to request all of you especially our resource persons to share your valuable ideas and experiences to enhance the overall outcome of this Meeting. Ladies and Gentlemen, welcome once again to this Special Meeting, and I now declare the Meeting open. Thank you and have a very good day.