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ELASMOBRANCH RESOURCES, UTILIZATION, TRADE AND MANAGEMENT IN MALAYSIA



by

**Ahmad Ali
Abdul Haris Hilmi
Albert Chuan Gambang
Ahemad Sade
Solahuddin A. Razak**



**Marine Fishery Resources Development and Management Department
Southeast Asian Fisheries Development Center**

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Marine Fishery Resources Development and Management Department

Southeast Asian Fisheries Development Center

Taman Perikanan Chendering

21080 Kuala Terengganu

MALAYSIA

Tel: (609)616 3150 Fax: (609) 617 5136

E-mail: seafdec@mfrdmd.org.my

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Cover page: Fishermen looking at stranded whale shark during low tide at Setiu beach in Terengganu. Whale shark is a protected animal under Fisheries Regulation 1985 (Control of Endangered Species, 1999)

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Malaysia
Nov 2004

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Preface

The study on elasmobranch resources, utilization, trade and management in Malaysia was undertaken based on the recommendation made during the ASEAN-SEAFDEC Regional Technical Consultation (RTC) on Shark Fisheries held in Vientiane, Lao PDR, from 26-28 May 2003.

Information regarding the sharks and rays (elasmobranch) in Malaysia is still scanty and inadequate. There are very few studies and publications dealing with elasmobranch fishes in Malaysia. Cantor (1849), published a catalogue of Malaysian fishes which described only 292 species and there are 28 species of sharks and rays. Scott (1959), described 294 marine fishes out of which only 25 are sharks and rays. Mohammed Shaari (1971), identified 6 species of sharks and rays in the trawl catches of Penang water. Mohsin and Ambak (1996), wrote *Marine Fishes and Fisheries of Malaysia and Neighbouring Countries* and provide a taxonomic key to 40 species from 19 families of sharks and rays. Mansor et al., (1998) produced a field guide on commercial marine fishes of the South China Sea area and described 8 species of sharks and 8 species of rays. Ahmad, et al., (1998) reported about 89 species of elasmobranchs are reported to inhabit within Economic Exclusive Zone of Malaysia, comprising 48 species of sharks from 12 families and 41 species of rays from 11 families. Manjaji, (1997), recorded 32 species of sharks and 41 species of rays during the 18 months elasmobranchs biodiversity project in 1997 Sabah. The highest number of elasmobranch was recorded during the research conducted by SEAFDEC/MFRDMD from 1999-2004. The study recorded 54 species of shark, 53 species of ray and 2 species of Chimaera, of which 29 of them are new records for Malaysia.

Regarding the utilization of elasmobranch and its products in Malaysia, almost all sharks and rays species are accepted as table food except a few species of ray from family Narcinidae. Sharks and rays are mostly marketed as fresh meat, although some are sold as salted fish. A small number of shark's jaws, and even teeth, are sold as rare souvenir items to enthusiasts. Discarded parts of the elasmobranch such as head are used as bait for fish and crab traps. Small sharks, as well as those that are non-edible or unsuitable for bait are released back to the sea or sold to fish mill factories for fertilizers.

This publication was the outcome of the project on Data Collection and Biological Study of Sharks for Fisheries Management in Malaysia which was conducted from July 2003-August 2004. The project was jointly sponsored by SEAFDEC under Japanese Trust Fund (Environment Related Task in the Region) and the Department of Fisheries Malaysia.

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We are also grateful to the State Directors of Fisheries in Terengganu, Kelantan, Perak, Pahang, Sarawak and Sabah and their staff for their helps rendered in various aspects of this study. Those that helped us directly or indirectly are Mr. Haji Suhaili bin Haji Lee, Director of Marine Fisheries Sarawak; Mr. Haji Razali bin Lajis, Director of Fisheries Terengganu; Mr. Hussin bin Abdul Rahman, Director of Fisheries Kelantan; Mr. Nik Wahab bin Md. Diah, Director of Fisheries Perak; Mr. Mohd. Najib bin Ramli, Director of Fisheries Pulau Pinang; Mr. Rayner bin Datuk Stuel Galid, Director of Fisheries Sabah and Mr. Haji Mohamad bin Mat Saman Director of Fisheries Pahang who gave continuous assistance and encouragement throughout the project.

Many other individuals also helped on this project. They include fisheries officer, assistant research officers, research assistants and fisheries assistant from Department of Fisheries, SEAFDEC/MFRDMD, Fisheries Research Institute, in Penang, Bintawa and Fisheries Reserch Center in Likas, Sabah. The landing data of sharks were collected by enumerators namely; Ms. Maimunah Sulong (Kuantan), Mr. Mohd Ali Hashim (Hutan Melintang), Mr. Guraim Gueh (Kota Kinabalu), Mr. Chin En Kiong and Mr. Mazlee Duguh (Sandakan), Mr. Hamzah Yusop (Bintulu,) and Mr. Lim Hong Peng (Mukah). Biological data were collected by Mr. Nor Azman Zakaria (Kuantan), Mr. Abdul Rahman Majid (Hutan Melintang), Ms. Annie Lim Pheik Khiok (Mukah and Bintulu), Mr. Binjamin Martin (Kota Kinabalu) and Mr. Irman Isnain (Sandakan). The trade data were collected by Ms. Lim Chai Fong and Ms. Yeo Moi Eim from Department of Fisheries, Kuala Lumpur.

Last but not least we also wish to thank all staffs of Department of Fisheries Malaysia, especially State Co-ordinator for this project namely; Ms. Azwa Abdul Hamid (Perak), Ms. Hasniah Othman (Pahang), Mr. Samsimon Hj. Mohd. Bojeng (Sarawak), fishermen and traders for helping us in many ways in the collection of information and preparation for the publication of this book.

Contents

	Page
Preface	v
Acknowledgements	vii
List of tables	xi
List of figures	xiii
Map of Malaysia	xiv-xv
ELASMOBRANCH RESOURCES IN MALAYSIA	1
General Background	1
Landing of Elasmobranch in Malaysia	1
Landing of Sharks	3
Landing of Rays	5
Landings of Sharks and Rays by States	6
THE HARVESTING PROCESS	8
Sharks Landing Data Collected (July 2003- August 2004)	8
THE TRADE OF ELASMOBRANCH AND ITS PRODUCT	9
ECONOMICS VALUE OF ELASMOBRANCH	13
Prices of Sharks and Rays	15
RECREATIONAL FISHING	17
LEGISLATION	18
MANAGEMENT CONCERNS ON ELASMOBRANCH IN MALAYSIA	19
NATIONAL PLAN OF ACTION (NPOA-SHARK)	21
COMMERCIAL SHARKS SPECIES OF MALAYSIA	23
COMMERCIAL RAYS SPECIES OF MALAYSIA	32
CHECKLIST OF ELASMOBRANCHS RECORDED FROM MALAYSIA	41



List of Tables

Table	Descriptions	Page
1	Elasmobranch (Shark and Ray) Landings in Malaysia in Tonnes and Percentages from 1982-2001. Source: Annual Fisheries Statistics, Department of Fisheries Malaysia (1982- 2001)	2
2	Landings of Sharks and Rays by States in Malaysia (1982-2001). Source: Annual Fisheries Statistics 1982-2001, Department of Fisheries Malaysia	4
3	Changes in the Catch Composition of Sharks Percentage for Peninsular Malaysia by Different Gears from 1965-2001	7
4	The Import and Export of Shark's Products in Malaysia in Term of Volume (Tonnes) and Value (US\$) During the Period 1977-1996. Source: Fishery Statistical Bulletin for the South China Sea Area (1977-1996) SEAFDEC	12
5	The Value of Elasmobranch Fishery in Malaysia in Terms of Percentage During 1977-1996. Source: Fishery Statistical Bulletin for South China Sea Area (1977-1996) SEAFDEC	14
6	The Landing and Market Prices of Sharks and Rays in Malaysia	15
7	The Landing and Market Prices of Fins and Other Products of Sharks and Rays in Malaysia	16
8	Sharks Species Listed Under Marine Recreational Fishing Regulation	18



List of Figures

Figure	Descriptions	Page
1	Landings of Shark and Rays (tonnes) in Malaysia Source: Annual Fisheries Statistics (1982-2001)	2
2	Trend of Landings of Shark by Areas (tonnes) in Malaysia. Source: Annual Fisheries Statistics (1982-2001)	3
3	Trend of Landings for Rays by Areas (tonnes) in Malaysia	7

MALAYSIA



ELASMOBRANCH RESOURCES IN MALAYSIA

General Background

Generally the fisheries sector in Malaysia can be divided into marine capture fisheries, aquaculture and inland fisheries. For management purposes, marine capture fisheries which covers a total area of 547,200 km² is categorized into inshore fisheries and deep-sea fisheries.

In 2001, the total production from the fisheries sector including aquaculture amounted to 1,408,308 tonnes valued at RM5.37 billion. It contributed about 1.54% to the Gross Domestic Product (GDP) and provided direct employment to 84,496 fishermen and 22,108 fish culturists. (1 US\$ = RM 3.825).

Landing of Elasmobranch in Malaysia

Fishers in Malaysia do not specifically target for sharks, but rather these are usually caught as an associated catch, together with the more important targeted bony species. Once caught, however, the sharks are not discarded back into the water, but brought back as a whole to the port, where the meat is sold at a reasonable price. However, the fins fetch a much better price due to higher demand.



Trawlers in Malaysia do not specifically target for sharks.

Elasmobranch landing contributes only a minor portion (less than 2.2% of total landing as shown in Table 1) to the overall fisheries production in most states in Malaysia. Their contribution is small/seasonal and low in the value compared to the other components of multi-species landings that include high profile species groups such as groupers, red snappers, Spanish mackerels and tunas. The growth is significant since the early 1990s. Malaysia does not report its catches by species but only by groups of sharks and rays, which were 8,663 tonnes and 16,532 tonnes respectively in year 2001. However, Malaysia has considerably increased its elasmobranch catch, from 10,792 tonnes in 1982 to 25,195 tonnes in 2001 as shown in Table 1 and Figure 1.

Table 1: Elasmobranch (Shark and Ray) Landings in Malaysia in Tonnes and Percentages from 1982-2001.

Source: Annual Fisheries Statistics, Department of Fisheries Malaysia (1982-2001)

Year	Sharks (tonnes)	Sharks (%)	Rays (tonnes)	Rays (%)	Elasmobranchs (tonnes)	Elasmobranchs (%)	Total (tonnes)
1982	4,444	0.6	6,348	0.9	10,792	1.5	694,274
1983	5,016	0.7	6,044	0.8	11,060	1.5	741,205
1984	5,281	0.8	5,795	0.8	11,076	1.6	671,816
1985	4,745	0.7	5,440	0.9	10,185	1.6	630,022
1986	4,820	0.8	7,029	1.1	11,849	1.9	619,247
1987	4,699	0.5	10,550	1.2	15,249	1.7	908,939
1988	4,677	0.6	11,517	1.3	16,194	1.9	869,447
1989	4,264	0.5	9,414	1.0	13,678	1.5	934,582
1990	4,140	0.4	13,220	1.3	17,360	1.7	1,002,576
1991	5,677	0.6	11,485	1.2	17,162	1.2	969,793
1992	7,240	0.6	13,531	1.2	20,771	1.8	1,104,988
1993	6,294	0.5	14,604	1.3	20,898	1.8	1,154,557
1994	6,889	0.6	14,000	1.2	20,889	1.8	1,181,763
1995	8,437	0.7	15,707	1.3	24,144	1.9	1,245,117
1996	8,080	0.7	15,928	1.4	24,008	2.1	1,126,689
1997	7,483	0.6	17,282	1.5	24,765	2.1	1,168,973
1998	7,839	0.6	16,104	1.3	23,943	1.9	1,215,206
1999	8,092	0.6	17,033	1.4	25,125	2.0	1,248,402
2000	7,948	0.6	16,573	1.3	24,521	1.9	1,285,696
2001	8,663	0.7	16,532	1.4	25,195	2.1	1,231,289

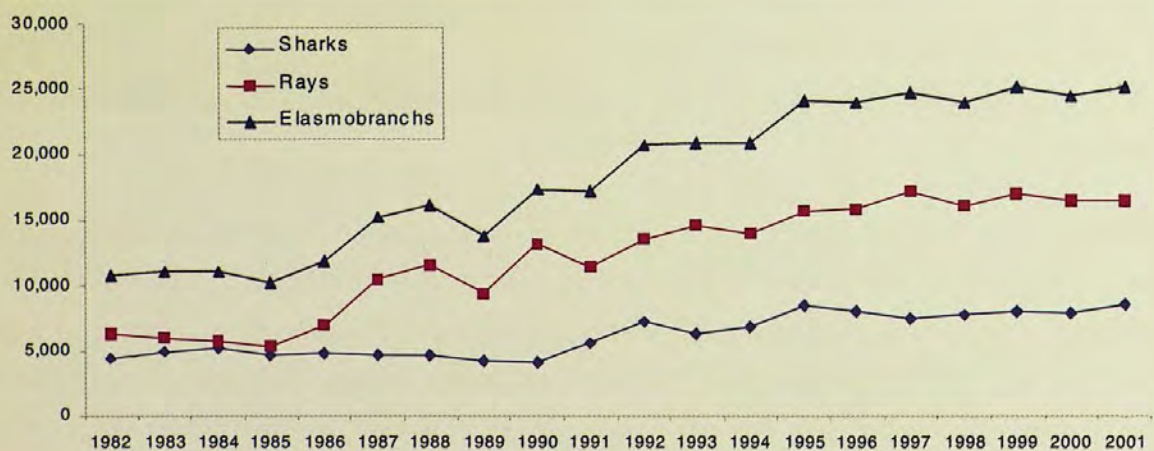


Figure 1: Landings of Shark and Rays (in tonnes) in Malaysia

Source: Annual Fisheries Statistics (1982-2001)



Landing of Sharks

Sharks are caught throughout Malaysian waters. The catch from Sarawak, Sabah and the Federal Territory of Labuan is greater than that from Peninsular Malaysia (Table 2). In 2001, more than 60%



Sharks caught by trawl nets at fishing port in Kuantan Pahang

of total landings of sharks are generated from this area. Since 1991, a continual increase in trend of landings was observed for shark landings in Sarawak and Peninsular Malaysia.

In 2001, total landings of Peninsular Malaysia and Sarawak, Sabah and the Federal Territory of Labuan were 3,392 tonnes and 5,271 tonnes, respectively. The landings of sharks

in Malaysia fluctuated from its peak at 8,437 tonnes in 1995 to its lowest in 1990 at 4,140 tonnes. However, it was observed that the trend of shark landings in Malaysia continued to increase from 4,444 tonnes in 1982 to 8,663 tonnes in 2001 (Figure 2). The trend of landings from 1982 to 1990 was stabilized between 4,000 to 5,000 tonnes.

For shark landings of Sabah, a decline state of landings was observed since 1998. Contributions of sharks were stabilized at around 1,000 tonnes and 3,000 tonnes for west coast and east coast Peninsular Malaysia, respectively.

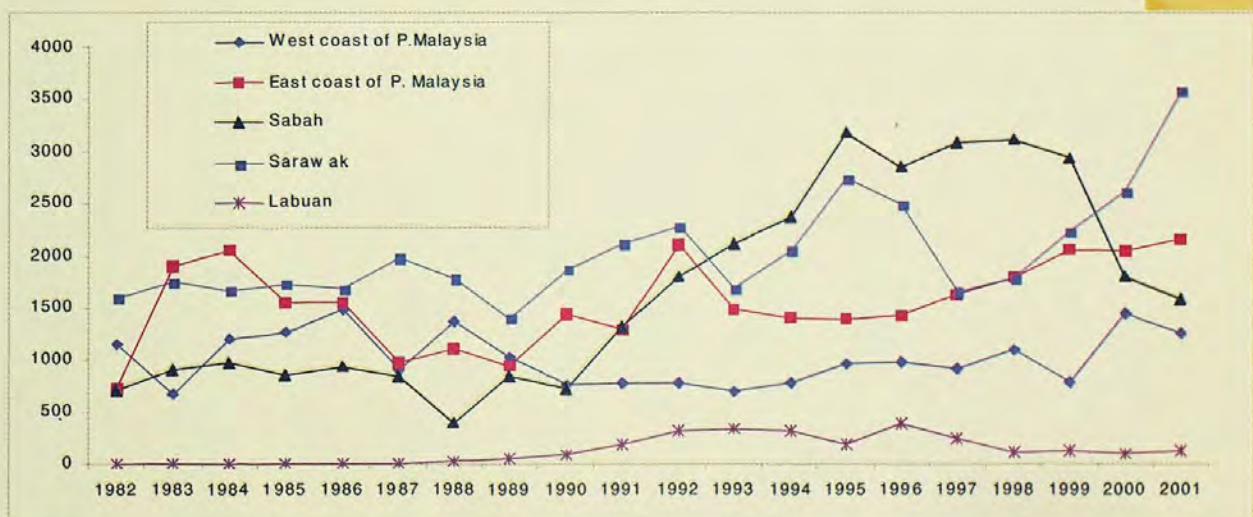


Figure 2: Trend of Landings of Shark by Areas (in tonnes) in Malaysia.

Source: Annual Fisheries Statistics (1982-2001).

Table 2: Landings of Sharks and Rays by States in Malaysia (1982-2001). Source: Annual Fisheries Statistics 1982-2001, Department of Fisheries Malaysia

Year	Elas.	PER.	KED.	PEN.	PRK.	S'GOR	N9	MLCA	W.JHR.	KLN.	TRG.	PHG	E.JHR.	S'WAK	S'BAH	LAB.	Total
1982	Sharks	61	296	12	287	338	16	46	92	1	48	357	311	1591	716	*	4444
	Rays	103	673	53	850	651	47	146	541	14	94	555	101	2186	685		6348
1983	Sharks	48	233	15	228	135	1	10	12	1	716	964	213	1742	905	*	5016
	Rays	166	755	92	1009	511	45	297	458	32	185	818	210	1402	437		6044
1984	Sharks	-	269	119	461	267	-	82	74	-	1486	231	330	1660	969	*	5281
	Rays	220	421	320	1232	794	26	54	610	8	591	310	231	1130	567		5795
1985	Sharks	22	202	102	627	223	-	21	67	-	1092	84	378	1721	855	*	4745
	Rays	172	370	315	1560	428	51	468	429	6	567	247	329	1067	568		5440
1986	Sharks	22	82	55	764	519	-	83	33	1	780	257	515	1671	938	*	4820
	Rays	279	280	305	1983	1231	25	23	551	30	324	717	685	1420	707		7029
1987	Sharks	8	91	34	491	241	-	24	17	-	286	365	317	1981	844	*	4699
	Rays	109	436	143	2430	979	16	219	340	18	1502	1103	898	1791	566		10550
1988	Sharks	54	234	20	691	313	-	28	19	-	217	334	560	1785	400	22	4677
	Rays	151	479	63	2301	2425	12	244	451	41	347	805	1110	2456	600	32	11517
1989	Sharks	15	200	19	546	193	-	25	17	83	217	223	498	1406	841	56	4264
	Rays	276	535	113	1787	925	9	289	457	24	313	485	1146	2062	629	64	9414
1990	Sharks	65	62	16	421	160	2	21	12	11	303	546	578	1865	718	78	4140
	Rays	365	527	129	1809	926	43	401	472	429	745	1778	1628	2117	606	84	13220
1991	Sharks	71	47	49	418	160	3	17	11	48	272	572	400	2106	1318	185	5677
	Rays	180	430	195	1890	1220	16	173	497	189	843	1713	1120	2053	886	80	11485
1992	Sharks	110	59	85	341	134	1	26	13	28	731	724	602	2271	1798	317	7240
	Rays	567	458	192	2525	1147	12	185	344	165	1159	1901	1347	2106	1212	211	13531
1993	Sharks	17	54	76	303	175	4	53	12	51	450	584	400	1679	2112	324	6294
	Rays	361	456	458	2580	1060	40	285	368	833	1371	1637	1399	1881	1614	261	14604
1994	Sharks	24	51	83	361	190	4	35	21	101	421	485	390	2035	2373	315	6889
	Rays	190	653	384	2489	1019	16	88	355	878	1102	1301	1690	1945	1734	249	14000
1995	Sharks	46	77	64	357	280	3	93	42	148	229	560	448	2736	3176	178	8437
	Rays	199	528	367	1977	1140	33	79	347	1137	1003	1876	1418	2440	2993	170	15707
1996	Sharks	23	76	54	382	275	1	111	48	61	288	509	551	2484	2846	371	8080
	Rays	156	409	437	2207	1332	33	97	340	575	1902	1574	1505	2392	2765	204	15928
1997	Sharks	17	134	45	351	215	2	99	44	44	571	443	560	1651	3073	234	7483
	Rays	127	559	355	2960	1765	29	91	273	494	1944	1509	1886	1951	3179	160	17282
1998	Sharks	15	93	29	373	454	3	79	47	25	741	521	486	1771	3111	91	7839
	Rays	69	521	168	2048	1109	31	130	239	237	2756	1716	1638	2378	2934	130	16104
1999	Sharks	13	91	24	272	282	3	72	24	17	782	660	583	2214	2935	120	8092
	Rays	76	651	191	277	1131	13	141	205	140	2126	2148	1972	2496	2864	108	17033
2000	Sharks	7	100	13	705	443	3	66	94	43	355	984	648	2603	1797	87	7948
	Rays	166	586	314	3129	1180	14	134	228	309	961	2117	2212	2840	2301	82	16573
2001	Sharks	4	155	18	693	232	3	60	88	40	541	938	620	3579	1577	115	8663
	Rays	129	306	327	2896	1504	14	139	200	140	982	1692	1915	4169	2020	99	16532

Note: * Included in the landing of Sabah

PER = Perlis; KED = Kedah; PRK = Perak; PEN = Penang; S'GOR = Selangor; N9 = Negeri Sembilan; MLCA = Malacca; W.JHR = West Johor; KLN = Kelantan; TRG = Terengganu; PHG = Pahang; E.JHR = East Johor; S'wak = Sarawak; S'BAH = Sabah; LAB = Labuan



Longtailed carpet sharks (Family Hemiscyllidae) is the most abundant sharks species caught in Malaysia

Landing of Rays

The overall landings of rays in Malaysia showed an increasing trend from 1985 to 2001. The landings were stabilized at around 6,000 tonnes from 1982 to 1985 but an upward trend was prominent from 7,029 tonnes in 1986 to 16,532 tonnes in 2001. The landings sustained above 10,000 tonnes since 1987 (except 1989) until 2001 (Table 1).



Rays were mainly caught by bottom trawls nets in the west coast of Peninsular Malaysia

Rays are caught throughout Malaysian waters. However, the catch from Peninsular Malaysia is greater than Sarawak, Sabah and the Federal Territory of Labuan. In 2001, more than 60%



Huge rays landed by deepsea trawls nets especially in Kuantan, Pahang and Tanjung Manis in Sarawak

of total landings of rays are generated from this area. Since 1991, a continual increase in trend of landings was observed for ray's landings in Sarawak. Since the early 1980's, contributions of rays were stabilized at around 4,000 tonnes for west coast and east coast Peninsular Malaysia, respectively.

In the west coast of Peninsular Malaysia, Perak and Selangor are the major landing states, which contributed about 70% of the landings of sharks in that area. In the east coast of Peninsular Malaysia, Pahang, Terengganu and Johor (east) seemed to be the major landing states, while for east Malaysia, both Sarawak and Sabah are the major landing states. Likewise, the waters off Perak and Selangor in the west coast and Terengganu, Pahang and Johor (east) in the east coast of Peninsular Malaysia are also good fishing grounds for rays.



Landing of several species of sharks at Bintulu, Sarawak

The landings of sharks and rays from Sarawak and Sabah in 2001 were recorded at 7,748 and 3,597 tonnes respectively. Sarawak recorded the highest catch of elasmobranch in Malaysia from 1982 to 2001. For the year 2001, the catch from Sarawak was 30.8 percent of the national landing. In the same year, Sarawak also recorded the highest catch for sharks at 3,579 tonnes or 41.3 percent of national landing. The lowest catch for rays in Sarawak was recorded in 1984 at 1,130 tonnes, after which the catch increased to 4,169 tonnes in 2001 (Table 2).

The waters off Sabah are also the main fishing ground for elasmobranch. The catch of 3,597 tonnes in the year 2001 is the second highest after Sarawak. The catch for sharks increased sharply from 716 tonnes in 1982 to 1,577 tonnes in 2001. The catch for rays also increased from 685 tonnes in 1982 to 2,020 tonnes in 2001 (Table 2 and Figure 3).

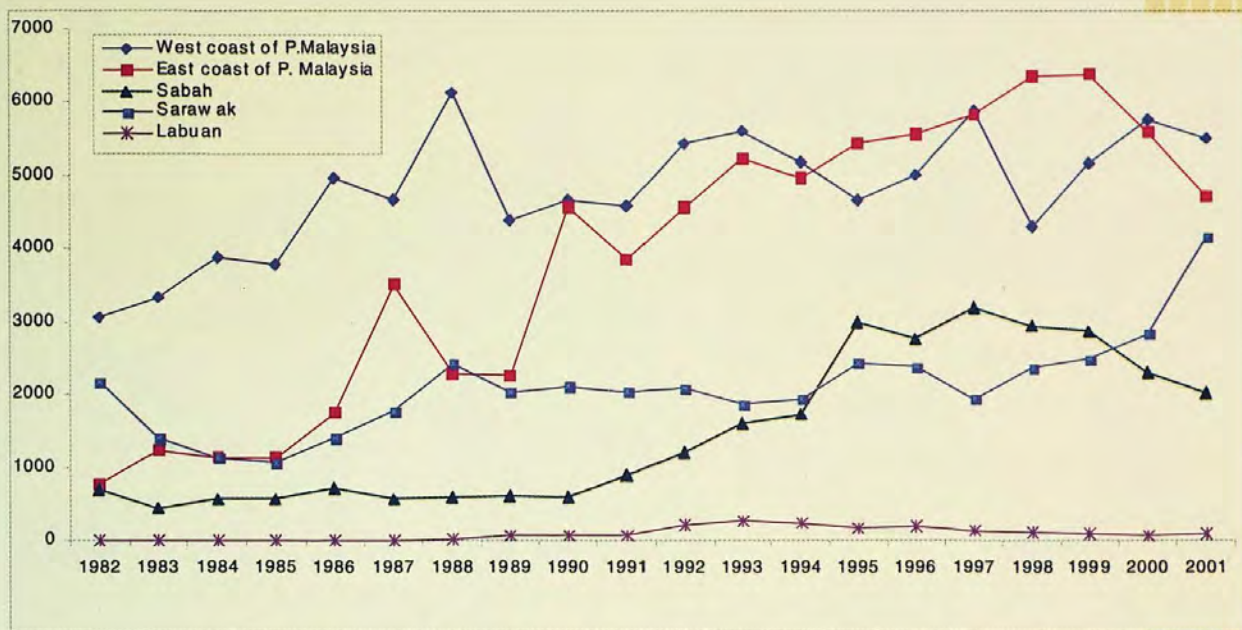


Figure 3: Trend of Landings for Rays by Areas (metric tons) in Malaysia.

Table 3: Changes in the Catch Composition of Sharks Percentage for Peninsular Malaysia by Different Gears from 1965-2001

Year	Trawls (%)	Hook and lines (%)	Drift/gillnets (%)	Others (%)
1965	4	31	62	3
1970	35	27	37	1
1975	64	16	19	1
1980	58	24	14	4
1985	37	22	40	1
1990	79	8	13	0
1995	72	10	17	1
2001	60	13	26	1

THE HARVESTING PROCESS

Sharks were mainly caught by the bottom trawls. Trawls were first introduced in Malaysia in the early 1960s. Prior to the introduction of trawls, sharks were mainly caught by gill nets and hooks and lines. In 1965, when the use of trawls was still in its infancy stage, sharks caught by this gear constituted just 4% of the total shark landings. During this period, the main gears incidentally catch sharks were stationary gill nets and hooks and lines. However, in the next five years, i.e. in 1970, the relative amount of sharks caught by trawlers increased to 35%. After slightly a decade since their introduction (till 1975), trawls have become the main fishing gear used to catch sharks in Malaysia (Table 3). Shark catches by trawls in year 2001 for Malaysia contributed 59.8% of the total sharks landings followed by drift nets (26.13%) and hooks and lines (13%). Other fishing gears that also take in sharks are portable traps, stationary gears, barrier nets, purse seines and other seines.



Sharks and rays mainly caught by bottom trawl nets



Other gears such as hooks and lines and traps also caught sharks and rays

Shark's Landing Data Collected (July 2003 - August 2004)

Data collected in the whole month of October and December in 2003, and March and June in 2004 at 6 landing sites namely; Hutan Melintang (west coast of Peninsular Malaysia), Kuantan (east coast of Peninsular Malaysia) Mukah and Bintulu (Sarawak), Sandakan and Kota Kinabalu in Sabah showed that trawler is the main gear caught sharks except for Mukah. The main gear caught sharks in Mukah is gill net which contributed about 77.8 to 100%.

THE TRADE OF ELASMOBRANCH AND ITS PRODUCT

There are a few small scale shark processing plants operating in Malaysia. Shark processing is carried out as a cottage industry, mostly by the families of fishermen or stakeholders. Irregularity in supply of the raw resources is a major concern to successfully running these plants.

During 1990's only five shark species are locally accepted as table food. Both meat and fins from species such as silky shark (*Carcharhinus falciformes*), blacktip shark (*C. limbatus*), hardnose shark (*C. macroti*), spottail shark (*C. sorrah*), and spadenose shark (*Scoliodon laticaudus*) are in great demand and prices of these species are increasing. Other species are also popular locally amongst Malaysian Chinese for their fins and meat, especially blacktip reef



Marketing of shark's and ray's meat at fish market in Kota Kinabalu, Sabah

shark (*Carcharhinus melanopterus*), blackspot shark (*C. sealei*), scallop hammerhead (*Sphyrna lewini*), great hammerhead (*Sphyrna mokarran*) and smooth hammerhead (*S. zygaena*).

Currently almost all shark species are accepted as table food. Sharks are mostly marketed as fresh meat, although some are sold as salted fish in Malaysia. A small number of shark's jaws, and even teeth, are sold as rare souvenir items to enthusiasts. Discarded part of the fish such as head are used as bait for fish and crab traps. Small sharks, as well as those that are non-edible or unsuitable for bait are sold to fish mill factories for fertilizers. In Mukah and Bintulu in Sarawak, shark meat is eaten raw-a local delicacy called *umai*. *Umai* is a mixture of raw fish meat with local ingredients. Cartilage mostly used for medical purposes and dried skin for Chinese cuisine. Rays, however, are mostly consumed fresh (cooked or smoked) and salted.

In Hutan Melintang, Perak, traders are buying fish directly from the fishermen and selling them to the wholesale markets in Perak and Selangor. Trading of sharks is not regular as sharks are actually

associated catch. The preferred species of sharks by the traders is spot-tail shark *Carcharhinus sorrah*. As a sharks landing is not significant at these landing sites, there is not much downstream/processing activities for sharks. Processing activities are only confined to a few products such as shark fin (dried and wet), fish ball and also salted fish. Most parts of the fish are fully utilized except for the guts.

Traders in Kuantan, Pahang are actively involved in the marketing of sharks. These

traders are buying fish directly from the fishermen and selling them to wholesale markets in Kuala Lumpur; Besut in Terengganu; Muar and Batu Pahat in Johor. Sharks are mainly sold as whole fish, salted shark and shark fin. The processed products especially shark fins are exported to Hong Kong and China. The preferred species for shark fins processing is from the family of Carcharhinidae.



Processing of shark species from Genus *Chiloscyllium* at fishing port in Kuantan, Pahang

In Bintulu, Sarawak, traders are buying sharks directly from the fishermen and selling them to local markets in Bintulu, Sibul and Kuching. The processed products especially shark fins are exported to markets in Hong Kong, Taiwan and China. The salted shark meat is mainly for local markets. The traded species are blackspot shark *Carcharhinus sealei*, whitecheek shark *Carcharhinus dussumieri*,

white-eye shark *Rhizoprionodon acutus*, spot-tail shark *Carcharhinus sorrah*, grey carpet shark *Chiloscyllium punctatum*, spadenose shark *Scoliodon laticaudus* and weasel shark *Hemigaleus microstoma*.



Display of ray's meat at wholesale fish market in Selayang, Kuala Lumpur

Sharks traders in Sandakan, Sabah are buying fish directly from the fishermen and the sharks are sold locally in Sandakan. Shark products are mainly in the form of frozen shark meat and fish ball which are marketed mainly to peninsular Malaysia. The traded species are *Carcharhinus sealei*, *Carcharhinus sorrah*, *Carcharhinus dussumieri*, *Hemigaleus microstoma*, *Rhizoprionodon acutus*, sliteye shark (*Loxodon macrorhinus*) and graceful shark (*Carcharhinus amblyrhynchoides*).

Traders in Kota Kinabalu, Sabah are buying sharks directly from the fishermen and send them to the local market in Kota Kinabalu. Processed shark products are mainly frozen shark meat. The preferred species are *Carcharhinus sealei*, *Carcharhinus dussumieri*, *Rhizoprionodon acutus*, *Carcharhinus sorrah*, *Chiloscyllium punctatum*, *Scoliodon laticaudus* and *Hemigaleus microstoma*.

In Malaysia, the Annual Fisheries Statistics does not differentiate the different species of sharks that are caught and processed. Data concerning these products are only available under the general headings of:

- i. Frozen dogfish and other sharks
- ii. Sharks' fin salted but not dried or smoked in brine
- iii. Shark's fin dried weather or not salted but not smoked
- iv. Shark's fin

Table 4 gives the import and export volumes of shark products (fish, dried, salted or smoked) in terms of weight and value. The volume of import of shark products fluctuated from a peak of 642 tonnes in 1983 to its lowest of 69 tonnes in 1987. The value of import did not exceeding US\$ 2 million during this period. The volume of export did not exceed 100 tonnes, except in 1982 where it is about 103

tonnes. In terms of value, the export of shark's products from Malaysia has always been less than US\$ 1million except in 1993 where it is about US\$ 1.413 million. However, the import of shark's products was always higher than export in terms of volume and value.

Some of the main markets for the Malaysian shark's fin (salted but not dried or



Shark fin is the most expensive part of sharks

smoked and in brine) are Singapore and Hong Kong. Malaysia also imports similar products from Singapore, Indonesia, Hong Kong and Thailand. Australia, Singapore, China and Hong Kong have been the major countries that provide raw shark's fins to Malaysia, while Malaysia in turn has provided export of the same products to Korea, Hong Kong, Brunei and Singapore.

Table 4: The Import and Export of Shark's Products in Malaysia in Term of Volume (tonnes) and Value (US\$) During the Period 1977-1996. Source: Fishery Statistical Bulletin for the South China Sea Area (1977-1996) SEAFDEC

Year	Import		Export	
	Volume	Value (US\$)	Volume	Value (US\$)
1977	209	838,000	13	20,000
1978	422	863,000	25	64,000
1979	272	1,150,000	16	117,000
1980	446	1,169,000	41	161,000
1981	606	1,818,000	12	194,000
1982	456	1,887,000	103	204,000
1983	642	1,862,000	41	148,000
1984	285	1,409,000	9	63,000
1985	172	944,000	7	49,000
1986	78	367,000	8	25,000
1987	69	347,000	18	101,000
1988	128	414,000	9	161,000
1989	96	582,000	7	173,000
1990	102	568,000	8	133,000
1991	112	517,000	5	22,000
1992	209	736,000	2	28,000
1993	165	944,000	30	1,413,000
1994	238	774,000	19	126,000
1995	123	749,000	22	169,000
1996	187	768,000	4	62,000

ECONOMIC VALUE OF ELASMOBRANCH

In terms of percentage, the value of elasmobranch is not more than 2.0% of the value from the total marine fish landed as shown in Table 5. This is not reflective of its true economic potential in other areas such as recreational fishing and ecotourism. However, from data compiled by SEAFDEC during 1977 to 1996, the value of the elasmobranch fishery is, on the increase from US\$ 5.84 million in 1977 to US\$ 24.93 million in 1996 in Malaysia.



Skinned rays at Chowrasta Market in Penang, Peninsular Malaysia. Skin are exported to Thailand for leathery industry

Table 5: The Value of Elasmobranch Fishery in Malaysia in Terms of Percentage During 1977-1996.
Source: Fishery Statistical Bulletin for South China Sea Area (1977-1996) SEAFDEC

Year	Value (US\$1000)		Value (US\$1000)		% Value (Elasmobranch)
	Sharks	Rays	Elasmobranchs	Total fish	
1977	2,458	3,386	5,844	437,190	1.3
1978	5,208	5,720	10,928	716,164	1.5
1979	2,750	3,236	5,986	598,837	1.0
1980	2,931	4,462	7,393	629,754	1.2
1981	2,951	3,374	6,325	768,920	0.8
1982	2,762	3,793	6,555	738,746	0.9
1983	1,954	2,999	4,953	701,817	0.7
1984	2,151	2,872	5,023	580,421	0.9
1985	1,773	2,705	4,478	569,903	0.8
1986	1,916	3,654	5,570	585,828	1.0
1987	1,343	4,481	5,824	564,272	1.0
1988	1,555	4,278	5,833	555,084	1.1
1989	1,555	4,495	6,050	673,679	0.9
1990	1,940	4,814	6,754	732,203	0.9
1991	2,255	7,569	9,824	780,117	1.3
1992	3,837	9,066	12,903	1,014,635	1.3
1993	3,184	12,217	15,401	1,039,314	1.5
1994	5,511	14,560	20,071	1,127,204	1.7
1995	6,831	15,768	22,599	1,242,039	1.8
1996	6,976	17,954	24,930	1,441,874	1.7

Prices of Sharks and Rays

The most well known and highly priced shark's fin in Malaysia is that of the shovel-nose ray. Table 6 and 7 shows the landing and market prices of sharks, rays and its product. The prices vary according to species and locations. Shark species from family Carcharhinidae always sell at higher price compared with other families. The average price for small size shark from family Carcharhinidae with fin attached for weight less than 0.5 kg/fish is about US\$ 0.30 to US\$ 1.20/kg. The price of sharks from family Carcharhinidae without fins (all sizes) in Sabah and Sarawak is about US\$0.30-US\$0.60/kg. The prices of all species of elasmobranch in Peninsular Malaysia are found to be always higher than that of the Federal Territory of Labuan, Sabah and Sarawak.

Table 6: The Landing and Market Prices of Sharks and Rays in Malaysia

Locations	Prices /kg US\$	Prices/kg US\$
	Landing Prices	Landing Prices
	Sharks (Whole body with fins attached for small size)	Rays (Whole body for small size)
West coast of Peninsular Malaysia	0.30-1.10	0.70-1.00
East coast of Peninsular Malaysia	0.30-1.00	0.60-1.00
FT Labuan, Sabah and Sarawak	0.20-0.80	0.20-0.70
	Market prices	Market prices
	(Whole body with fins attached for small size)	(Whole body for small size)
West coast of Peninsular Malaysia	0.60-1.80	1.00-1.30
East coast of Peninsular Malaysia	0.50-1.40	1.00-1.20
FT Labuan, Sabah and Sarawak	0.50-1.20	0.40-1.00



A small number at shark's jaws are sold as rare souvenir items to enthusiasts

Table 7: The Landing and Market Prices of Fins and Other Products of Sharks and Rays in Malaysia

Products	Landing Prices/kg US\$	Landing Prices/kg US\$
	(Sharks) Wet Fins only	(Rays) Wet Fins only
<i>Rhynchobatus</i> spp (fin height > 35 cm)		80.00-90.00
<i>Rhynchobatus</i> spp (fin height < 35 cm)		< 80.00
Other species mostly from family Carcharhinidae (fin height > 20 cm)	50.00-65.00	
Other species mostly from family Carcharhinidae (fin height < 20 cm)	13.00-20.00	
	Market prices (dry fins)	Market prices (dry fins)
<i>Rhynchobatus</i> spp (fin height > 35 cm)		> 500.00
<i>Rhynchobatus</i> spp (fin height < 35 cm)		200.00-350.00
Other species mostly from family Carcharhinidae (fin height > 20 cm)	> 400.00	
Other species mostly from family Carcharhinidae (fin height < 20 cm)	50.00-150.00	
Other species (very small fins) < 10 cm	Various prices	
Salted shark meat	1.70-2.50	
Shark skin	0.90	
Sharks jaw	10.00-17.00/set	
Meat only	2.00-2.20	1.50-1.70



Display of fresh shark at wet fish market in Kuantan, Pahang, Peninsular Malaysia



Pieces of rays on display in the wet fish market in Kuching, Sarawak

RECREATIONAL FISHING

Recreational fishing is becoming more important in Malaysia, and a million anglers are estimated to be involved in this activity. To catch marlins and sailfish, anglers need to go far out to the open water, but this is not the case with some sharks and rays, which can be found in most part of coastal areas.

Under eco-tourism activities, snorkeling and diving among the corals and fish, including sharks, is a big attraction and could provide a huge economic return. These activities are fast gaining in popularity, and are rapidly expanding following the proclamation of island resorts as marine park areas. The presence of whale sharks at established diving sites is a strong lure for most divers, and it can be promoted to support other economic and tourism related activities such as rental of boats and diving equipment, creation of jobs like tourist guides, etc. Whale shark is a great attractive item for the divers, which is regarded as a flagship species among the group. The whale shark may be seen in Malaysia coastal waters during the shrimp bloom season (*Acetes* sp.) from November to April.

Feeding young black tip reef sharks (*Carcharhinus melanopterus*) found in the shallow waters, such as at the Pulau Payar Marine Park, has now become a unique source of delight for tourists.



Feeding of young black sport reef shark (*Carcharhinus melanopterus*) at Pulau Payar Marine Park in Peninsular Malaysia has attracted hundreds of tourist daily

LEGISLATION

Whale shark (*Rhincodon typus*) is protected animal under the Fisheries Regulation 1985 (Control of Endangered Species, gazette in 1999). The Regulation stipulates that no person shall fish or, disturb, harass, catch, kill, take, possess, sell, buy, export or transport any endangered species except with the written permission from Director General of Fisheries Malaysia. Any person who contravenes the regulation is committing an offence under Section 25(b) Fisheries Act 1985 can be fine not exceeding RM20,000 (US\$ 5,229) or a term of imprisonment not exceeding two years or both.

Six species of sharks have also been identified in Malaysia as potential protected species under the Marine Recreational Fishing Regulation. Under this regulation, the sharks when caught must be released back to the sea. The Department of Fisheries is preparing to carry out the implementation of the regulation, which is to be promulgated under the Fisheries Act 1985, once it is gazetted. The reasons for the selection of those species are due to their unpopularity as table food among anglers as well as for the conservation and enhancement of the resources. The six shark species mentioned are given below in Table 8.

Table 8: Sharks Species Listed Under Marine Recreational Fishing Regulation

Scientific name	English name
<i>Chiloscyllium punctatum</i> (Muller & Henle)	Brownhanded bambooshark
<i>Chiloscyllium griseum</i> (Muller & Henle)	Grey bamboo shark
<i>Stegostoma fasciatum</i> (Hermann)	Zebra shark
<i>Atelomycterus marmoratus</i> (Bennett)	Coral catshark
<i>Heterodontus zebra</i> (Grey)	Zebra bullhead shark
<i>Rhincodon typus</i> (Smith, 1828)	Whale Shark

In 1990, the Government of Malaysia prohibited the use of a gill net locally called ‘pukat pari’ with mesh size exceeding 25.4cm in order to protect sea turtles. This net is mainly used to catch large size of sharks and rays in coastal area. The nationwide ban for this large-mesh gillnet partly helps to conserve the breeding stocks of sharks and rays, by allowing the larger and more productive females to escape.

MANAGEMENT CONCERNS ON ELASMOBRANCH IN MALAYSIA

The studies of elasmobranchs are now undertaken by four fisheries research institute namely Fisheries Research Institute in Penang covering west coast of Peninsular Malaysia, SEAFDEC/MFRDMD, Terengganu (East coast of Peninsular Malaysia), Fisheries Research Institute, Bintawa, Sarawak (Sarawak waters), and Fisheries Research Center in Sabah covering Sabah waters.

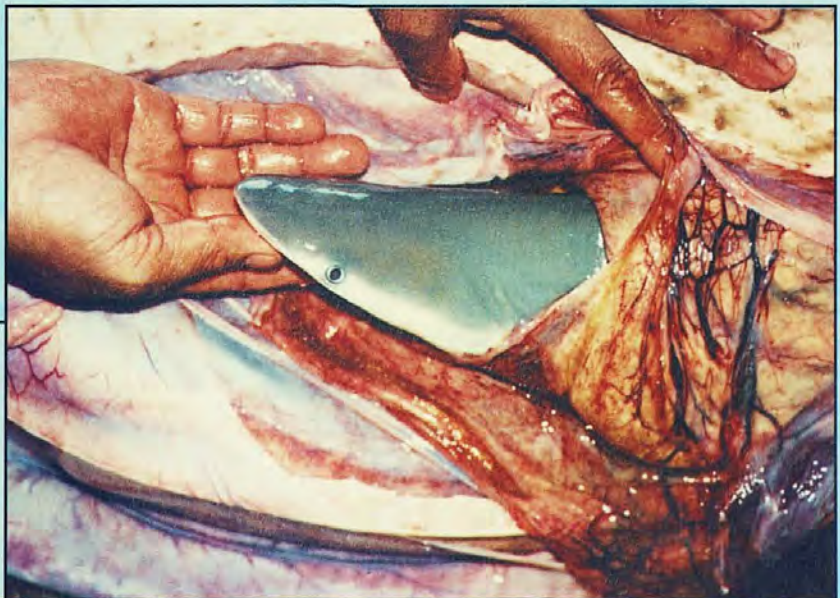
National elasmobranchs research efforts is to understanding the taxonomy, biology and ecology of the sharks and rays, including critical habitat requirements during their life cycles, and conservation needs. Collection of other particulars such as population data on age, growth and reproduction and carrying out life history studies for the dominant species of sharks and rays in the fisheries and for threatened species are also will be carried out.



Biology and taxonomy study on shark conducted at SEAFDEC/MFRDMD in Terengganu, Malaysia

Data and information on biology, fisheries, utilization and trade of elasmobranch at 13 landing sites was collected during July 2003 to August 2004. These data would be used as a base line to formulate a National Plan of Action for the Conservation and Management of Sharks in Malaysia (NPOA-Sharks). It is hope that this study will mark the beginning of an extensive study on utilization, conservation, enhancement and management of elasmobranch in Malaysia.

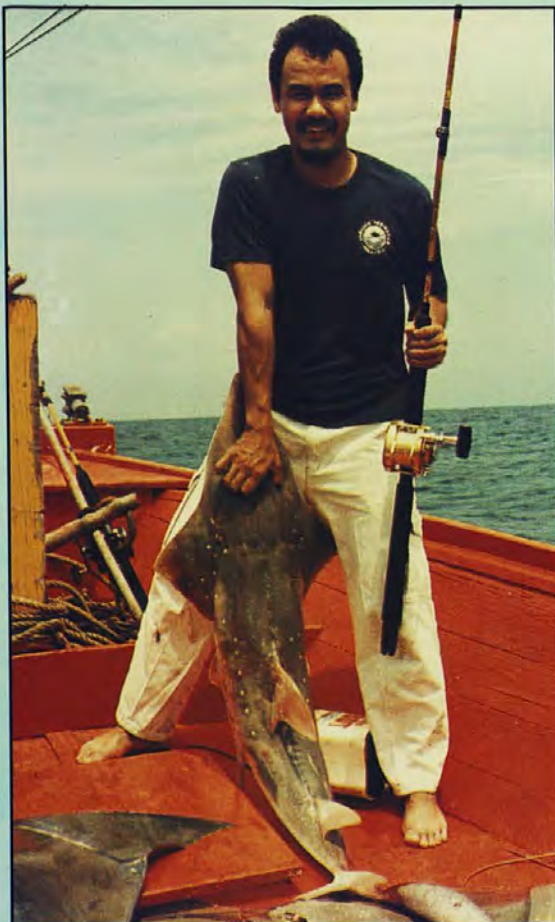
Most sharks and several rays species are characterized by slow growth, late age maturity, low fecundity and productivity (very few young are produced by each mature female)



It is recognized in Malaysia, that sharks and rays have a significant value in promoting eco-tourism, particularly diving and recreational angling. They also provide for attractive displays and fulfill educational purposes in public aquariums. There is more value here compared to a dead sharks landed by a fisherman. Watching and diving with whale sharks are new activities planned in Sabah, Swallow Island and Sipadan Island in Malaysia. Recreational fishing for large marine game fish including sharks and rays is also fast developing in Malaysia. Anglers always released back to the sea most of their catches especially large size fish including sharks, marlins, sailfish as well as non-edible fish species.



Study of sharks biology conducted at Fisheries Research Institute in Penang, Peninsular Malaysia



Recreational fishing is becoming a popular activity in Malaysia



Zebra shark (*Stegostoma fasciatum*) caught by hooks and lines in coastal waters of Peninsular Malaysia

NATIONAL PLAN OF ACTION (NPOA - SHARK)

The development of the fishing industry in Malaysia closely followed the guidelines of the National Agriculture Policy. The policy is intended to bring about changes in the industry so that it will evolve into a commercial, modern and progressive sector. It is also sensitive to the environment, socio-economy and sustainability of resources.

In order to achieve the balance between fishing effort, sustainability of resources, and environmental conservation, various conservation and management strategies were implemented, *inter alia*, as follows:

- Limit fishing effort through the issuance of fishing gear and fishing vessel licenses.
- Restructuring of ownership patterns of fishing licenses.
- Registration of fishers
- Management of a zoning system based on the tonnage of fishing vessels, type of fishing gears used and ownership patterns
- Relocation or deployment of fishers to other economic activities such as aquaculture, ecotourism or other related activities
- Conservation and rehabilitation of the marine ecosystems through the establishment of marine parks and construction of artificial reefs
- Continuous research and development, particularly in the monitoring of resource potential, and development of eco-friendly fishing technology

There is nothing in the policy statements, or in the management strategy of the DoFM, that explicitly expresses the need for management of sharks and rays resources. This is understandable given the nature of tropical multi-species fisheries, as in Malaysia, where management is best achieved for fish populations as a whole. It would be impossible to focus on individual resources, or specific mono-species stocks of fish. Furthermore, sharks and rays have never been featured conspicuously in the landings of marine capture fisheries, either in terms of volume or value. Their contributions have been 2% of the overall fish landings.

There is still a need for a comprehensive understanding of the biology and ecology of sharks and rays especially in the areas pertaining to their population dynamics, critical habitat requirements during their life cycles and conservation needs. These are crucial factors for the successful management of sharks and rays resources. The absence of such comprehensive studies hinders the formulation of management plan.

FAO has proposed an International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks) in 1998. The implementation of the IPOA-Sharks is voluntary and all states in the waters where sharks are caught either by its own vessels or by foreign vessels, and all countries whose vessels catch sharks on the high seas are encouraged to implement the IPOA-Sharks. In this regards Malaysia will have its own National Plan of Action for Conservation and Management of Sharks (NPOA-shark) by 2005.



COMMERCIAL SHARKS SPECIES IN MALAYSIA

Alopias pelagicus (Nakamura, 1935)

English names : Pelagic thresher, Thresher shark, Whiptail shark

Malay name : Yu ekor panjang

Japanese name : Nitari

Thai name : Chalarn hang-daab

1



2

Chiloscyllium indicum (Gmelin, 1789)

English name : Slender bambooshark

Malay names : Yu bodoh, Yu tokeh, Yu pasir

Japanese name : Tenjiku zamae

Thai name : Chalarn Gob



Carcharhinus melanopterus (Quoy and Gaimard, 1824)

English names : Blacktip reef shark, Blacktip shark, Guliman

Malay names : Yu shirip hitam, Yu kepak hitam, Yu nipah

Japanese name : Tsuma guro

Thai name : Chalarn Hoo-dum

3



4

Carcharhinus amblyrhynchos (Bleeker, 1856)

English names : Grey reef shark, Black-vee whaler, Longnose blacktail shark

Malay name : Yu

Japanese name : Oguromejiro zame

Thai name : Chalarn Nah-moo



Carcharhinus borneensis (Bleeker, 1859)

English name : Borneo shark

Malay name : Yu

Thai name : Chai-gruey

5



Carcharhinus brevipinna (Müller and Henle, 1839)

English names : Spinner shark, Longnose grey shark,
Inkytail shark, Smoothfang shark

Malay name : Yu

Japanese name : Hana zame

Thai name : Chai-gruey

6



Carcharhinus galapagensis (Snodgrass and Heller, 1905)

English name : Galapagos shark

Malay name : Yu

Japanese name : Garapagosu zame

Thai name : Chalarm Thao

7



Carcharhinus leucas (Valenciennes in Müller and Henle, 1839)

English names : Bull shark, River whaler,
Freshwater whaler, Swan River whaler

Malay names : Yu, Jerung

Japanese names : Oomejiro zame, Ushi zame

Thai name : Chararm Hua-bart

8



Carcharhinus limbatus (Valenciennes, 1839)

English names : Common blacktip shark,
Blacktip whaler

Malay names : Yu jereh, Yu kepak hitam

Japanese name : Kamasutogari zame

Thai name : Chalarm Kleep-dum

9



Carcharhinus macroti (Müller and Henle, 1839)

English name : Hardnose shark

Malay names : Yu jereh, Yu pasir

Japanese name : Hoko saki

Thai name : Chalarm Thao

10



Chiloscyllium hasselti Bleeker, 1852

English name : Indonesian bamboo shark

Malay name : Yu bodoh

Thai name : Chalarm Gob

11



Carcharhinus hemiodon (Valenciennes in Müller and Henle, 1839)

English name : Pondicherry shark

Malay name : Yu

Thai name : Chalarm Thao-hoo-dum

12



13

***Hemipristis elongatus* (Klunzinger, 1871)**

English names : Fossil shark, Snaggletooth shark

Malay name : Yu puteh

Thai name : Chalarm Noo



14

***Mustelus mosis* Hemprich and Ehrenberg, 1899**

English name : Arabian smooth-hound

Malay name : Yu jaras

Thai name : Chalarm Noo



15

***Paragaleus tengi* (Chen, 1963)**

English name : Straight-tooth weasel shark

Malay name : Yu

Japanese name : Ten-ibara zame

Thai name : Chalarm Noo



16

***Rhizoprionodon oligolinx* Springer, 1964**

English name : Grey sharpnose shark

Malay name : Yu minyak

Japanese name : Ankou zame

Thai name : Chalarm Paag-laem



17

Carcharhinus sealei (Pietschmann, 1916)

English name : Blackspot shark

Malay name : Yu pasir

Thai name : Chalarm Jud-dum



18

Carcharhinus sorrah (Valenciennes in Müller and Henle, 1839)

English names : Spot-tail shark, School shark, Sorrah shark

Malay name : Yu kepak hitam

Japanese name : Hourai zame

Thai name : Chalarm Jud-dum



19

Carcharhinus dussumieri (Valenciennes in Müller and Henle, 1839)

English names : Whitecheek shark, Widemouth blackspot shark

Malay name : Yu pasir

Japanese name : Sumitsuki zame

Thai name : Chai-gruey



20

Rhizoprionodon acutus (Rüppell, 1837)

English names : Milk shark, Longmans dogshark, Fish shark, White-eye shark

Malay name : Yu

Japanese name : Hiragashira

Thai name : Chalarm Paag-laem



Scoliodon laticaudus Müller and Henle, 1838

English name : Spadenose shark
Malay names : Yu pasir, Yu jerih
Japanese name : Togariankou zame
Thai name : Chalarm Noo

21



Hemigaleus microstoma Bleeker, 1852

English names : Weasel shark, Sicklefin weasel shark
Malay name : Yu pasir
Thai name : Chalarm Noo

22



Chiloscyllium punctatum Müller and Henle, 1838

English names : Grey carpet shark, Brown-banded catshark,
Brown-spotted catshark spotted catshark,
Brown-banded bamboo shark
Malay names : Yu bodoh, Yu tokeh, Yu punai
Japanese name : Inu zame
Thai name : Chalarm Gob

23



Loxodon macrorhinus Müller and Henle, 1839

English names : Sliteye shark, Jordans blue dogshark,
Slender dogshark
Malay name : Yu
Japanese name : Togarime zame
Thai name : Chalarm Paag-laem

24



25

Carcharhinus amblyrhynchoides (Whitley, 1934)

English names : Graceful shark, Queensland shark

Malay name : Yu

Thai name : Chalarn Nah-moo



26

Sphyrna lewini (Griffith and Smith, 1834)

English names : Scalloped hammerhead, Kidney-headed shark

Malay names : Yu tukul, Yu bengkong, Yu sanggul, Yu mata jauh,
Yu palang, Yu parang

Japanese name : Aka shumoku zame

Thai name : Chalarn Hua-kong



27

Carcharhinus plumbeus (Nardo, 1827)

English names : Sandbar shark, Thickskin shark

Malay name : Yu

Japanese names : Mejiro zame, Yaji buka

Thai name : Chalarn Kradohng-soong



28

Sphyrna mokarran (Rüppell, 1837)

English name : Great hammerhead

Malay names : Yu tukul, Jerong tenggiri, Yu parang

Japanese name : Hirashumoku zame

Thai name : Chalarn Hua-kon-yai



29

Stegostoma fasciatum (Hermann, 1783)

English names : Zebra shark, Leopard shark

Malay names : Yu kebut, Yu chechok, Yu tokeh

Japanese name : Torafu zame

Thai name : Chalarm-sue-dao



30

Triaenodon obesus (Rüppell, 1837)

English names : Whitetip reef shark, Whitetip shark, Blunthead shark

Malay name : Yu sirip putih

Japanese names : Nemuri buka, Nemuri zame

Thai name : Chalarm Keesao



31

Galeocerdo cuvier (Péron and LeSueur in LeSueur, 1822)

English name : Tiger shark

Malay names : Yu tenggiri, Yu giling

Japanese name : Itachi zame

Thai name : Chalarm Suea



32

Carcharhinus falciformis (Bibron, 1839)

English name : Silky shark

Malay name : Yu

Japanese name : Kurotogari zame

Thai name : Chalarm Thao



Chiloscyllium plagiosum (Bennett, 1830)

English name : Whitespotted bambooshark

Malay name : Yu bodoh

Japanese name : Shiroboshitenjiku zame

Thai name : Chalarm Gob

33



Centrophorus moluccensis Bleeker, 1860

English names : Endeavour Dogfish, Smallfin gulper shark

Malay name : Yu minyak

Japanese name : Okinawa yajiri zame

34



Chaenogaleus macrostoma (Bleeker, 1852)

English name : Hooktooth shark

Malay name : Yu

Thai name : Chalarm Noo

35



Squalus megalops (Macleay, 1881)

English names : Piked spurdog, Dogshark, Piked dogfish, Skittle dog,
Shortnose spurdog, Shortnose spiny dogfish, Spiked dogfish,
Spurdog, Tasmanian dogfish

Malay names : Yu duri pasir, Yu jereh

Japanese name : Tsumari-tsuno zame

Thai name : Chalarm Maew

36



COMMERCIAL RAYS SPECIES IN MALAYSIA

Dasyatis akajei Müller and Henle, 1841

English names : Brown stingray, Estuary stingaree

Malay name : Pari

Japanese name : Aka ei

1



Dasyatis fluviorum Ogilby, 1908

English names : Estuary stingray, Brown stingray, Estuary stingaree

Malay name : Pari

Thai name : Kraban Hin

2



Dasyatis kuhlii (Müller and Henle, 1841)

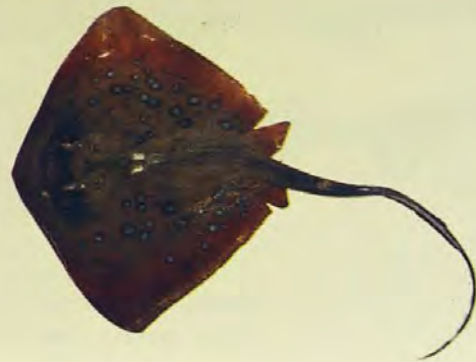
English names : Blue-spotted maskray, Blue-spotted stingaree,
Blue-spotted stingray

Malay names : Pari lalat, Pari riman, Pari tanjung

Japanese name : Yakko ei

Thai name : Krabane Jamoog-woa

3



Dasyatis zugei (Müller and Henle, 1841)

English names : Sharpnose stingray, Pale-edged stingray

Malay names : Pari nyiru, Pari ketuka, Pari tanjung

Japanese name : Zugu ei

Thai name : Tuk-ga

4



5

***Himantura fai* Jordan and Seale, 1906**

English name : Pink whipray

Malay name : Pari

Thai name : Kraban Hin



6

***Himantura imbricata* (Bloch and Schneider, 1801)**

English name : Scaly whipray

Malay names : Pari pasir, Pari lalat, Pari tanjung

Thai name : Tuk ga



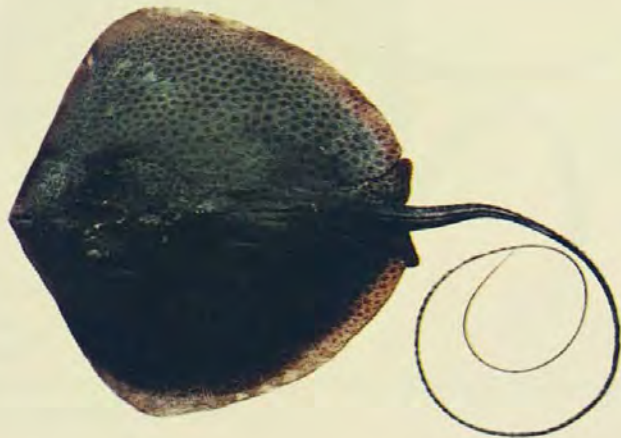
7

***Himantura toshi* Whitley, 1939**

English names : Black-spotted whipray, Coachwhip ray, Tosh's longtail ray, Wulura

Malay name : Pari rimau

Thai name : Krabane Lai-mang-won



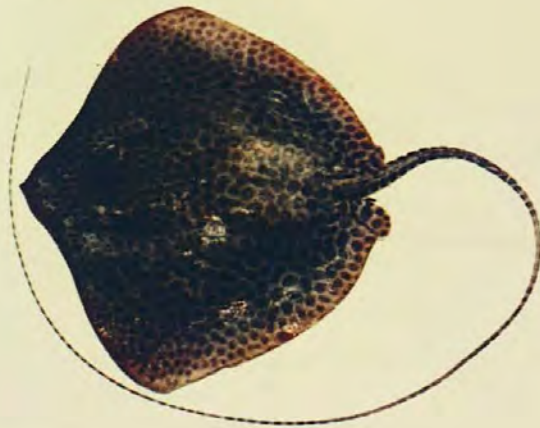
8

***Himantura undulata* (Bleeker, 1852)**

English name : Leopard whipray

Malay name : Pari rimau

Thai name : Krabane Lai-mang-won



***Himantura granulata* (Macleay, 1883)**

English names : Mangrove Whipray, Mangrove ray, Macleays coachwhip ray

Malay name : Pari bintik

Thai name : Krabane Paag-maenam

9



***Himantura uarnacoides* (Bleeker, 1852)**

English name : Bleeker's whipray

Malay name : Pari

10



***Himantura uarnak* (Forsskål, 1775)**

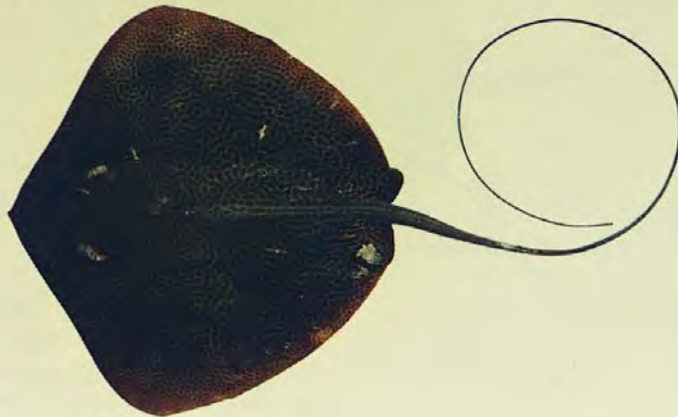
English names : Reticulate whipray, Coachwhip ray, Longtail ray

Malay name : Pari rimau

Japanese name : Hyomon-otome ei

Thai name : Krabane Lai-mang-won

11



***Himantura gerrardi* (Gray, 1851)**

English name : Whitespotted whipray

Malay name : Pari

Japanese name : Otome ei

Thai name : Krabane Paag-maenam

12



13

Himantura jenkinsii (Annandale, 1909)

English name : Jenkin's whipray

Malay name : Pari

Thai name : Krabane Hang-nahm



14

Himantura walga (Müller and Henle, 1841)

English name : Dwarf whipray

Malay names : Pari tanjung, Ketuka

Thai name : Krabane Hang-nahm



15

Pastinachus sephen (Forsskål, 1775)

English names : Cowtail stingray, Banana-tail ray, Fantail ray, Feathertail stingray, Weralli, Guergunna

Malay names : Pari bendera, Pari daun, Pari nyonya, Pari daum, Pari tanjung

Japanese name : Tsuka ei

Thai name : Krabane Thong



16

Taeniura meyeni Müller and Henle, 1841

English names : Blotched fantail ray, Black-blotched stingray, Black-spotted stingray, Giant reef ray, Round ribbontail ray

Malay name : Pari reben

Japanese name : Madara ei

Thai name : Krabane Lai-hin-orn



17

***Aetobatus narinari* (Euphrasen, 1790)**

English names : White-spotted eagle ray, Bonnet skate, Duckbill ray,
Spotted eagle ray

Malay names : Pari lang, Pari helang

Japanese name : Madara tobiei

Thai name : Krabane Nog



18

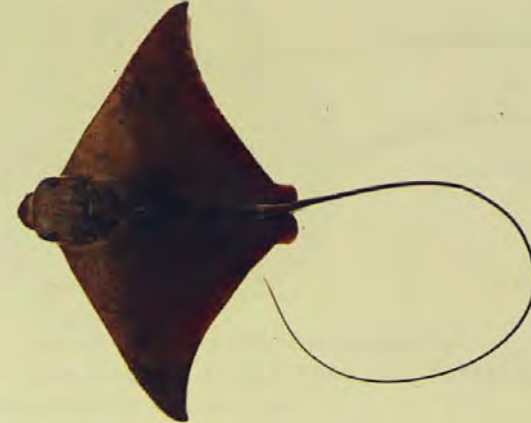
***Aetomylaeus nichofii* (Bloch and Schneider, 1801)**

English name : Banded eagle ray

Malay name : Pari lang

Japanese name : Aosuji tobiei

Thai name : Krabane Nog



19

***Aetomylaeus vespertilio* (Bleeker, 1852)**

English name : Ornate eagle ray

Malay name : Pari lang

Thai name : Krabane Rang-gasae



20

***Mobula kuhlii* (Valenciennes in Müller and Henle, 1841)**

English names : Lesser devilray, shorthorn devilray

Malay name : Pari kelawar

Thai name : Krabane Rhu-ngon-sun



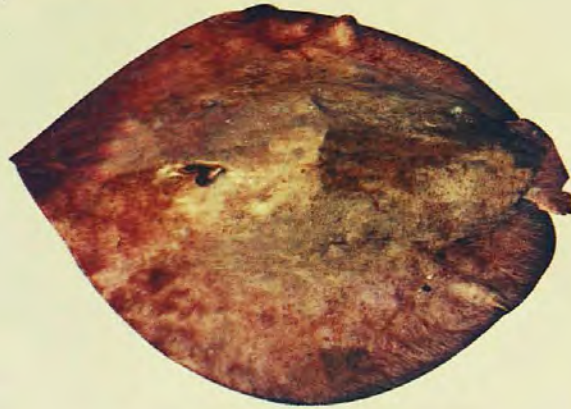
21

Plesiobatis daviesi (Wallace, 1976)

English names : Giant stingree, Deep water stingray

Malay name : Pari merah

Note: Tale not shown



22

Gymnura poecilura (Shaw, 1804)

English name : Longtail butterfly ray

Malay names : Pari tembikar, Pari kelawar

Japanese name : Onaga tsubakuro ei

Thai name : Krabane Pee-sue-hang-yao



23

Gymnura japonica (Schlegel, 1850)

English name : Japanese butterfly ray

Malay names : Pari tembikar, Pari kelawar

Japanese name : Tsubakuro ei



24

Rhynchobatus australiae (Whitley, 1939)

English names : White-spotted guitarfish, Giant guitarfish, Sandshark, Whitespot ray, Whitespot shovelnose ray

Malay names : Yu kemejan, Pari, Yu kia-kia

Japanese name : Tongarisakata zame

Thai name : Ronan Jud-khao



25

Rhinoptera adpersa Valenciennes in Müller and Henle, 1841

English name : Rough cownose ray

Malay name : Pari lang

Thai name : Krabane Nue-dum



26

Rhinoptera javanica Müller and Henle, 1841

English name : Javanese cownose ray

Malay names : Pari susun, Pari lang, Pari ayam

Japanese name : Ushibana tobiei

Thai name : Yeelson



27

Rhinobatos typus Bennett, 1830

English names : Giant shovelnose ray, Common shovelnose ray

Malay name : Yu pari

Thai name : Ronan



28

Rhinobatos thouin (Anonymous, in Lacepede, 1798)

English names : Clubnose guitarfish

Malay names : Yu kemejan, Yu kia-kia

Thai name : Ee-mud



29

***Rhina ancylostoma* Bloch and Schneider, 1801**

English names : Shark ray, Bowmouth guitarfish, Mud skate

Malay name : Yu kemejan

Japanese name : Shinonome sakata zame

Thai name : Ronin



30

***Rhynchobatus laevis* (Bloch and Schneider, 1801)**

English names : Smoothnose wedgefish

Malay names : Yu kemejan, Pari, Yu kia-kia



31

***Urogymnus asperrimus* (Bloch and Schneider, 1801)**

English name : Porcupine ray

Malay names : Pari duri, Pari dedap

Thai name : Krabane Kanoon



32

***Taeniura lymma* (Forsskål, 1775)**

English names : Blue-spotted fantail ray, Blue-spotted lagoon ray, Blue-spotted ribbontail ray, Lagoon ray, Lesser fantail ray, Reef ray

Malay names : Pari reben, Pari karang

Thai name : Krabane Tong



33

Himantura signifer Compagno and Roberts, 1982

English names : Pale whipray, Freshwater stingray

Malay name : Pari sungai

Thai name : Krabane Khao



34

Aetoplatea zonura Bleeker, 1852

English names : Zonetail butterfly ray, Bleeker's butterfly ray

Malay names : Pari tembikar, Pari Kelawar

Thai name : Krabane Pee-sue

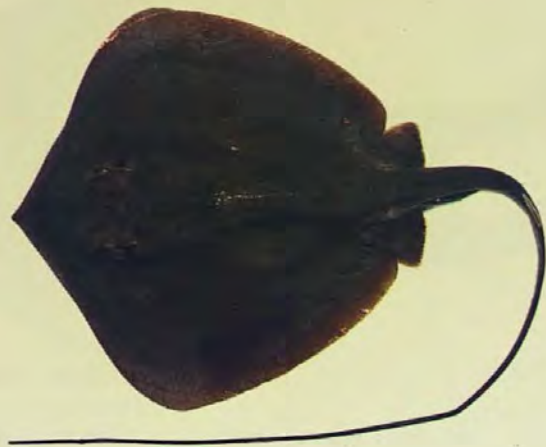


35

Dasyatis sinensis (Steindachner, 1892)

English name : Chinese stingray.

Malay name : Pari.



36

Dasyatis thetidis Bloch and Schneider, 1801

English names : Thorn stingray, Black stinray.

Malay name : Pari duri



CHECKLIST OF ELASMOBRANCHS RECORDED FROM MALAYSIA

1. ● Recorded elsewhere in Malaysia
2. ●● Record during 1999-2004 study
3. ●●● First record from Malaysia

The system of classification for sharks and rays follows that of Compagno (1999). New records from Malaysia was ascertained by comparison with several publications as listed below: Cantor (1849), Maxwell (1921), Herre (1940), Scott (1959), Ommanney (1961), Monkolprasit (1984), Mohsin et al. (1993), Khan, et al. (1996), Mohsin (1996), Mansor et al. (1998), and Manjaji (2002a).

No.	Order/Family/Scientific name/Common name	1	2	3
	ORDER HEXANCHIFORMES			
	COW AND FRILLED SHARKS			
	Family Hexanchidae-Sixgill and sevengill sharks			
1	<i>Hexanchus griseus</i> (Bonnaterre, 1788). Bluntnose sixgill shark.	●	●●	
	ORDER SQUALIFORMES			
	DOGFISH SHARKS			
	Family Squalidae			
2	<i>Squalus megalops</i> (Macleay, 1881). Piked spurdog.	●	●●	
3	<i>Squalus japonicus</i> Ishikawa, 1908. Japanese spurdog.	●		
	Family Centrophoridae-Gulper sharks			
4	<i>Centrophorus moluccensis</i> Bleeker, 1860. Smallfin gulper shark.	●	●●	
	ORDER SQUATINIFORMES			
	ANGEL SHARKS			
	Family Squatinidae-Angel sharks			
5	<i>Squatina tergocellatoides</i> Chen, 1963. Ocellated angel shark.		●●	●●●
	ORDER HETERODONTIFORMES			
	BULLHEAD SHARKS			
	Family Heterontidae-Bullhead sharks			
6	<i>Heterodontus zebra</i> (Gray, 1831). Zebra bullhead shark.	●	●●	

	ORDER ORECTOLOBIFORMES			
	CARPET SHARKS			
	Family Orectolobidae-Webbegongs			
7	<i>Orectolobus maculatus</i> (Bonnaterre, 1788). Spotted wobbegong.		••	•••
8	<i>Orectolobus</i> sp.	•		
	Family Hemiscylliidae-Longtailed carpet sharks			
9	<i>Chiloscyllium griseum</i> Müller and Henle, 1838. Gray bamboo shark.	•	••	
10	<i>Chiloscyllium hasselti</i> Bleeker, 1852. Indonesian bamboo shark.	•	••	
11	<i>Chiloscyllium indicum</i> Gmelin, 1789. Slender bamboo shark.	•	••	
12	<i>Chiloscyllium plagiosum</i> (Bennett, 1830). White-spotted bamboo shark.	•	••	
13	<i>Chiloscyllium punctatum</i> Müller and Henle, 1838. Brown-banded bamboo shark.	•	••	
	Family Ginglymostomatidae-Nurse sharks			
14	<i>Nebrius ferrugineus</i> (Lesson, 1830). Tawny nurse shark.		••	•••
	Family Stegostomatidae-Zebra sharks			
15	<i>Stegostoma fasciatum</i> (Hermann, 1783). Zebra shark.	•	••	
	Family Rhincodontidae-Whale sharks			
16	<i>Rhincodon typus</i> Smith, 1828. Whale shark.	•	••	
	ORDER LAMNIFORMES			
	MACKEREL SHARKS			
	Family Alopiidae-Thresher sharks			
17	<i>Alopios pelagicus</i> Nakamura, 1935. Pelagic thresher.		••	•••
	Family Lamnidae-Mackerel sharks			
18	<i>Isurus oxyrinchus</i> Rafinesque, 1810. Shortfin mako.		••	•••
	ORDER CARCHARHINIFORMES			
	GROUND SHARKS			
	Family Scyliorhinidae-Catsharks			
19	<i>Atelomycterus marmoratus</i> (Bennett, 1830). Coral cat shark.	•	••	
20	<i>Cephaloscyllium sarawakensis</i> sp. nov		••	•••
21	<i>Cephaloscyllium circulopullum</i> sp. nov		••	•••
22	<i>Halaaelurus buergeri</i> Müller and Henle, 1838. Darkspot cat shark.		••	•••
23	<i>Scyliorhinus garmani</i> (Fowler, 1934). Brown-spotted cat shark.	•		
	Family Triakidae-Houndsharks			
24	<i>Mustelus manazo</i> Bleeker, 1854. Star-spotted smooth hound.		••	•••



25	<i>Mustelus mosis</i> Hemprich & Ehrenberg, 1899. Arabian, hardnose.		••	•••
26	<i>Mustelus</i> sp		••	•••
27	<i>Mustelus</i> sp. 1	•		
28	<i>Mustelus</i> sp. 2	•		
	Family Hamigaleidae-Weasel sharks			
29	<i>Chaenogaleus macrostoma</i> (Bleeker, 1852). Hooktooth shark.	•	••	
30	<i>Hemigaleus microstoma</i> Bleeker, 1852. Sickleftin weasel shark.	•	••	
31	<i>Hemipristis elangatus</i> (Klunzinger, 1871). Snaggletooth shark.	•	••	
32	<i>Paragaleus tengi</i> (Chen, 1963). Straighttooth weasel shark.		••	•••
	Family Carcharhinidae-Requiem sharks			
33	<i>Carcharhinus sealei</i> (Pietschmann, 1916). Blackspot shark.	•	••	
34	<i>Carcharhinus sorrah</i> (Valenciennes, in Müller and Henle, 1839). Spottail shark.	•	••	
35	<i>Carcharhinus brevipinna</i> (Müller and Henle, 1839). Spinner shark.	•	••	
36	<i>Carcharhinus falciformes</i> (Bibron, in Müller and Henle, 1839). Silky shark.	•	••	
37	<i>Carcharhinus limbatus</i> (Valenciennes, in Müller and Henle, 1839). Blacktip shark.	•	••	
38	<i>Carcharhinus melanopterus</i> (Quoy & Gaimard, 1824). Blacktip reef shark.	•	••	
39	<i>Carcharhinus leucas</i> (Valenciennes, in Müller and Henle, 1839). Bull shark.	•	••	
40	<i>Carcharhinus amblyrhynchos</i> (Bleeker, 1856). Gray reef shark.	•	••	
41	<i>Carcharhinus amblyrhynchoides</i> (Whitley, 1934). Graceful shark.	•	••	
42	<i>Carcharhinus dussumieri</i> (Valenciennes, in Müller and Henle, 1839). Whitecheek shark.	•	••	
43	<i>Carcharhinus galapagensis</i> (Snodgrass & Heller, 1905). Galapagos shark.		••	•••
44	<i>Carcharhinus borneensis</i> (Bleeker, 1859). Borneo shark.	•	••	
45	<i>Carcharhinus plumbeus</i> (Nardo, 1827). Sandbar shark.	•	••	
46	<i>Carcharhinus macloti</i> (Müller and Henle, 1839). Hardnose shark.	•	••	
47	<i>Carcharhinus hemiodon</i> (Valenciennes, in Müller and Henle, 1839). Pondicherry shark.		••	•••
48	<i>Carcharhinus</i> sp.		••	•••
49	<i>Galeocerdo cuvier</i> (Peron & Lesueur, 1822). Tiger shark.	•	••	
50	<i>Glyphis</i> sp B (Borneo river shark)	•	••	
51	<i>Loxodon macrorhinus</i> Müller and Henle, 1839. Sliteye shark.	•	••	
52	<i>Lamiopsis temmicki</i> (Müller and Henle, 1839). Broadfin shark.	•	••	
53	<i>Negaprionodon acutidens</i> (Rüppell, 1837). Sharptooth lemon shark.	•		
54	<i>Rhizoprionodon oligolinx</i> Springer, 1964. Gray sharpnose shark.	•	••	
55	<i>Rhizoprionodon acutus</i> (Rüppell, 1837). Milk shark.	•	••	
56	<i>Rhizoprionodon longurio</i> (Jordan & Gilbert, 1882). Pacific sharknose shark.	•		
57	<i>Rhizoprionodon taylori</i> (Ogilby, 1915). Australian sharknose shark.	•		
58	<i>Scoliodon laticaudus</i> (Müller and Henle, 1838). Spadenose shark.	•	••	
59	<i>Triaenodon obesus</i> (Rüppell, 1837). Whitetip reef shark.	•	••	

	Family Sphyrnidae-Hammerhead sharks			
60	<i>Sphyrna zygaena</i> (Linnaeus, 1758). Smooth hammerhead.	•		
61	<i>Sphyrna lewini</i> (Griffith & Smith, in Cuvier, Griffith, & Smith, 1834). Scalloped hammerhead	•	••	
62	<i>Sphyrna mokarran</i> (Rüppell, 1837). Great hammerhead.	•	••	
63	<i>Eusphyra blochii</i> (Cuvier, 1837). Winghead shark.	•	••	
	BATOIDS			
	ORDER PRISTIFORMES			
	SAWFISHES			
	Family Pristidae-Modern sawfishes			
1	<i>Anoxypristis cuspidata</i> (Latham, 1794). Knifetooth sawfish.	•		
2	<i>Pristis microdon</i> Latham, 1794. Greattooth or freshwater sawfish.	•	••	
3	<i>Pristis zijsron</i> Bleeker, 1851. Green sawfish.	•	••	
4	<i>Pristis pectinata</i> Latham, 1794. Smalltooth or wide sawfish.	•		
	ORDER RHINIFORMES			
	WEDGEFISHES			
	Family Rhinidae-Sharkrays			
5	<i>Rhina ancylostoma</i> Bloch & Schneider, 1801. Bowmouth guitarfish or shark ray.	•	••	
6	<i>Rhynchobatus australiae</i> Whitley, 1939. White-spotted shovelnose ray.	•	••	
7	<i>Rhynchobatus laevis</i> (Bloch & Schneider, 1801). Smooth nose wedgefish.	•	••	
	ORDER RHINOBATIFORMES			
	GUITARFISHES			
	Family Rhinobatidae-Guitarfishes			
8	<i>Rhinobatos formosensis</i> Norman, 1926. Taiwan guitarfish.		••	•••
9	<i>Rhinobatos typus</i> Bennett, 1830. Giant shovelnose ray.	•	••	
10	<i>Rhinobatos thouin</i> (Anonymous, 1798). Clubnose guitarfish.	•	••	
11	<i>Rhinobatus halavi</i> (Forsskael, 1775). Halavi guitarfish.	•		
12	<i>Rhinobatus obtusus</i> (Müller and Henle, 1841). Widenose guitarfish.	•		
	ORDER TORPEDINIFORMES			
	ELECTRIC RAYS			
	Family Narcinidae-Numbfishes			
13	<i>Narcine brunnea</i> Annandale, 1909. Brown electric ray.		••	•••
14	<i>Narcine indica</i> Henle, 1834. Indian electric ray.		••	•••
15	<i>Narcine maculate</i> (Shaw, 1804). Dark-spotted electric ray.		••	•••
16	<i>Narcine timlei</i> (Bloch & Schneider, 1801). Black-spotted electric ray.	•	••	



17	<i>Narcine prodorsalis</i> Bessednow, 1966. Tonkin electric ray.		••	•••
	Family Narkidae			
18	<i>Temera hardwickii</i> Gray, 1831. Finless sleeper ray.	•		
	ORDER RAJIFORMES			
	SKATES			
	Family Rajidae-Skates			
19	<i>Okamejei boesemani</i> (Ishihara, 1987). Black sand skate.		••	•••
20	<i>Okamejei holandi</i> Jordan & Richardson, 1909). Yellow spotted skate.	•	••	
	ORDER MYLIOBATIFORMES			
	STINGRAYS			
	Family Plesiobatidae-Giant stingarees			
21	<i>Plesiobatis daviesi</i> (Wallace, 1967). Giant stingaree.	•	••	
	Family Dasyatidae-Whiptail stingrays			
22	<i>Dasyatis akajei</i> (Müller and Henle, 1841). Red stingray.	•	••	
23	<i>Dasyatis bennetti</i> (Müller and Henle, 1841). Bennett's cowtail.	•		
24	<i>Dasyatis fluviatorum</i> Ogilby, 1908. Estuary stingray.		••	•••
25	<i>Dasyatis sinensis</i> (Steindachner, 1892). Chinese stingray.		••	•••
26	<i>Dasyatis kuhlii</i> (Müller and Henle, 1841). Blue-spotted stingray.	•	••	
27	<i>Dasyatis microps</i> (Annandale, 1908). Thickspine giant stingray.	•		
28	<i>Dasyatis zugei</i> (Müller and Henle, 1841). Pale-edge stingray.	•	••	
29	<i>Dasyatis thetidis</i> Bloch and Schneider. Thorn stingray	•	••	
30	<i>Himantura bleekeri</i> (Blyth, 1860). Whiptail stingray.	•		
31	<i>Himantura chaophraya</i> Monkolprasit & Roberts, 1990. Giant freshwater stingray.	•	••	
32	<i>Himantura fai</i> Jordan & Seale, 1906. Pink whip ray.	•	••	
33	<i>Himantura gerrardi</i> (Gray, 1851). Sharpnose stingray.	•	••	
34	<i>Himantura granulata</i> (Macleay, 1883). Mangrove whip ray.	•	••	
35	<i>Himantura imbricata</i> (Bloch & Schneider, 1801). Scaly stingray.	•	••	
36	<i>Himantura jenkinsii</i> (Annandale, 1909). Pointed-nose stingray.	•	••	
37	<i>Himantura marginata</i> (Blyth, 1860). Black-edge whip ray.	•		
38	<i>Himantura pastinacoides</i> (Bleeker, 1852). Round whip ray.	•		
39	<i>Himantura signifer</i> Compagno & Robert, 1982. White-edge freshwater whip ray.	•	••	
40	<i>Himantura</i> sp A	•	••	
41	<i>Himantura</i> sp B		••	•••
42	<i>Himantura toshi</i> Whitley, 1939. Black-spotted whip ray.		••	•••
43	<i>Himantura uarnacoides</i> (Bleeker, 1852). Whitenose whip ray.		••	•••
44	<i>Himantura uarnak</i> (Forsskael, 1775). Honeycomb whip ray.	•	••	
45	<i>Himantura undulata</i> (Bleeker, 1852). Leopard whip ray.	•	••	

46	<i>Himantura walga</i> (Müller and Henle, 1841). Dwarf whip ray.	•	••	
47	<i>Pastinachus sephen</i> (Forsskael, 1775). Feathertail stingray.	•	••	
48	<i>Taeniura lymma</i> (Forsskael, 1775). Ribbon-tailed stingray.	•	••	
49	<i>Taeniura mayemi</i> Müller and Henle, 1841. Fantail stingray.	•	••	
50	<i>Urogymnus asperrimus</i> (Bloch & Schneider, 1801). Porcupine ray.	•	••	
	Family Gymnuridae-Butterfly rays			
51	<i>Aetoplatea zonura</i> Bleeker 1852. Zonetail butterfly ray.	•	••	
52	<i>Gymnura poecilura</i> (Shaw, 1804). Longtail butterfly ray.	•	••	
53	<i>Gymnura japonica</i> (Schlegel, 1850). Japanese butterfly ray.		••	•••
54	<i>Gymnura micrura</i> (Bloch & Schneider, 1801). Smooth butterfly ray.	•		
55	<i>Gymnura</i> sp	•		
	Family Myliobatidae-Eagle rays			
56	? <i>Aetobatus guttatus</i> (Shaw, 1804). Indian eagle ray.	•		
57	<i>Aetobatus narinari</i> (Euphrasen, 1790). Spotted eagle ray.	•	••	
58	<i>Aetomyleus maculatus</i> (Gray, 1832). Mottled eagle ray.	•		
59	? <i>Aetomyleus milvus</i> (Valenciennes, in Müller and Henle, 1841). Ocellate eagle ray.	•		
60	<i>Aetomyleus nichofii</i> (Bloch & Schneider, 1801). Banded eagle ray.	•	••	
61	<i>Aetomyleus vespertilio</i> (Bleeker, 1852). Ornate eagle ray.	•	••	
	Family Rhinopteridae-Cownose rays			
62	? <i>Rhinoptera adspersa</i> Valenciennes, in Müller and Henle, 1841. Rough cow-nose ray.	•	••	
63	<i>Rhinoptera javanica</i> Müller and Henle, 1841. Javanese cow-nose ray.	•	••	
	Family Mobulidae-Devil rays			
64	<i>Manta birostris</i> (Donndorff, 1758). Manta ray.	•	••	
65	<i>Mobula eregoodootenkee</i> Garman, 1913. Logfin devil ray.	•		
66	<i>Mobula japonica</i> (Müller and Henle, 1841). Spinetail devil ray.	•	••	
67	<i>Mobula kuhlii</i> (Valenciennes, in Müller and Henle, 1841). Shortfin devil ray.		••	•••
68	<i>Mobula thurstoni</i> (Lloyd, 1908). Benfin or smooth tail devil ray.	•		
	ORDER CHIMAERIFORMES			
	RATFISHES			
	Family Chimaeridae- Ratfishes			
69	<i>Chimaera phantasma</i>	•		
70	<i>Hidrologus</i> sp		••	•••
71	<i>Chimaera</i> sp	•	••	



SEAFDEC Addresses

The Secretariat

P.O. Box 1046, Kasetsart Post Office
Chatuchak, Bangkok, 10903 Thailand
Tel: (66-2) 940-6326, Fax: (66-2) 940-6336
E-mail: secretariat@seafdec.org
<http://secretariat.seafdec.org/>



Training Department

P.O. Box 97, Phrasamutchedi,
Samut Prakan 10290, Thailand
Tel: (66-2) 425-6100, Fax: (66-2) 425-6110 to 11
E-mail: td@seafdec.org
<http://td.seafdec.org/>



Marine Fisheries Research Department

2 Perahu Road, off Lim Chu Kang Road
Singapore 718915
Tel: (65) 6790-7973, Fax: (65) 6861-3196
E-mail: mfrdlibr@pacific.net.sg
<http://www.seafdec.org/mfrd/>



Aquaculture Department

Tigbauan, Iloilo 5021
Republic of the Philippines
Tel: (63-33) 335-1009, 336-2891
Fax: (63-33) 335-1008
E-mail: aqdchief@aqd.seafdec.org.ph
<http://www.seafdec.org.ph/>



Marine Fisheries Resources Development and Management Department

Taman Perikanan Chendering
21080 Kuala Terengganu, Malaysia
Tel: (609) 616-3150, Fax: (609) 617-5136
E-mail: seafdec@mfrdmd.org.my
<http://www.mfrdmd.org.my/>



