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**MARINE CAPTURE FISHERY PRODUCTION IN THE
SOUTH CHINA SEA AREA FROM 1984 TO 1988:
FACTS AND FIGURES**

by

Hiroyuki Yanagawa

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(2) Species group (SEAFOOD species code number)

- ALBA, Albacore (3625)
- ANCH, Anchovy (3203)
- BIGS, Bigeye snapper (3316)
- BIGT, Bigeye tuna (3603)
- BLAC, Black pomfret (3410)
- CUTT, Cuttlefish (3701)
- DRUM, Drum and croaker (3313)
- TRIP, Triplicate and bullet tuna (3607)
- YUFI, Yellowfin (3309)
- COAT, Coar fish (3314)
- HAIN, Hairtail (3303)
- HARD, Hardtail snapper (3408)
- INDM, Indian mackerel (3701)
- INDP, Indo-Pacific mackerel (3702)
- JACK, Jack, cavalla and trevally (3402)
- JELL, Jellyfish (3601)
- KAWA, Eastern little tuna (3605)
- KING, King mackerel (3610)
- LEA, Lizard fish (3303)
- LONG, Longtail tuna (3604)
- MARI, Marine catfish (3301)

LIST OF ABBREVIATIONS

(1) Fishing gear

GILL, Gill net
HOOK, Hook-and-line
LIFT, Lift net
OTHE, Other fishing gears
PUSH, Push net
SEIN, Seine net
SHEL, Shellfish and seaweed collecting gear
SURR, Surrounding net
TRAP, Trap
TRAW, Trawl

(2) Species group (SEAFDEC species code number)

ALBA, Albacore (3605)
ANCH, Anchovy (3503)
BIGS, Bigeye snapper (3316)
BIGT, Bigeye tuna (3603)
BLAC, Black pomfret (3410)
CUTT, Cuttlefish (5701)
DRUM, Drum and croaker (3313)
FRIG, Frigate and bullet tuna (3607)
FUSI, Fusilier (3309)
GOAT, Goat fish (3314)
HAIR, Hairtail (3703)
HARD, Hardtail scad (3408)
INDM, Indian mackerel (3701)
INPA, Indo-Pacific mackerel (3702)
JACK, Jack, cavalla and trevally (3406)
JELL, Jellyfish (7601)
KAWA, Eastern little tuna (3606)
KING, King mackerel (3610)
LIZA, Lizard fish (3303)
LONG, Longtail tuna (3604)
MARI, Marine catfish (3301)

MISC, Miscellaneous fish (3901)
MMOL, Miscellaneous marine molluscs (5801)
NBKM, Narrow-barred king mackerel (3609)
NONP, Non-penaeid prawn (4503), Other prawns
PENP, Penaeid prawn (4501, 4502), Tiger prawn and
penaeid prawns

PONY, Pony fish (3311)
RAYS, Ray (3802)
RHER, Round herring (3502)
ROUN, Round scad (3405)
SARD, Sardine (3501)
SEAM, Sea mussel (5401)
SELA, Selar scad (3407)
SHAR, Shark (3801)
SHTO, Sharp-toothed pike eel and conger eel (3304)
SKIP, Skipjack tuna (3601)
SQUI, Squid (5702)
THRE, Threadfin bream (3310)
TRAS, Trash fish (3902)
YELL, Yellowfin tuna (3602)

1. Introduction

Fishery Statistical Bulletins for the South China Sea Area have been published annually by SEAFDEC from 1976 to 1989. The objective of the Bulletin is to provide standardized classifications and definitions of fishery statistics for data comparison and analysis. The Bulletin, also, provides country data for fisheries management planners, administrators and scientists who engage in research, development and conservation of the fishery resources and fishing industries of the Region. For easier understanding of the components of fisheries in the South China Sea Area, please refer to a previous paper published in 1992 - Fisheries in the South China Sea Area from 1984 to 1988: Facts and Figures by P. Wongsanga and H. Yanagawa (SEAFDEC TD/SP/16).

The South China Sea Area is one of the most important areas for marine capture fisheries in the world. Marine capture fisheries in the Region amounted to 8,000,000 MT in 1988, accounting for 9.47% of the world marine fisheries catch. This paper provides the facts and figures of these catches, from 1984 to 1988, for easier understanding of the trends of marine capture fishery production in the South China Sea Area.

The Bulletin covers the South China Sea, Fishing Area 71, as designated by the FAO, and the territorial waters of the Andaman Sea belonging to Malaysia and Thailand.

A list of abbreviations for fishing gears and species groups is available on pages xii and xiii.

2. Trends of Marine Capture Fishery Production

2.1 South China Sea Area

This Section describes the status of marine capture fisheries in the South China Sea Area, in ASEAN countries, and in individual countries in the Area, during the five years from 1984 to 1988.

2.1.1 Whole Area

For the purposes of this paper, countries included in the whole Area are: Brunei, Taiwan, Hong Kong, Kampuchea, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam. Trends are described for the total marine catch, catch by type of fishing gear, and catch by major species groups.

Total Catch

Trends for marine capture fishery production for the whole Area are shown in Table 1 and Fig. 1. Figures for Brunei from 1984 to 1986 include imported quantities. Catch figures for Taiwan were revised in the 1988 Bulletin, because figures in the previous years included catches from outside the South China Sea Area.

Total production of marine catch in the whole Area showed a steady increase of 20.3% (6,664,000 MT to 8,018,000 MT) from 1984 to 1987. The 1988 catch was 8,009,000 MT.

The percentage of the total catch achieved by each country from 1984 to 1988 remained almost constant (Fig. 2). In 1988 these were as follows: Thailand, 29.2% (2,337,000 MT) at the top; followed by Indonesia, 27.1% (2,170,000 MT); Philippines, 18.0% (1,438,000

MT); Malaysia, 10.3% (823,000 MT); Vietnam, 7.8% (624,000 MT); Taiwan, 4.6% (367,000 MT); Hong Kong, 2.9% (228,000 MT); Singapore, 0.2% (13,000 MT); Kampuchea, 0.1% (6,500 MT); and Brunei, 0.02% (1,500 MT). Thus the three main countries (Thailand, Indonesia and the Philippines) caught over 1,300,000 MT every year, accounting for nearly 75% of the total catch in the whole Area.

The combined catch of the six ASEAN member countries accounted for nearly 85% of the total Area catch in 1988. Trends for the catch in each country are described in Section 2.2.

Table 1. Marine capture fishery production of ten countries in the South China Sea Area from 1984 to 1988.

Country \ Year	(MT)				
	1984	1985	1986	1987	1988
Brunei	5,165	5,480	4,272	2,050	1,548
Taiwan	355,134	342,830	328,889	331,518	367,328
Hong Kong	191,807	190,743	205,476	218,532	228,083
Kampuchea	5,500	6,000	6,500	6,500	6,500
Indonesia	1,712,804	1,821,725	1,922,781	2,017,350	2,169,557
Malaysia	600,473	574,354	563,459	858,807	823,240
Philippines	1,303,310	1,297,119	1,353,505	1,407,439	1,438,361
Singapore	25,042	22,761	20,279	15,096	13,151
Thailand	1,911,485	1,997,165	2,309,480	2,540,052	2,337,216
Vietnam	553,029	576,860	582,077	620,404	624,000
Total	6,663,749	6,835,037	7,296,718	8,017,748	8,008,984

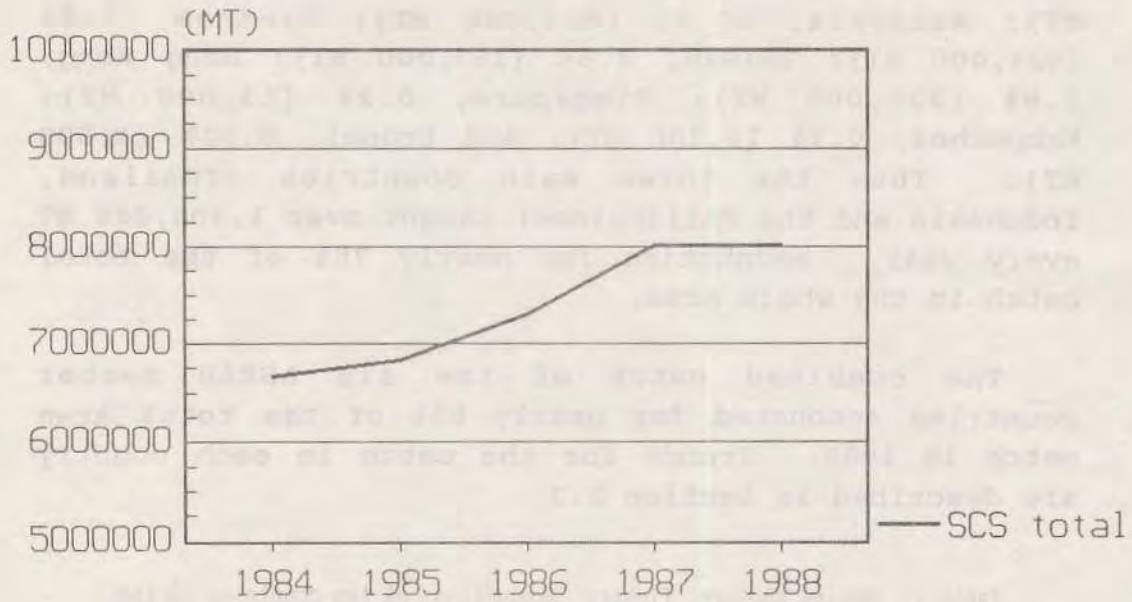


Fig. 1. Trend of marine capture fishery production in the South China Sea Area from 1984 to 1988.

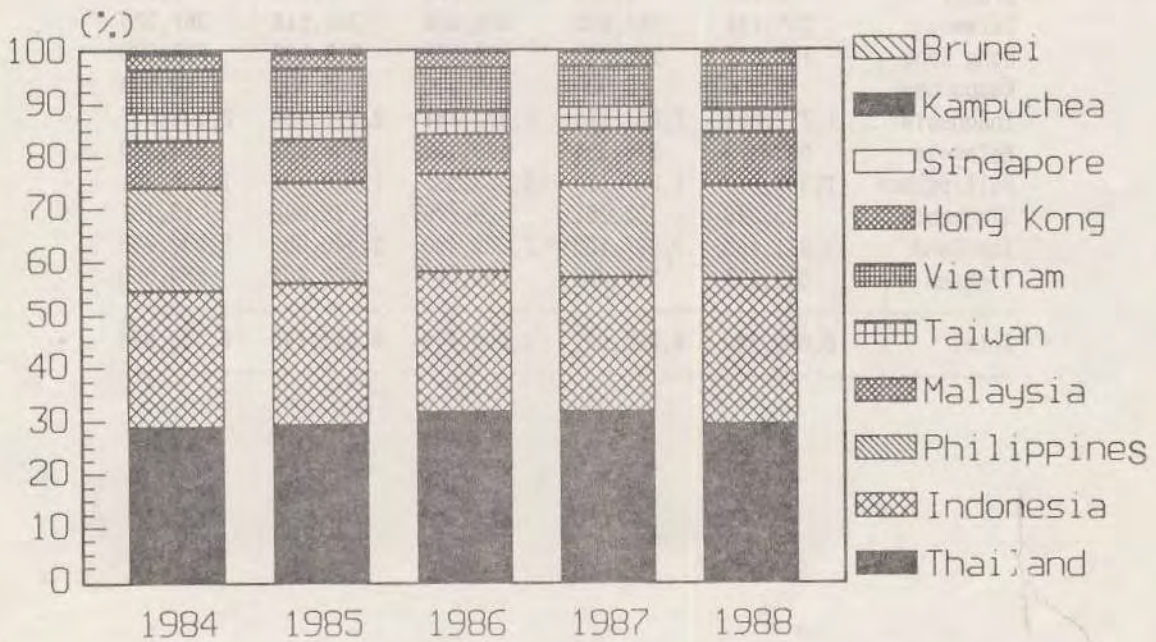


Fig. 2. The percentage of marine capture fishery production by country in the South China Sea Area.

Marine Catch by Type of Fishing Gear - 1984 to 1988

Trends of marine catch by type of fishing gear from 1984 to 1988 in the whole Area are shown in Table 2 and Fig. 3. Data was obtained from five countries - Taiwan, Hong Kong, Malaysia, Philippines and Thailand. Fishing gear was classified into ten types, (i.e., Surrounding net, Seine net, Trawl, Gill net, Lift net, Trap, Hook-and-line, Push net, Shellfish and seaweed collecting gear, and Others).

The combined total catch of the five countries increased steadily from 1984 to 1987, reaching 5,953,000 MT in 1987, a 25.0% increase, but decreasing in 1988 by 12.7% to 5,194,000 MT. Analysis of catches by type of fishing gear, revealed Trawl catch as the most dominant, followed by Surrounding net, Gill net, and Hook-and-line. Catches using Lift net, Seine net, Trap, Push net, and Shellfish and seaweed collecting gear were relatively small.

The catch by Trawl showed a small decrease from 1,720,000 MT in 1984 to 1,694,000 MT in 1985, then increased to over 2,000,000 MT each year until 1988, with a peak of 2,380,000 MT in 1987. As a percentage of the total, Trawl increased from 35.0% in 1985 to 41.7% in 1988 (Fig. 4).

The Surrounding net catch was over 1,000,000 MT each year, increasing steadily from 1,015,000 MT in 1984 to 1,293,000 MT in 1988. It accounted for between 21.2% (1986) and 24.9% (1988) of the total catch over the five years.

The Gill net catch went up steadily from 488,000 MT in 1984 to 588,000 MT in 1987, and then down to 506,000 MT in 1988. There was a slight downward trend with a peak of 10.5% in 1985, decreasing to 9.7% in 1988.

The Hook-and-line catch rose steadily from 444,000 MT in 1984 to 523,000 MT in 1987, but then fell sharply to 381,000 MT in 1988. Percentage figures showed a slight increase from 9.3% of the total catch in 1984 to 10.0% in 1986 but then displayed a downward trend to 7.3% in 1988.

Trend analysis of the other types of fishing gear from 1984 to 1988, showed that the Lift net catch varied between 138,000 MT and 188,000 MT; a percentage of 2.4% (1987) and 3.9% (1985) of the total catch. The Seine net catch was between 122,000 MT and 240,000 MT; 2.3% (1986) and 5.0% (1985) of the total catch. The Trap catch showed figures between 89,000 MT and 152,000 MT and percentages of 1.5% (1987) and 3.2% (1985). Push net catch was between 16,000 MT (1984) and 42,000 MT (1985) accounting for less than 1% of the total catch each year. The Shellfish and seaweed collecting gear catch varied from 4,000 MT (1984) to 38,000 MT (1987), which was also less than 1% of the total catch each year.

Table 2. Catch by type of fishing gear in the whole Area from 1984 to 1988. Data from five countries; Taiwan, Hong Kong, Malaysia, Philippines and Thailand.

	(MT)				
Gear \ Year	1984	1985	1986	1987	1988
Surrounding net	1,015,443	1,115,731	1,113,679	1,285,163	1,292,590
Seine net	150,989	239,987	121,891	162,808	142,075
Trawl	1,720,434	1,694,161	2,030,985	2,379,858	2,167,343
Gill net	487,678	507,133	543,223	587,566	505,717
Lift net	167,922	188,024	138,416	141,980	152,277
Trap	104,212	152,359	98,186	89,102	116,628
Hook-and-line	443,783	463,610	523,188	522,944	380,601
Push net	16,144	41,509	31,457	39,116	27,546
Shellfish c. g.	4,359	16,045	14,227	37,806	15,449
Others	649,990	425,169	642,961	706,311	394,002
Total	4,760,954	4,843,728	5,258,213	5,952,654	5,194,228

Shellfish c. g., Shellfish and seaweed collecting gear.

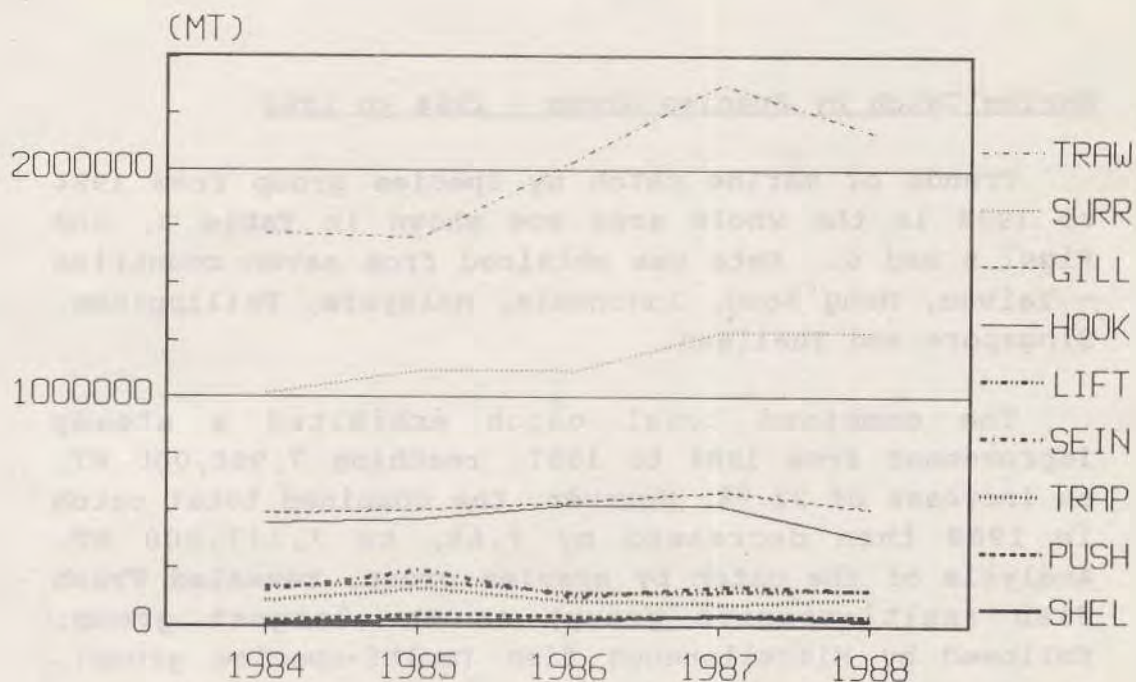


Fig. 3. Trends of catch by type of fishing gear in the whole Area from 1984 to 1988. Data from five countries; Taiwan, Hong Kong, Malaysia, Philippines and Thailand.

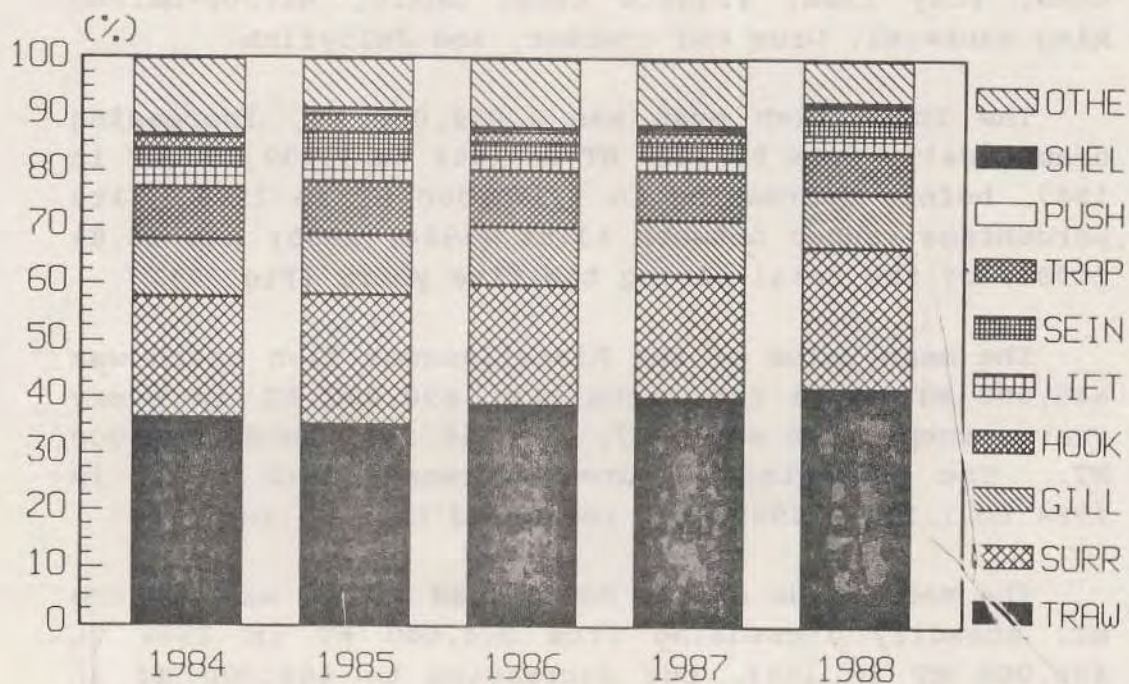


Fig. 4. The percentage of catch by type of fishing gear in the whole Area (five countries) from 1984 to 1988.

Marine Catch by Species Group - 1984 to 1988

Trends of marine catch by species group from 1984 to 1988 in the whole area are shown in Table 3, and Figs. 5 and 6. Data was obtained from seven countries - Taiwan, Hong Kong, Indonesia, Malaysia, Philippines, Singapore and Thailand.

The combined total catch exhibited a steady improvement from 1984 to 1987, reaching 7,986,000 MT, an increase of 22.9%. However, the combined total catch in 1988 then decreased by 7.6%, to 7,377,000 MT. Analysis of the catch by species group, revealed Trash fish (multi-species group) as the largest group, followed by Miscellaneous fish (multi-species group), Round scad, Sardine, Anchovy, Indian mackerel, Non-penaeid prawn, Eastern little tuna, Penaeid prawn, Squid, Skipjack tuna, Indo-Pacific mackerel, Selar scad, Threadfin bream, Jack-cavalla-trevally, Yellowfin tuna, Pony fish, Frigate tuna, Shark, Narrow-barred king mackerel, Drum and croaker, and Jellyfish.

The Trash fish mean was 1,082,000 MT, increasing dramatically from 877,000 MT in 1984 to 1,339,000 MT in 1987, before decreasing to 1,173,000 MT in 1988. Its percentage ranged between 13.5% (1984, 1985) and 16.8% (1987) of the total during the five years (Fig. 7).

The mean value of the Miscellaneous fish catch was 645,000 MT, with the catch over 690,000 MT in every year, except 1986 and 1987, when it fell below 600,000 MT. The percentage figures decreased from 10.7% in 1984 to 7.5% in 1987, but recovered to 9.4% in 1988.

The mean value of the Round scad catch was 395,000 MT, steadily increasing from 344,000 MT in 1984 to 446,000 MT in 1987, but decreasing to 403,000 MT in 1988. There was little variation in the percentages

which ranged between 5.3% (1984) and 5.8% (1986) of the total catch.

The mean value of the Sardine catch over the five years was 360,000 MT. Annually the catch varied greatly, with low catches of 253,000 MT and 208,000 MT in 1984 and 1985, followed by a leap to 405,000 MT in 1986, increasing steadily to 486,000 MT in 1988. The Sardine catch percentage of the total more than doubled from 3.1% in 1985 to 6.6% in 1988.

The mean value of the Anchovy catch over the five years was 323,000 MT, ranging between 291,000 MT and 345,000 MT, and percentages of between 3.9% (1987) and 5.1% (1985) of the total.

The mean values of the Indian mackerel, Non-penaeid prawn, and Eastern little tuna catches over the five years, were each greater than 200,000 MT. The Indian mackerel catch remained reasonably constant, and was 263,000 MT in 1988. The Non-penaeid prawn catch showed a steady increase from 1984 to 1987, but then decreased drastically by 46.8%, dropping to 175,000 MT in 1988. The catch of Eastern little tuna showed a slight increase from 195,000 MT in 1984 to 234,000 MT in 1988.

The mean values of the Penaeid prawn, Squid, Skipjack tuna, Indo-Pacific mackerel and Selar scad catches for the five years were each over 150,000 MT. The Penaeid prawn catch showed little variation from 1984 to 1987, but then increased dramatically by 67.5% over the previous year, to reach 271,000 MT in 1988. The Squid catch showed a slight increase each year from 1984 to 1986, but then dropped 36.9% to 139,000 MT in 1987, improving slightly to 146,000 MT in 1988. The Skipjack tuna catch showed less variation with a peak of 205,000 MT in 1986, and 185,000 MT in 1988. The Indo-Pacific mackerel catch remained constant, with a

1988 catch of 176,000 MT. The Selar scad catch was at its lowest in 1986 (134,000 MT), increasing to 170,000 MT in 1988.

The mean catch values of the other species catch - Threadfin bream, Jack-cavalla-trevally, Yellowfin tuna, Pony fish and Frigate tuna - were each over 100,000 MT between 1984 and 1988.

Table 3. Catch by species group in the whole Area from 1984 to 1988. Data from seven countries; Taiwan, Hong Kong, Indonesia, Malaysia, Philippines, Singapore and Thailand.

(MT)

Species \ Year	1984	1985	1986	1987	1988
Trash fish	877,102	899,554	1,118,524	1,339,000	1,173,326
Miscellaneous fish	693,011	689,646	547,426	597,103	696,124
Round scad	344,189	365,923	414,686	445,607	403,275
Sardine	253,491	207,796	405,460	447,121	486,179
Anchovy	325,991	339,458	290,658	314,028	344,918
Indian mackerel	268,438	282,846	257,197	275,568	262,679
Non-penaeid prawn	246,685	264,586	313,245	327,969	174,617
Eastern little tuna	194,722	207,949	215,321	223,775	234,055
Penaeid prawn	167,101	169,086	191,351	161,866	271,066
Squid	194,385	207,796	220,804	139,293	145,964
Skipjack tuna	144,523	168,190	204,831	196,529	184,751
Indo-Pacific mackerel	166,561	159,900	143,762	154,887	175,793
Selar scad	148,408	147,322	133,901	153,889	169,914
Threadfin bream	94,040	95,992	115,436	135,193	144,127
Jack-cavalla-trevally	85,219	112,357	112,265	121,140	122,511
Yellowfin tuna	86,298	89,313	124,754	132,861	118,510
Pony fish	106,608	107,132	106,748	99,946	108,553
Frigate tuna	87,689	99,375	91,887	102,770	123,041
Shark	98,837	103,999	104,461	102,520	65,211
N-b. king mackerel	78,940	77,002	90,268	94,447	93,008
Drum and croaker	88,247	83,267	74,074	89,628	91,658
Jellyfish	26,230	42,410	94,425	74,092	56,592
Others	1,723,085	1,767,545	1,829,788	2,256,531	1,731,064
Total	6,499,800	6,688,444	7,201,272	7,985,763	7,376,936

N-b. king mackerel, Narrow-barred king mackerel.

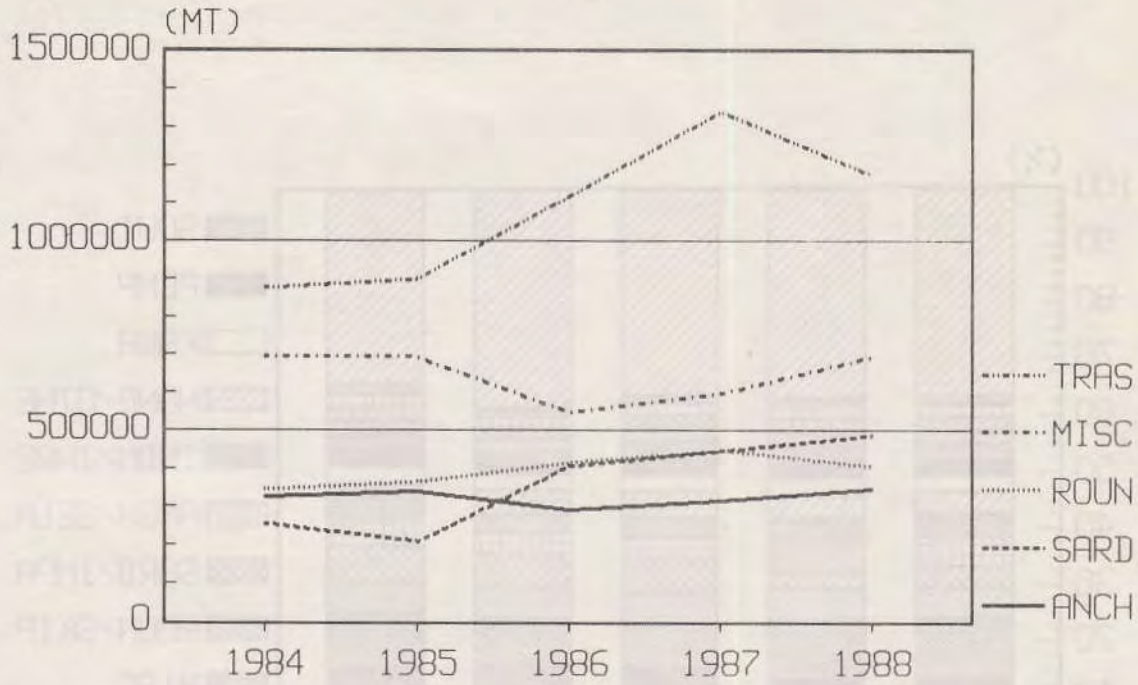


Fig. 5. Trends of catch by species group in the whole Area from 1984 to 1988. Data from seven countries; Taiwan, Hong Kong, Indonesia, Malaysia, Philippines, Singapore and Thailand. (1) Five major species groups.

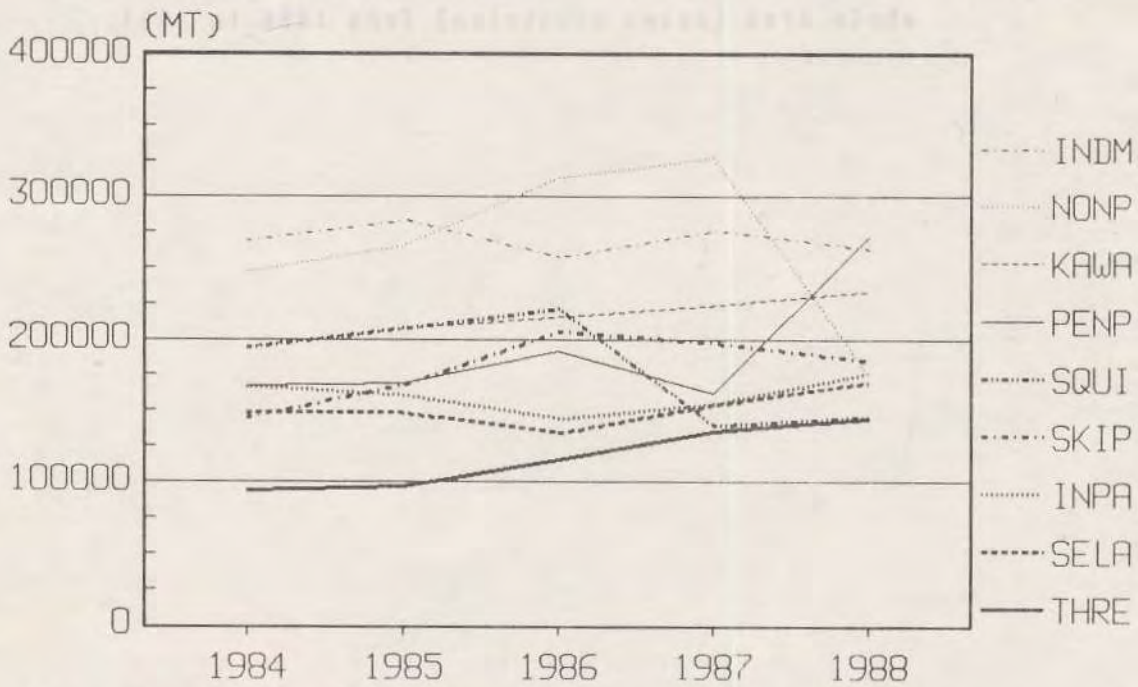


Fig. 6. Trends of catch by species group in the whole Area (seven countries) from 1984 to 1988. (2) The other major species groups.

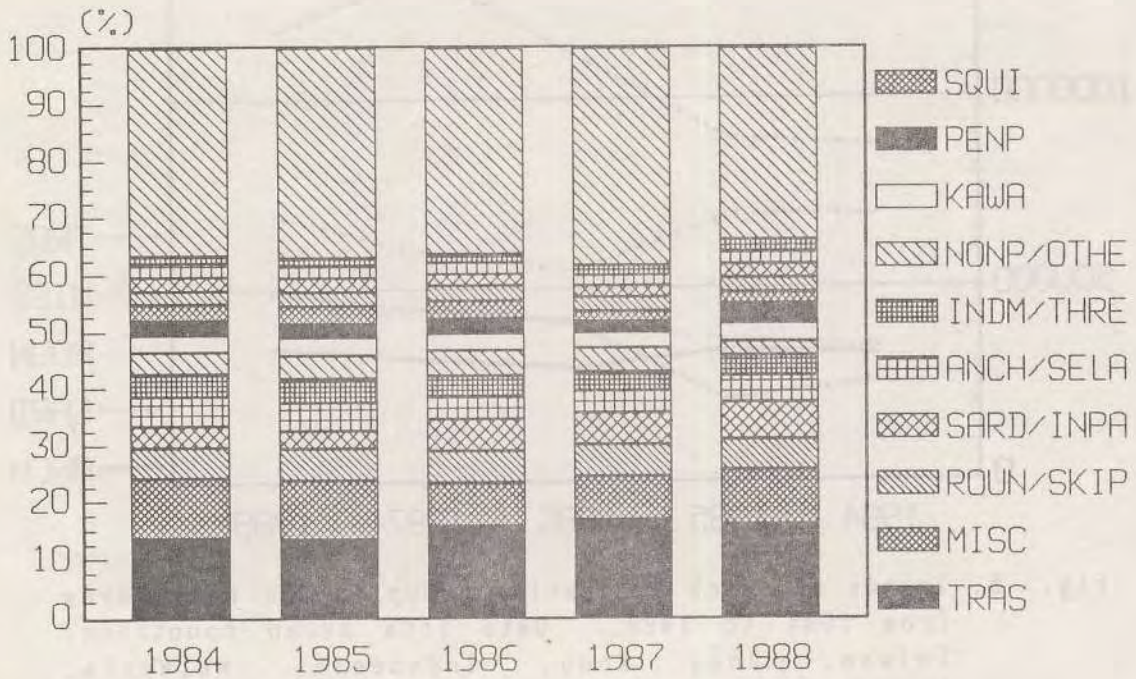


Fig. 7. The percentage of catch by species group in the whole Area (seven countries) from 1984 to 1988.



2.1.2 ASEAN Countries

Member countries of ASEAN are Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand. This section describes trends of total marine catch, catch by type of fishing gear, and catch by major species groups.

Total Catch

Trends for marine capture fishery production for the ASEAN countries are shown in Table 4 and Fig. 8. Figures for Brunei from 1984 to 1986 include imported quantities.

Total production of marine catch in the ASEAN countries showed a steady increase of 23.1% (5,558,000 MT to 6,841,000 MT) from 1984 to 1987, with large increases in 1986 and 1987. The 1988 catch of 6,783,000 MT was almost the same as the previous year.

The percentage of the total caught by each country between 1984 and 1988 remained almost constant (Fig. 9). In 1988, these were as follows: Thailand, 34.5% (2,337,000 MT) at the top; followed by Indonesia, 32.0% (2,170,000 MT); Philippines, 21.2% (1,438,000 MT); Malaysia, 12.1% (823,000 MT); Singapore, 0.2% (13,000 MT) and Brunei, 0.02% (1,500 MT). The three top countries (Thailand, Indonesia and the Philippines) each caught over 1,300,000 MT per year, accounting for nearly 88% of the total catch in the ASEAN countries.

Table 4. Marine capture fishery production of six countries in the ASEAN from 1984 to 1988.

Country \ Year	1984	1985	1986	1987	1988
Brunei	5,165	5,480	4,272	2,050	1,548
Indonesia	1,712,804	1,821,725	1,922,781	2,017,350	2,169,557
Malaysia	600,473	574,354	563,459	858,807	823,240
Philippines	1,303,310	1,297,119	1,353,505	1,407,439	1,438,361
Singapore	25,042	22,761	20,279	15,096	13,151
Thailand	1,911,485	1,997,165	2,309,480	2,540,052	2,337,216
Total	5,558,279	5,718,604	6,173,776	6,840,794	6,783,073

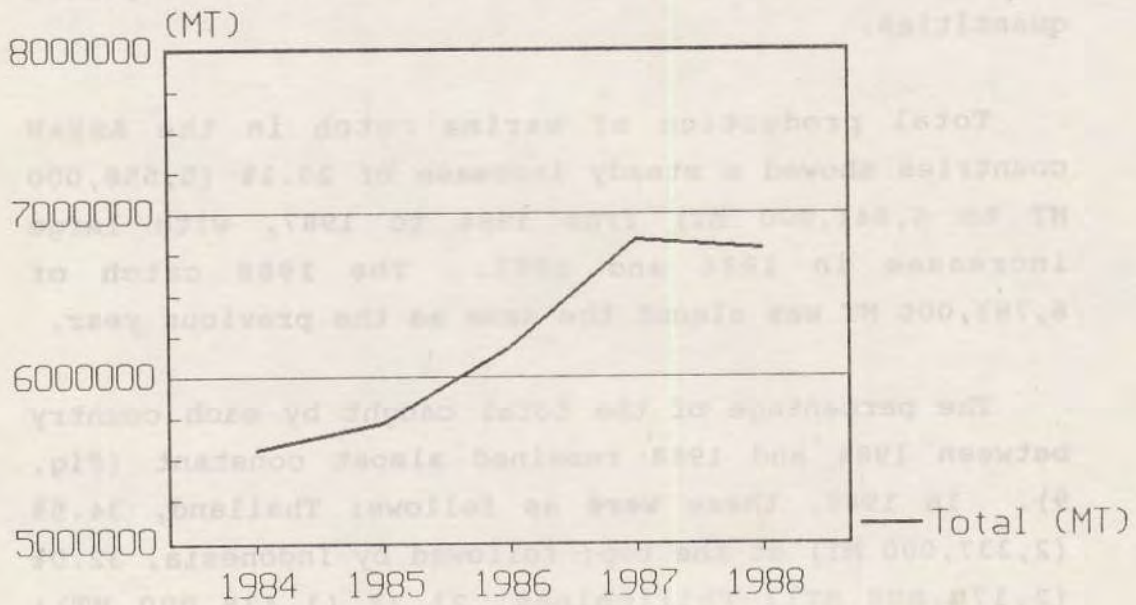


Fig. 8. Trend of marine capture fishery production in the ASEAN from 1984 to 1988.

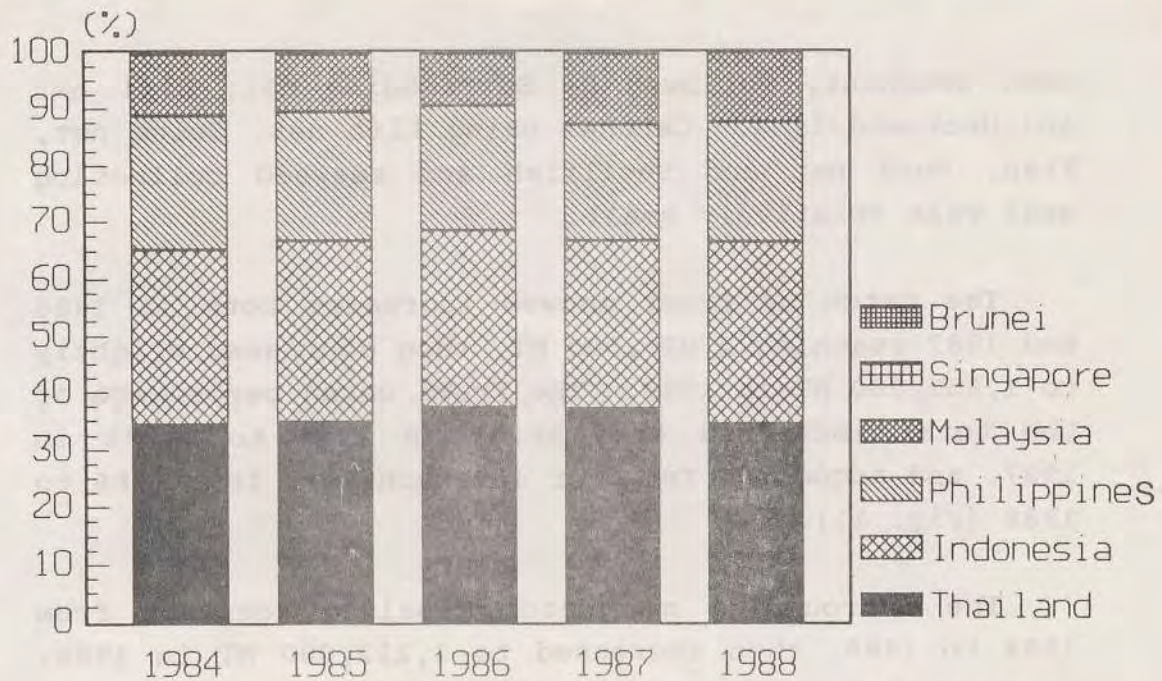


Fig. 9. The percentage of marine capture fishery production by country in the ASEAN from 1984 to 1988.

Marine Catch by Type of Fishing Gear - 1984 to 1988

Trends of marine catch by type of fishing gear from 1984 to 1988 in the ASEAN countries are shown in Table 5 and Fig. 10. Data was obtained from three countries - Malaysia, Philippines and Thailand. Fishing gear was classified as ten types throughout the Area.

The combined total catch of the three countries showed a steady increase of 26.0% from 1984 to 1987, and a big increase of 13.7%, between 1986 and 1987, reaching 4,806,000 MT. The 1988 catch showed a slight decrease recording 4,599,000 MT. Analysis of catches by type of fishing gear, revealed Trawl catch as the

most dominant, followed by Surrounding net, Gill net and Hook-and-line. Catches using Lift net, Seine net, Trap, Push net and Shellfish and seaweed collecting gear were relatively small.

The catch by Trawl showed increases both in 1986 and 1987 reaching 2,015,000 MT, then decreased slightly to 1,853,000 MT in 1988. The Trawl catch percentage of the total increased from 36.0% in 1985 to 41.9% in 1987, and accounted for over 40% each year from 1986 to 1988 (Fig. 11).

The Surrounding net catch remained constant from 1984 to 1986, then increased to 1,212,000 MT in 1988. It accounted for between 24.2% (1986) and 26.6% (1984) of the total catch over the five years.

The Gill net catch remained fairly constant at 433,000 MT in 1984 and 445,000 MT in 1988 with a peak of 452,000 MT in 1987. It showed a slight downward trend at 11.6% of the total in 1985 and 9.4% in 1987.

The Hook-and-line catch increased slightly between 1984 and 1986 reaching 315,000 MT, then it decreased to 300,000 MT in 1988. It accounted for between 6.4% (1987) and 7.5% (1986) of the total catch during the five years.

Trend analysis of the other types of fishing gear from 1984 to 1988, showed that the Lift net catch decreased from 168,000 MT in 1984 to 138,000 MT in 1986, then increased to 152,000 MT in 1988; this was between 3.0% (1987) and 4.4% (1984) of the total. The Seine net catch doubled from 82,000 MT in 1984 to 161,000 MT in 1987, then decreased to 141,000 MT in 1988; the percentage of the catch ranged between 2.2%

(1984) and 3.4% (1987) of the total. The Trap catch varied between 89,000 MT and 144,000 MT, with a percentage of between 1.9% (1987) and 3.7% (1985). The Push net catch was between 16,000 MT and 42,000 MT, 0.4% (1984) and 1.1% (1985) of the total. The Shellfish and seaweed collecting gear catch was between 4,000 MT and 38,000 MT accounting for less than 1% of the total catch each year.

Table 5. Catch by type of fishing gear in the ASEAN from 1984 to 1988.
Data from three countries; Malaysia, Philippines and Thailand.
(MT)

Gear \ Year	1984	1985	1986	1987	1988
Surrounding net	1,015,423	1,023,633	1,020,831	1,191,416	1,211,793
Seine net	81,861	86,974	120,159	160,865	141,070
Trawl	1,427,897	1,391,746	1,698,310	2,014,945	1,853,397
Gill net	432,512	450,223	438,338	451,884	445,234
Lift net	167,922	159,265	138,416	141,980	152,277
Trap	104,212	144,265	98,186	89,102	105,626
Hook-and-line	258,365	279,239	315,156	305,276	299,546
Push	16,144	41,509	31,457	39,116	27,546
Shellfish c. g.	4,359	16,045	14,227	37,806	15,449
Others	306,573	275,739	351,364	373,908	346,879
Total	3,815,268	3,868,638	4,226,444	4,806,298	4,598,817

Shellfish c. g., Shellfish and seaweed collecting gear.

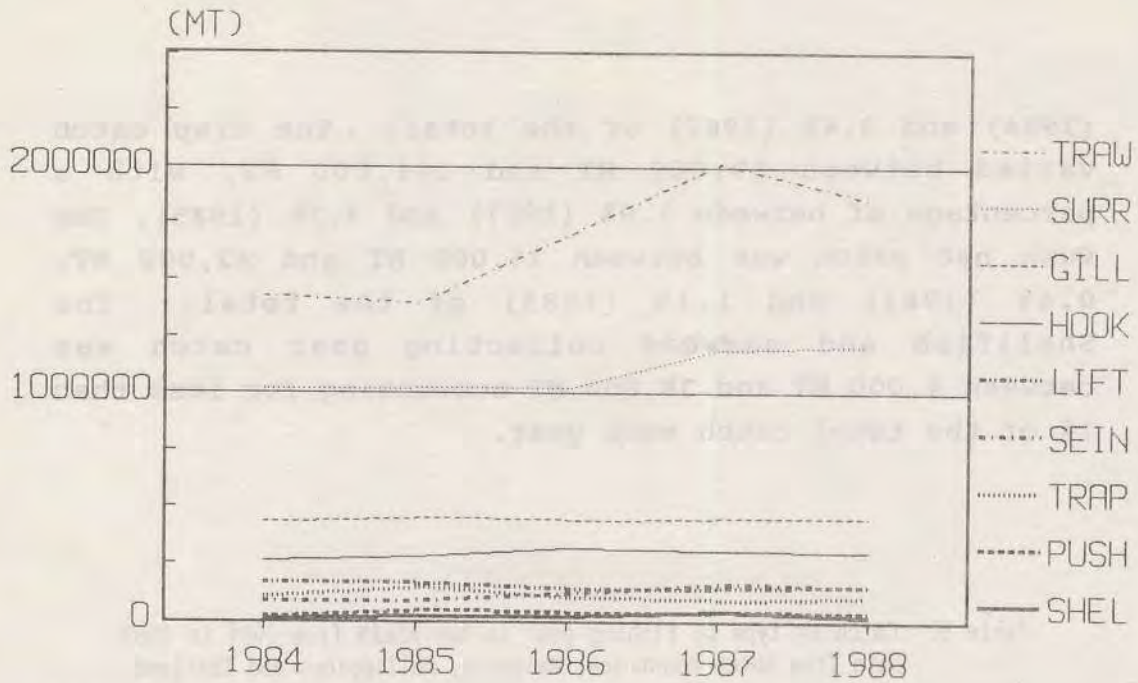


Fig. 10. Trends of catch by type of fishing gear in the ASEAN from 1984 to 1988. Data from three countries; Malaysia, Philippines and Thailand.

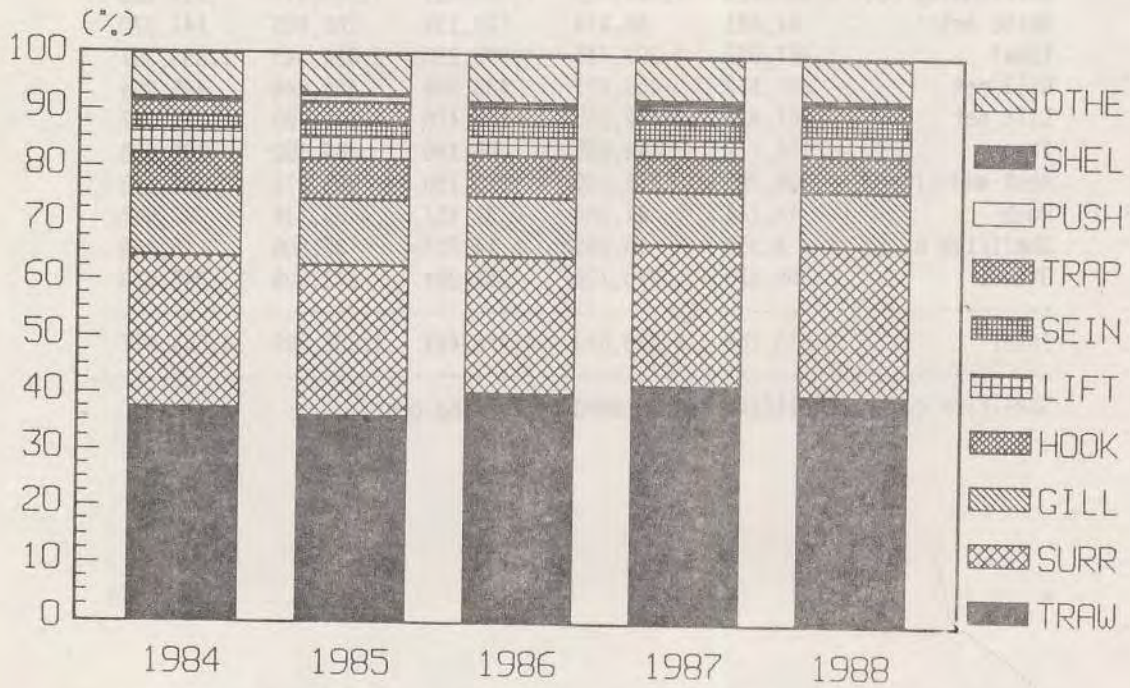


Fig. 11. The percentage of catch by type of fishing gear in the ASEAN (three countries) from 1984 to 1988.

Marine Catch by Species Group

Trends of marine catch by species group from 1984 to 1988 in ASEAN countries are shown in Table 6, and Figs. 12 and 13. Data was obtained from five countries - Indonesia, Malaysia, Philippines, Singapore and Thailand.

The combined total catch showed a steady improvement from 1984 to 1987, reaching 6,839,000 MT, an increase of 23.2%, then remaining constant at 6,782,000 MT in 1988. Analysis of the catch by species group revealed Trash fish (multi-species group) as the largest group, followed by Miscellaneous fish (multi-species group), Round scad, Sardine, Anchovy, Indian mackerel, Eastern little tuna, Non-penaeid prawn, Penaeid prawn, Indo-Pacific mackerel, Skipjack tuna, Selar scad, Squid, Jack-cavalla-trevally, Pony fish, Threadfin bream, Frigate tuna, Yellowfin tuna, Narrow-barred king mackerel and Jellyfish.

Examination of the mean catch in the five years from 1984 to 1988, showed that Trash fish was the most dominant (1,082,000 MT). It increased slightly from 877,000 MT in 1984 to 900,000 MT in 1985, increased dramatically to 1,339,000 MT in 1987, but then decreased slightly to 1,173,000 MT in 1988. The Trash fish catch ranged between 15.8% (1984, 1985) and 19.6% (1987) of the total catch during the five years (Fig. 14).

The mean value of the Miscellaneous fish catch over the five years was 543,000 MT, with over 600,000 MT in 1984 and 1985, 470,000 MT in 1986 and over 500,000 MT in 1987 and 1988. Its percentage of the total decreased from 11.1% in 1984 to 7.5% in 1988.

The mean value of the Round scad catch over the five years was 384,000 MT, increasing steadily from 336,000 MT in 1984 to 441,000 MT in 1987, but then decreasing to 374,000 MT in 1988. The catch ranged between 5.5% (1988) and 6.7% (1986) of the total.

The mean value of the Sardine catch was 347,000 MT. It decreased from 242,000 MT in 1984 to 191,000 MT in 1985, but then doubled to 393,000 MT in 1986, and increased further to 473,000 MT in 1988. Its percentage of the total more than doubled from 3.3% in 1985 to 7.0% in 1988.

The mean value of the Anchovy catch over the five years was 322,000 MT, varying between 289,000 MT and 344,000 MT, and ranging between 4.6% (1987) and 5.9% (1985) of the total.

The mean values of the Indian mackerel and the Eastern little tuna catches over the five years, were both greater than 200,000 MT. The Indian mackerel catch remained reasonably constant during the five year period, and was 263,000 MT in 1988. It was between 3.9% (1988) and 5.0% (1985) of the total. The Eastern little tuna catch showed a slight increase from 184,000 MT in 1984 to 234,000 MT in 1988, with a percentage of between 3.1% (1987) and 3.5% (1988).

The mean values of the Non-penaeid prawn, Penaeid prawn, Indo-Pacific mackerel, Skipjack tuna and Selar scad catches over the five years, were each over 150,000 MT. The Non-penaeid prawn catch showed a steady increase from 1984 to 1987 at 245,000 MT, but decreased drastically to 126,000 MT in 1988. The Penaeid prawn catch showed little change from 1984 to 1987, but then increased dramatically by 80.9% reaching 253,000 MT in 1988. The Indo-Pacific mackerel catch remained constant, with a 1988 catch of 143,000 MT.

The Skipjack tuna catch doubled from 75,000 MT in 1984 to 148,000 MT in 1985, and then increased steadily to 183,000 MT in 1988. The Selar scad catch was at its lowest in 1986 (134,000 MT), increasing to 170,000 MT in 1988. The mean catch values of the other species - Squid, Jack-cavalla-trevally and Pony fish - were each over 100,000 MT between 1984 and 1988.

Table 6. Catch by species group in the ASEAN from 1984 to 1988. Data from five countries; Indonesia, Malaysia, Philippines, Singapore and Thailand.

(MT)					
Species \ Year	1984	1985	1986	1987	1988
Trash fish	877,102	899,554	1,118,524	1,339,000	1,173,326
Miscellaneous fish	614,296	609,051	470,171	510,190	510,517
Round scad	336,183	360,241	410,086	440,866	374,358
Sardine	241,692	191,090	393,271	434,070	473,391
Anchovy	323,023	338,240	289,487	312,857	343,960
Indian mackerel	268,438	282,846	257,197	275,568	262,679
Eastern little tuna	184,409	194,886	207,606	210,845	233,936
Non-penaeid prawn	162,937	180,184	230,125	245,202	126,173
Penaeid prawn	150,636	150,873	171,277	140,043	253,400
Indo-Pacific mackerel	166,561	159,900	143,762	154,887	143,029
Skipjack tuna	75,410	148,020	175,563	176,326	183,483
Selar scad	148,408	147,322	133,901	153,889	169,914
Squid	106,261	109,010	118,089	134,767	130,612
Jack-cavalla-trevally	84,439	111,760	111,649	120,431	121,676
Pony fish	106,608	107,132	106,748	99,946	108,553
Threadfin bream	78,808	80,890	96,180	112,220	121,747
Frigate tuna	80,305	95,725	87,225	98,032	105,578
Yellowfin tuna	59,341	64,968	97,375	92,644	100,588
N-b. king mackerel	75,650	73,841	87,091	90,957	83,910
Jellyfish	26,230	42,410	94,425	74,092	74,255
Drum and croaker	55,117	54,244	63,714	63,347	71,925
Shark	52,084	49,887	59,450	53,474	55,643
Others	1,279,176	1,261,050	1,246,588	1,505,091	1,558,872
Total	5,553,114	5,713,124	6,169,504	6,838,744	6,781,525

N-b. king mackerel, Narrow-barred king mackerel

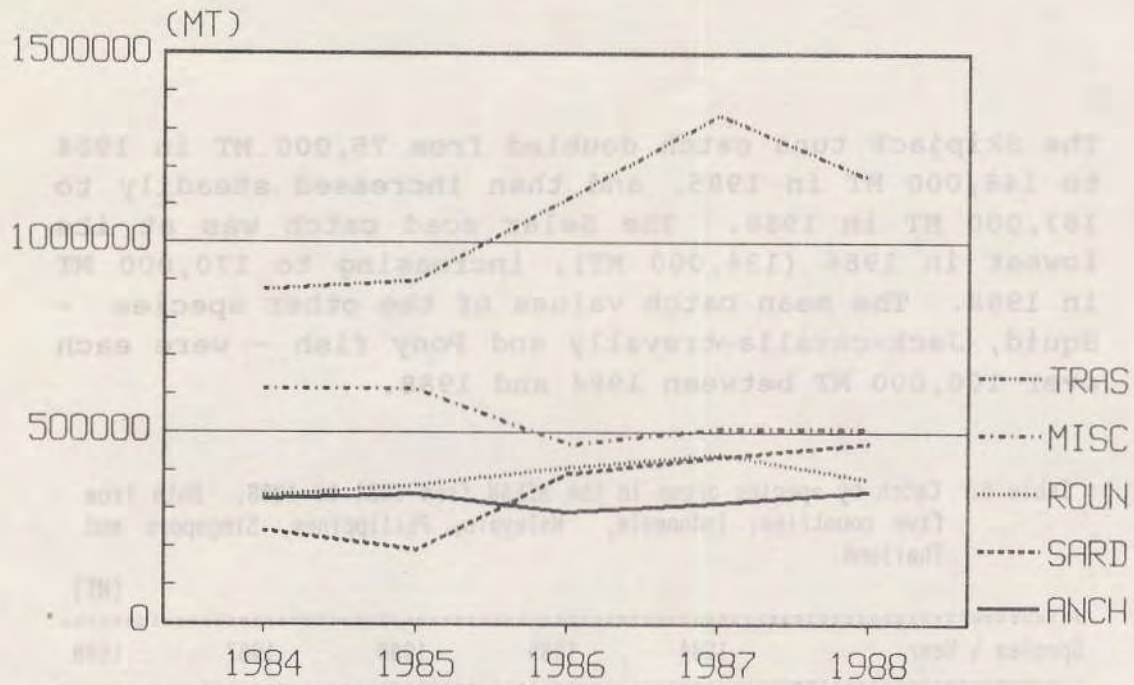


Fig. 12. Trends of catch by species group in the ASEAN from 1984 to 1988. Data from five countries; Indonesia, Malaysia, Philippines, Singapore and Thailand. (1) Five major species groups.

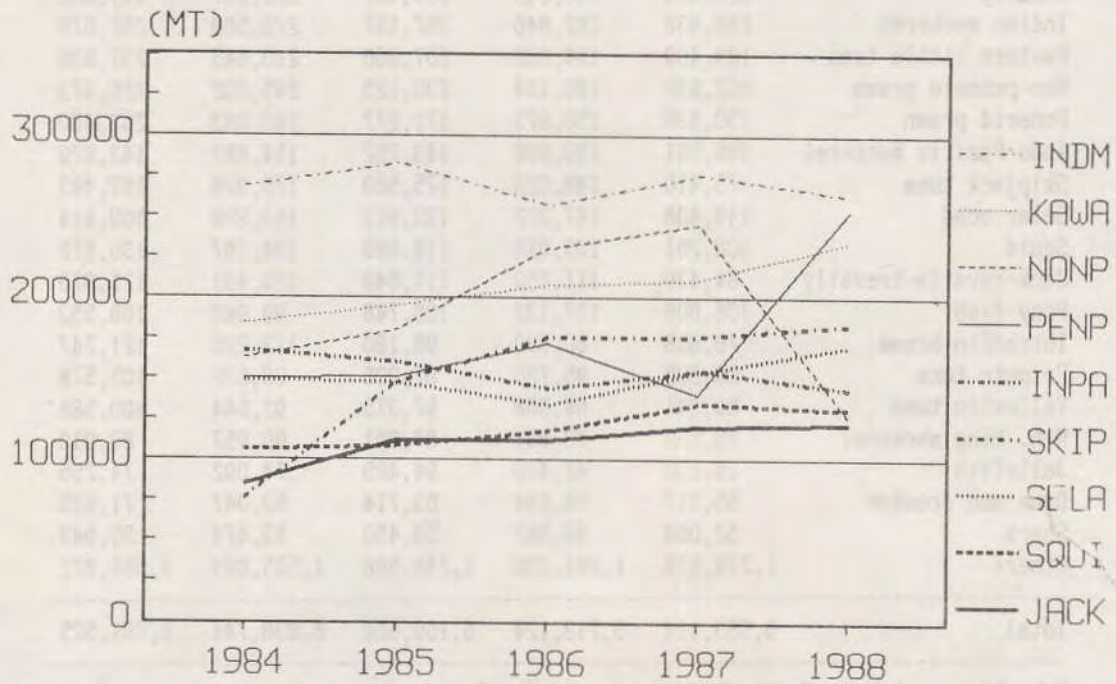


Fig. 13. Trends of catch by species group in the ASEAN (five countries) from 1984 to 1988. (2) The other major species groups.

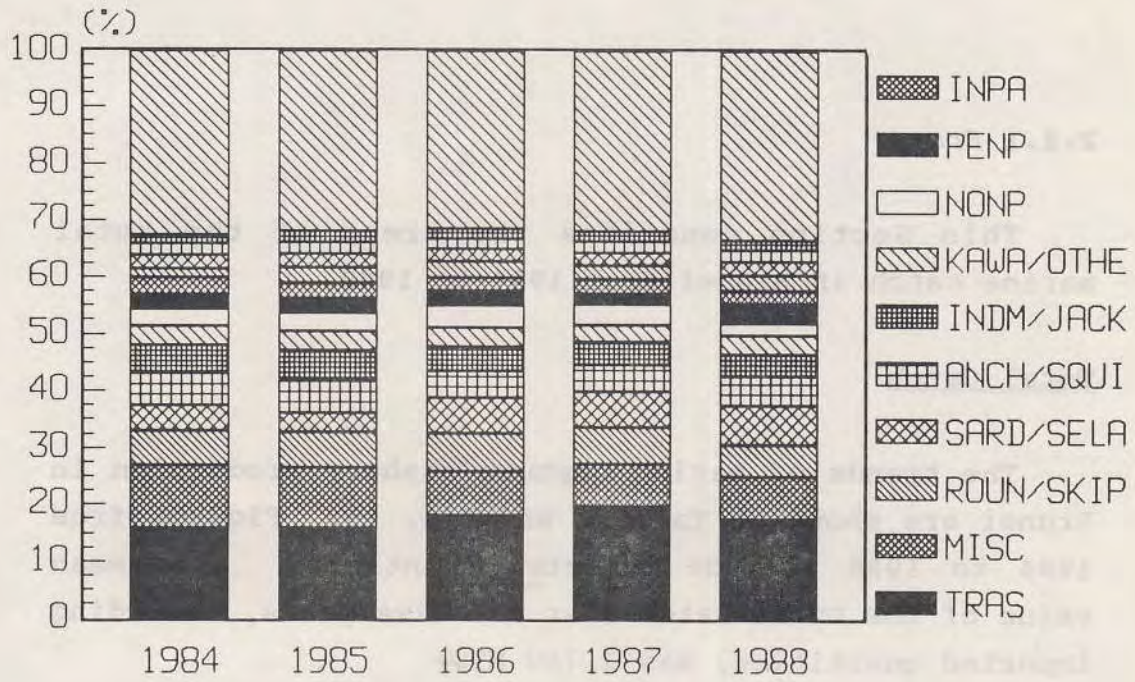


Fig. 14. The percentage of the catch by species group in the ASEAN (five countries) from 1984 to 1988.

2.2 Individual Countries

This Section describes trends by total catch, catch by type of fishing gear, and catch by major species groups in each country in the Area from 1984 to 1988.

2.2.1 Brunei

This Section describes the trend of the total marine catch in Brunei from 1984 to 1988.

Total Catch

The trends of marine capture fishery production in Brunei are shown in Table 7 and Fig. 15. Figures from 1984 to 1986 include imported quantities. The mean value of the total catch over the five years, including imported quantities, was 3,700 MT.

The actual catches, excluding imported quantities were 2,050 MT in 1987 and 1,550 MT in 1988; low when compared with the other countries in the Area, and accounting for only 0.02% of the total.

Table 7. Marine capture fishery production in Brunei from 1984 to 1988.

Year	1984	1985	1986	1987	1988
Catch (MT)	5,165	5,480	4,272	2,050	1,548

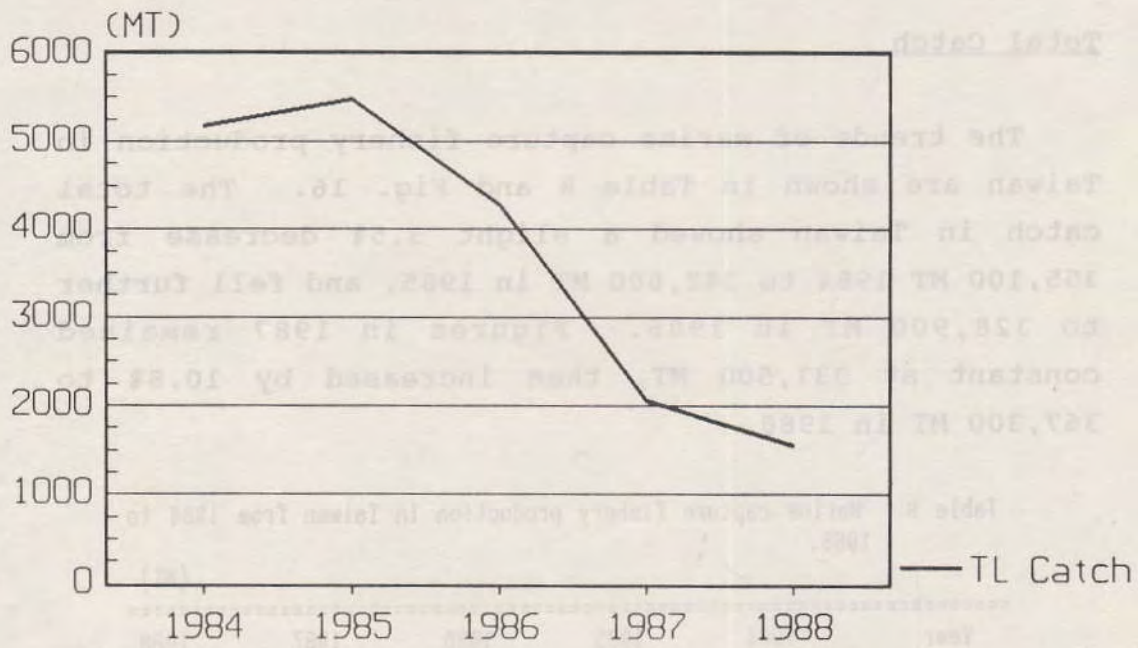


Fig. 15. Trend of marine capture fishery production in Brunei from 1984 to 1988.

2.2.2 Taiwan

This Section describes the trends for total marine catch, catch by type of fishing gear and catch by major species in Taiwan from 1984 to 1988. The total catch figures were obtained from the South China Sea Area (revised data in 1988), however, figures for catches by type of fishing gear and by species group from 1984 to 1987 included catches from outside the South China Sea Area.

Total Catch

The trends of marine capture fishery production in Taiwan are shown in Table 8 and Fig. 16. The total catch in Taiwan showed a slight 3.5% decrease from 355,100 MT 1984 to 342,800 MT in 1985, and fell further to 328,900 MT in 1986. Figures in 1987 remained constant at 331,500 MT, then increased by 10.8% to 367,300 MT in 1988.

Table 8. Marine capture fishery production in Taiwan from 1984 to 1988.

	(MT)				
Year	1984	1985	1986	1987	1988
Catch	355,134	342,830	328,889	331,518	367,328

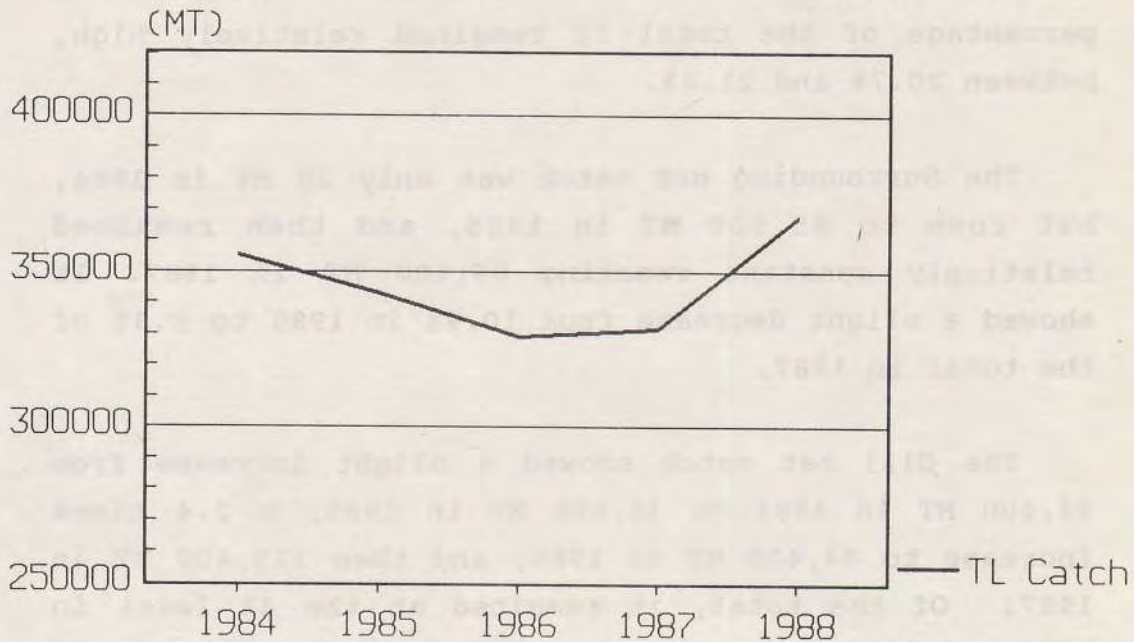


Fig. 16. Trend of marine capture fishery production in Taiwan from 1984 to 1988.

Marine Catch by Type of Fishing Gear

Trends of marine catches by type of fishing gear from 1984 to 1988 in Taiwan are shown in Table 9 and Fig. 17. The following figures were taken from 1984 to 1987 data and included catches from outside the South China Sea Area.

Between 1984 and 1987, Hook-and-line was the most dominant, showing a 19.3% increase in catch figures from 171,500 MT to 204,600 MT. As a percentage of the total it ranged between 22.0% and 23.7% (Fig. 18).

The Trawl catch rose steadily from 157,200 MT in 1984 to 202,500 MT in 1987; a 28.8% increase. As a percentage of the total it remained relatively high, between 20.7% and 21.8%.

The Surrounding net catch was only 20 MT in 1984, but rose to 85,500 MT in 1985, and then remained relatively constant reaching 86,600 MT in 1987. It showed a slight decrease from 10.9% in 1985 to 9.3% of the total in 1987.

The Gill net catch showed a slight increase from 32,400 MT in 1984 to 35,600 MT in 1985, a 2.4 times increase to 84,400 MT in 1986, and then 115,400 MT in 1987. Of the total, it remained at the 4% level in 1984 and 1985, then rose to 10.2% in 1986 and to 12.4% in 1987.

The Seine net catch showed a double increase from 62,800 MT in 1984 to 153,000 MT in 1985, then dropped drastically to 1,700 MT in 1986 and 1,900 MT in 1987. It went up from 8.3% of the total in 1984 to 19.5% in 1985, but accounted for only 0.2% in 1986 and 1987.

The Lift net catch recorded 28,800 MT, accounting for 3.7% of the total catch in 1985. The Trap catch was 8,100 MT, accounting for 1.0% of the total catch in 1985.

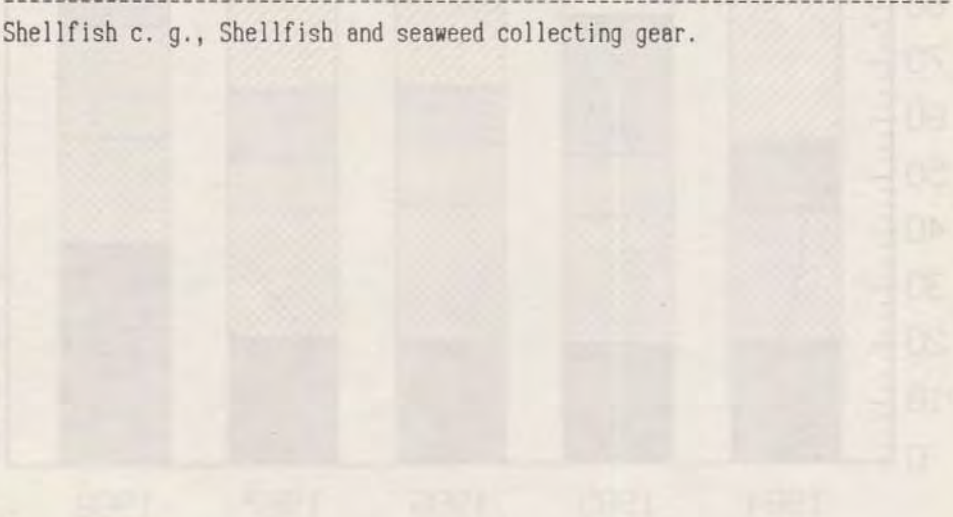
The marine catch in 1988 obtained inside the South China Sea Area, showed the Trawl catch most dominant at 142,000 MT, accounting for 38.7% of the total. This

was followed by the Surrounding net catch, 73,500 MT (20.0%); Hook-and-line catch, 67,800 MT (18.5%); Gill net catch, 41,100 MT (11.2%); Trap catch, 11,000 MT (3.0%); and Seine net catch, 1,000 MT (0.3%).

Table 9. Catch by type of fishing gear in Taiwan from 1984 to 1988.

(MT)					
Gear\Year	1984	1985	1986	1987	1988
Surrounding net	20	85,541	85,431	86,623	73,515
Seine net	62,766	153,013	1,732	1,943	1,005
Trawl	157,167	162,650	179,530	202,471	142,028
Gill net	32,411	35,563	84,355	115,393	41,087
Lift net	0	28,759	0	0	0
Trap	0	8,094	0	0	11,001
Hook-and-line	171,491	172,505	195,706	204,626	67,759
Push net	-	-	-	-	-
Shellfish c. g.	-	-	-	-	-
Others	331,024	138,452	279,538	317,431	30,933
Total	754,879	784,577	826,292	928,487	367,328

Shellfish c. g., Shellfish and seaweed collecting gear.



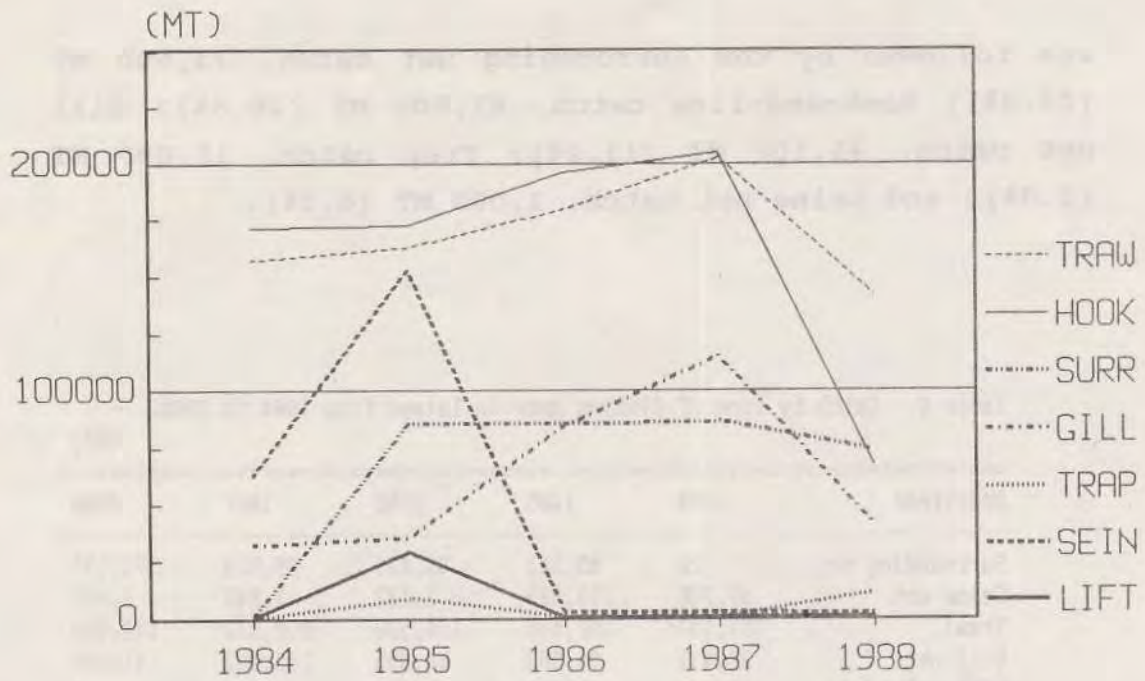


Fig. 17. Trends of catch by type of fishing gear in Taiwan from 1984 to 1988.

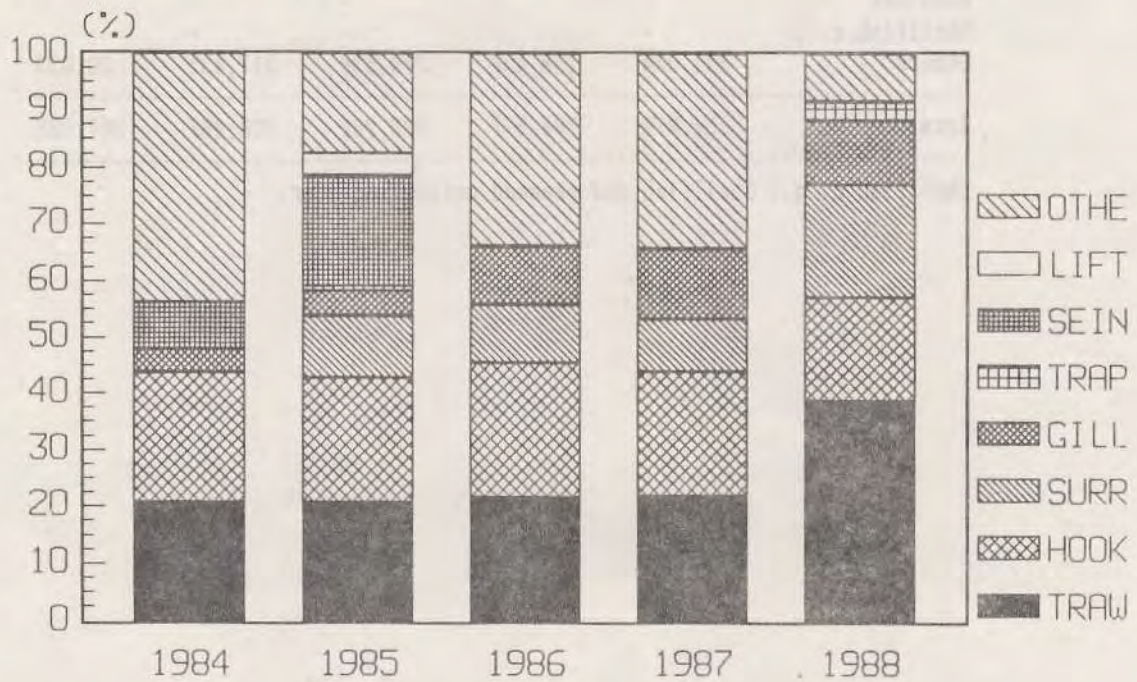


Fig. 18. The percentage of catch by type of fishing gear in Taiwan from 1984 to 1988.

Marine Catch by Species Group

Trends of marine catch by species group from 1984 to 1988 in Taiwan are shown in Table 10 and Figs. 19 and 20. Catch figures between 1984 and 1987 included those from outside the South China Sea Area. The following figures were taken from 1984 to 1987 data. An analysis of the mean values of the catch over the four years shows Non-penaeid prawn as the most dominant at 83,100 MT. There was little change at 83,400 MT in 1984 and 82,300 MT in 1987. The percentage of the total catch decreased from 11.0% in 1984 to 8.9% in 1987 (Fig. 21).

The mean value of the Albacore catch over the four years was 74,600 MT, increasing dramatically from 56,100 MT in 1984 to 93,900 MT in 1986, then decreasing slightly to 81,700 MT in 1987. It increased from 7.4% of the total in 1984 to 11.4% in 1986, but then dropped to 8.8% in 1987.

The mean value of the Squid catch from 1984 to 1986 was 91,700 MT, with an increase from 82,600 MT in 1984 to 98,400 MT in 1986. It ranged between 10.9% and 12.0% of the total catch over the three years.

The mean value of the Shark catch over the four years was 47,800 MT. It increased from 45,700 MT in 1984 to 53,200 MT in 1985, then decreased to 44,100 MT, before increasing again to 48,100 MT in 1987. Percentage figures ranged between 5.2% (1987) and 6.8% (1985) of the total.

The mean value of the Hardtail scad catch over the four years was 29,600 MT, with an increase from 25,300 MT in 1984 to 34,000 MT in 1987. This was between 3.4% (1984, 1985) and 3.9% (1986) of the total catch over the four years.

The mean value of the Yellowfin tuna catch over the four years was 28,700 MT, decreasing from 27,000 MT in 1984 to 20,300 MT in 1985, but then increasing to 27,400 MT in 1986, before a dramatic rise to 40,200 MT in 1987. It was between 2.6% (1985) and 4.3% (1987) of the total catch.

The mean value of the Hairtail catch over the four years was 24,000 MT, increasing slightly from 27,000 MT in 1984 to 29,600 MT in 1985, and then decreasing to 17,100 MT in 1987. As a percentage of the total, it decreased from 3.8% in 1985 to 1.8% in 1987.

The mean value of the Skipjack tuna catch was 22,200 MT, remaining constant at about 20,000 MT between 1984 and 1987 with the exception of 29,300 MT in 1986. Its percentage of the total was between 2.2% (1987) and 3.5% (1986).

The mean value of the Cuttlefish catch over the three years from 1984 to 1986 was 19,700 MT, and 3.0% of the total in 1985.

The mean value of the Drum and croaker catch over the four years was 16,600 MT. Catches gradually decreased from 23,800 MT in 1984 to 19,400 MT in 1987 with the exception of 2,900 MT in 1986. Percentages decreased from 3.2% in 1984 to 2.1% in 1987, with the exception of 1986.

The mean value of the Bigeye tuna catch was 15,900 MT, increasing from 13,900 MT in 1984 to 17,800 MT in 1987. Percentages remained constant at 1.8% to 2.0% of the total catch during the four years.

The mean values of the Sardine, Lizard fish, King mackerel and Eastern little tuna catches during the four years were each over 10,000 MT.

In 1988 catches from the South China Sea Area alone were as follows: the Miscellaneous fish catch at 79,300 MT was the most dominant, followed by Non-penaeid prawn (47,200 MT), Indo-Pacific mackerel (32,800 MT), Hardtail scad (25,000 MT), Yellowfin tuna (17,900 MT) and Frigate tuna (17,500 MT). The catches of Hairtail, Sardine, Drum and croaker, and Squid were each over 10,000 MT.

Table 10. Catch by species group in Taiwan from 1984 to 1988.

Species\Year	(MT)				
	1984	1985	1986	1987	1988
Non-penaeid prawn	83,370	84,014	82,725	82,334	47,166
Albacore	56,066	66,530	93,914	81,746	44
Squid	82,591	94,216	98,440	0	11,333
Shark	45,703	53,206	44,080	48,109	8,588
Hardtail scad	25,338	26,538	32,301	34,021	25,046
Yellowfin tuna	26,957	20,345	27,379	40,217	17,922
Hairtail	27,015	29,611	22,215	17,110	12,066
Skipjack tuna	19,113	20,170	29,268	20,203	1,268
Miscellaneous fish	0	0	0	0	79,332
Drum and croaker	23,784	20,293	2,892	19,377	11,618
Bigeye tuna	13,880	15,126	16,859	17,824	1,455
Sardine	11,171	16,379	12,860	12,627	11,684
Cuttlefish	21,376	23,267	14,605	0	4,398
Lizard fish	12,476	10,154	11,515	9,607	2,332
King mackerel	10,424	12,315	11,225	11,518	0
Kawakawa	10,299	13,051	7,689	12,897	108
Frigate tuna	7,384	3,650	4,662	4,738	17,463
Indo-Pacific mackerel	0	0	0	0	32,764
Penaeid prawn	5,092	4,920	4,704	5,097	3,957
Anchovy	2,917	1,158	877	973	774
N-b king mackerel	0	0	0	0	5,392
Others	269,923	269,634	308,082	510,089	72,618
Total	754,879	784,577	826,292	928,487	367,328

N-b. king mackerel, Narrow-barred king mackerel.

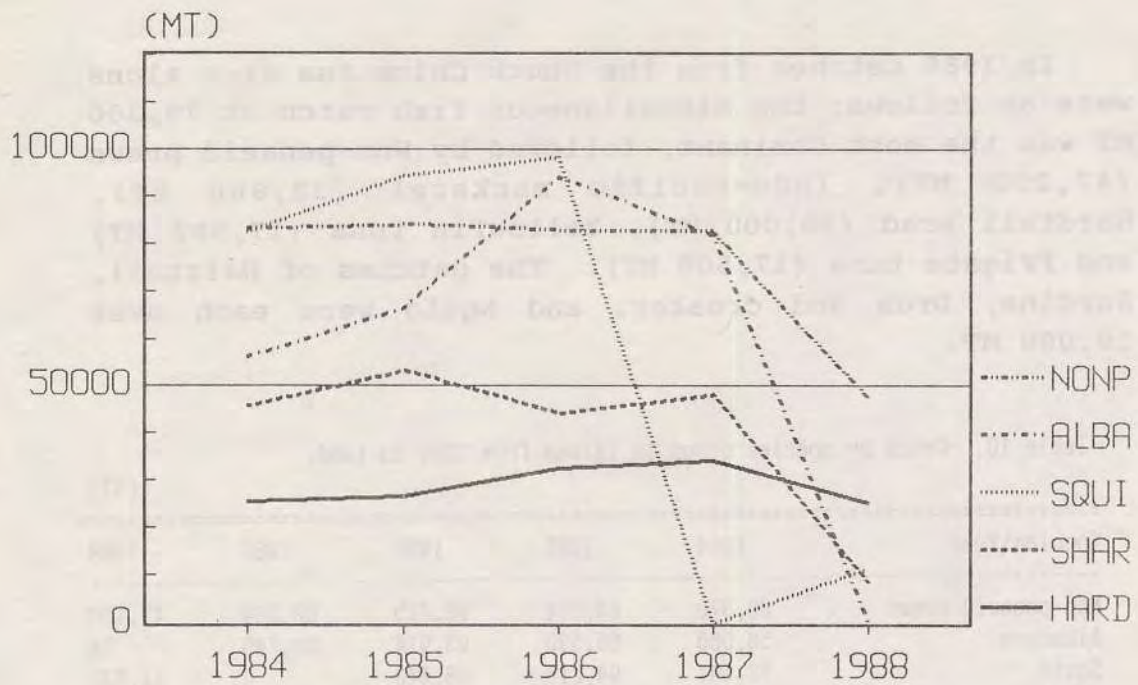


Fig. 19. Trends of catch by species group in Taiwan from 1984 to 1988. (1) Five major species groups.

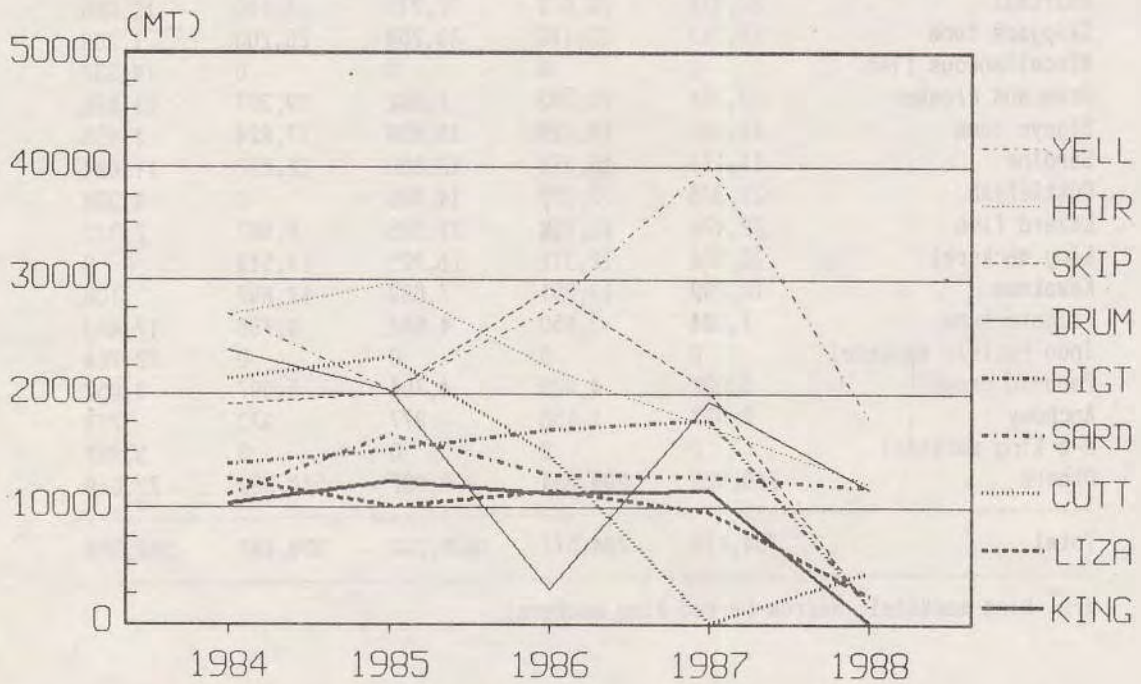


Fig. 20. Trends of catch by species group in Taiwan from 1984 to 1988. (2) The other major species groups.

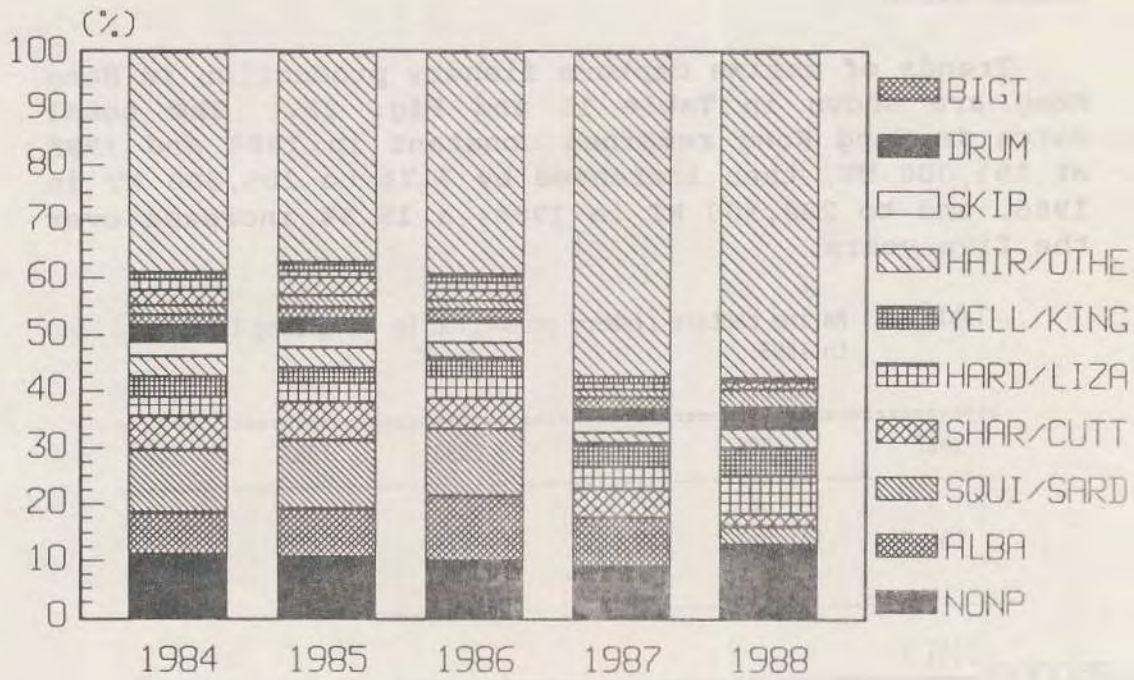


Fig. 21. The percentage of catch by species group in Taiwan from 1984 to 1988.

2.2.3 Hong Kong

This Section describes trends for total marine catch, catch by type of fishing gear and catch by major species groups in Hong Kong from 1984 to 1988.

Total Catch

Trends of marine capture fishery production in Hong Kong are shown in Table 11 and Fig. 22. The total catch in Hong Kong remained constant in 1984 and 1985 at 191,000 MT, then increased by 7.7% to 205,500 MT in 1986, and to 228,100 MT in 1988; a 18.9% increase over the five years.

Table 11. Marine capture fishery production in Hong Kong from 1984 to 1988.

Year	1984	1985	1986	1987	1988
Catch	191,807	190,743	205,476	218,532	228,083

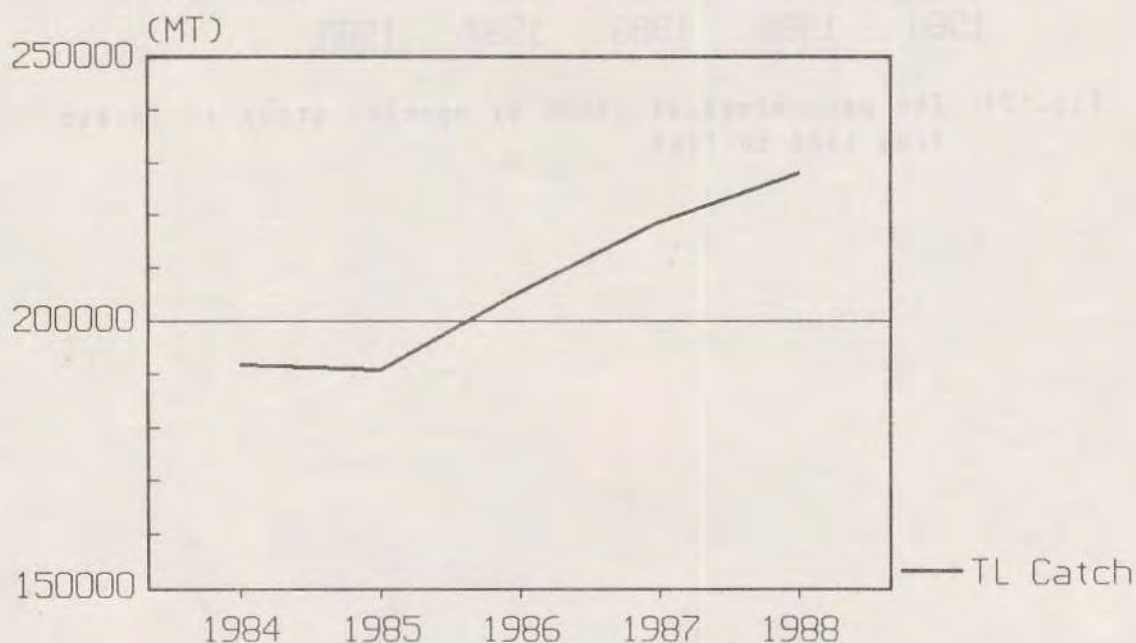


Fig. 22. Trend of marine capture fishery production in Hong Kong from 1984 to 1988.

Marine Catch by Type of Fishing Gear

Trends of marine catches by type of fishing gear from 1984 to 1988 in Hong Kong are shown in Table 12 and Fig. 23. The Trawl catch, the most dominant over the five years, showed a steady increase from 135,400 MT in 1984 to 171,900 MT in 1988, a 27.0% increase. The percentage remained high during this period, with a steady increase from 70.6% in 1984 to 75.4% in 1988 (Fig. 24).

The Gill net catch decreased from 23,800 MT in 1984 to 19,400 MT in 1988, showing a downward trend from 12.4% in 1984 to 8.5% in 1988.

The Hook-and-line catch decreased from 13,900 MT in 1984 to 11,900 MT in 1985, but then showed a continual slight increase to 13,300 MT in 1988. Its percentage of the total dropped from 7.3% in 1984 to 5.8% in 1988.

The Surrounding net catch ranged from 6,600 MT in 1985 to 7,300 MT in 1988, ranging between 3.2% (1988) and 3.6% (1986) of the total. The Seine net catch only recorded 6,400 MT in 1984.

Table 12. Catch by type of fishing gear in Hong Kong from 1984 to 1988.
(MT)

Gear\Year	1984	1985	1986	1987	1988
Surrounding net	0	6,557	7,417	7,124	7,300
Seine net	6,362	0	0	0	0
Trawl	135,370	139,765	153,145	162,442	171,918
Gill net	23,755	21,347	20,530	20,289	19,396
Lift net	-	-	-	-	-
Trap	-	-	-	-	-
Hook-and-line	13,927	11,866	12,326	13,042	13,296
Push net	-	-	-	-	-
Shellfish c. g.	-	-	-	-	-
Others	12,393	11,208	12,058	15,635	16,173
Total	191,807	190,743	205,476	218,532	228,083

Shellfish c. g., Shellfish and seaweed collecting gear.

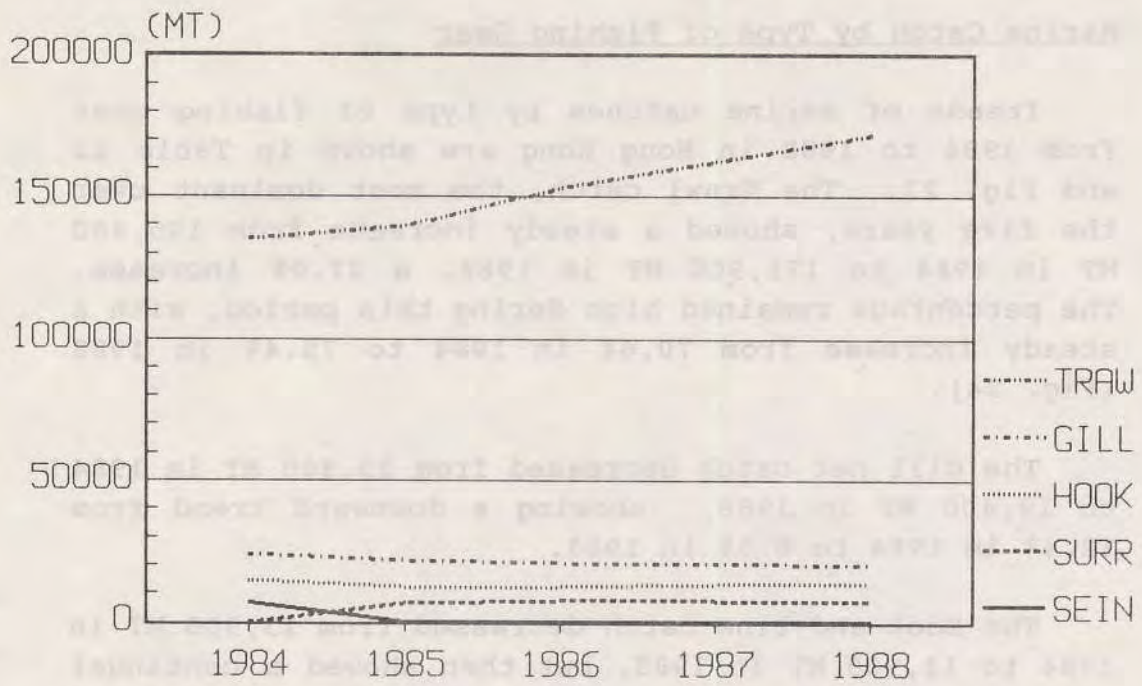


Fig. 23. Trends of catch by type of fishing gear in Hong Kong from 1984 to 1988.

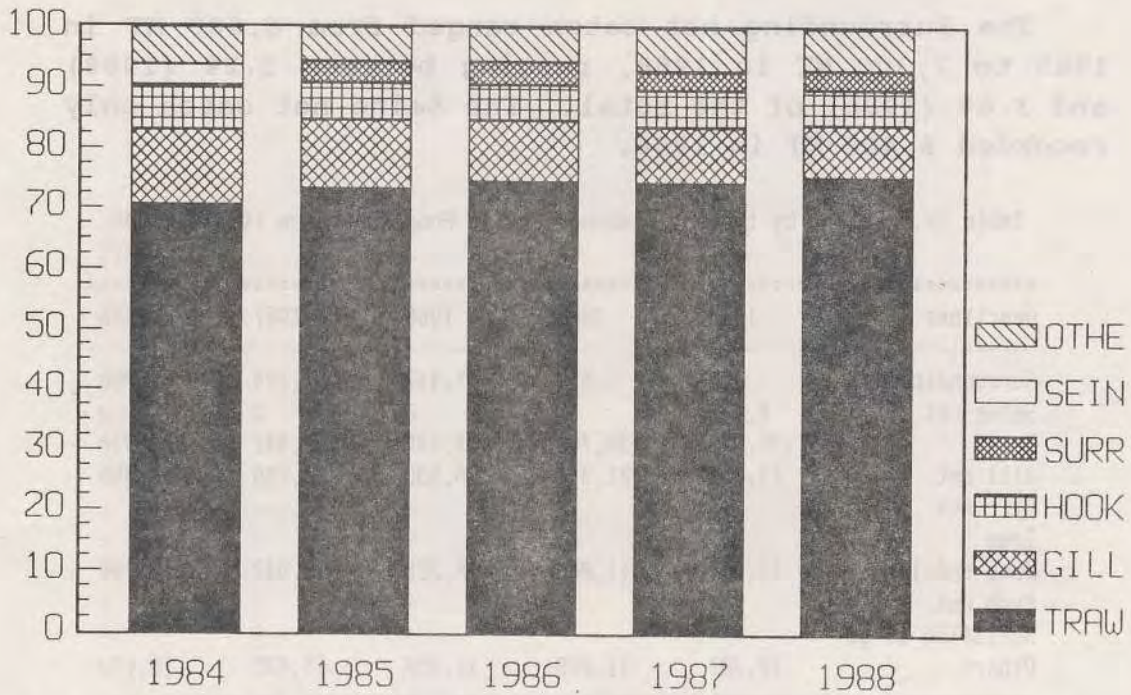


Fig. 24. The percentage of catch by type of fishing gear in Hong Kong from 1984 to 1988.

Marine Catch by Species Group

Trends of marine catch by species group from 1984 to 1988 are shown in Table 13 and Figs. 25 and 26. An analysis of the mean values of the catch over the five years, shows that Miscellaneous fish was the most dominant at 86,000 MT. Catches remained constant at 78,700 MT in 1984, and 77,300 MT in 1986, but then showed a 12.5% increase to 86,900 MT in 1987, and a further 22.3% increase to 106,300 MT in 1988. Percentages of the total were high at 37.6% (1986) and 46.6% (1988) (Fig. 27).

The mean value of the Threadfin bream catch was 18,900 MT, recording 15,200 MT in 1984, remaining constant in 1985, then increasing to 23,000 MT in 1987, before decreasing slightly to 21,700 MT in 1988. It ranged at between 7.9% (1984, 1985) and 10.5% (1987) of the total over the five years.

The mean value of the Penaeid prawn catch was 14,000 MT, increasing from 11,400 MT in 1984 to 15,400 MT in 1986, and then remaining constant at 14,600 MT in 1988. Percentages ranged between 5.9% (1984) and 7.5% (1986) of the total.

The mean value of the Bigeye snapper catch over the five years was 10,900 MT, showing a low of 9,500 MT in 1985, rising to 12,600 MT in 1986. Percentages of the total ranged between 4.7% (1988) and 6.1% (1986).

The mean value of the Lizard fish catch was 10,400 MT, with a slight increase from 9,400 MT in 1985 to 12,000 MT in 1988, and ranging between 4.9% (1984, 1985) and 5.2% (1988) of the total.

The mean value of the Drum and croaker catch was 8,100 MT, decreasing from 9,300 MT in 1984 to 6,900 MT

in 1987, and then increasing to 8,100 MT in 1988. Catch percentages ranged between 3.2% (1987) and 4.9% (1984) of the total.

The mean value of the Miscellaneous marine molluscs catch was 6,100 MT, doubling from 3,800 MT in 1984 to 8,100 MT in 1987, but then decreasing to 5,900 MT in 1988. Percentages ranged between 2.0% (1984) and 3.7% (1987).

The mean value of the Round scad catch over the five years was 5,400 MT, decreasing by half from 8,000 MT in 1984 to 3,900 MT in 1988. The mean values of Sharp-toothed pike eel and conger eel, Hairtail and Squid catches, were all greater than 4,500 MT over the five years.

Table 13. Catch by species group in Hong Kong from 1984 to 1988.

Species\Year	1984	1985	1986	1987	1988
Miscellaneous fish	78,715	80,595	77,255	86,913	106,275
Threadfin bream	15,232	15,102	19,256	22,973	21,701
Penaeid prawn	11,373	13,293	15,370	15,223	14,617
Bigeye snapper	10,150	9,491	12,622	11,397	10,753
Lizard fish	9,474	9,361	10,329	10,939	11,962
Drum and croaker	9,346	8,730	7,468	6,884	8,115
Misc. marine molluscs	3,784	5,624	6,857	8,114	5,936
Round scad	8,006	5,682	4,600	4,741	3,871
Pike and conger eels	5,088	4,516	5,285	5,608	4,380
Hairtail	4,415	4,723	6,002	4,821	3,617
Squid	5,533	4,570	4,275	4,526	4,019
Black pomfret	3,392	3,845	3,783	3,408	3,243
N-b. king mackerel	3,290	3,161	3,177	3,490	3,706
Shark	1,050	906	931	937	980
Others	22,959	21,144	28,266	28,558	24,908
Total	191,807	190,743	205,476	218,532	228,083

Misc. marine molluscs, Miscellaneous marine molluscs;
 Pike and conger eels, Sharp-toothed pike eel and conger eel;
 N-b. king mackerel, Narrow-barred king mackerel.

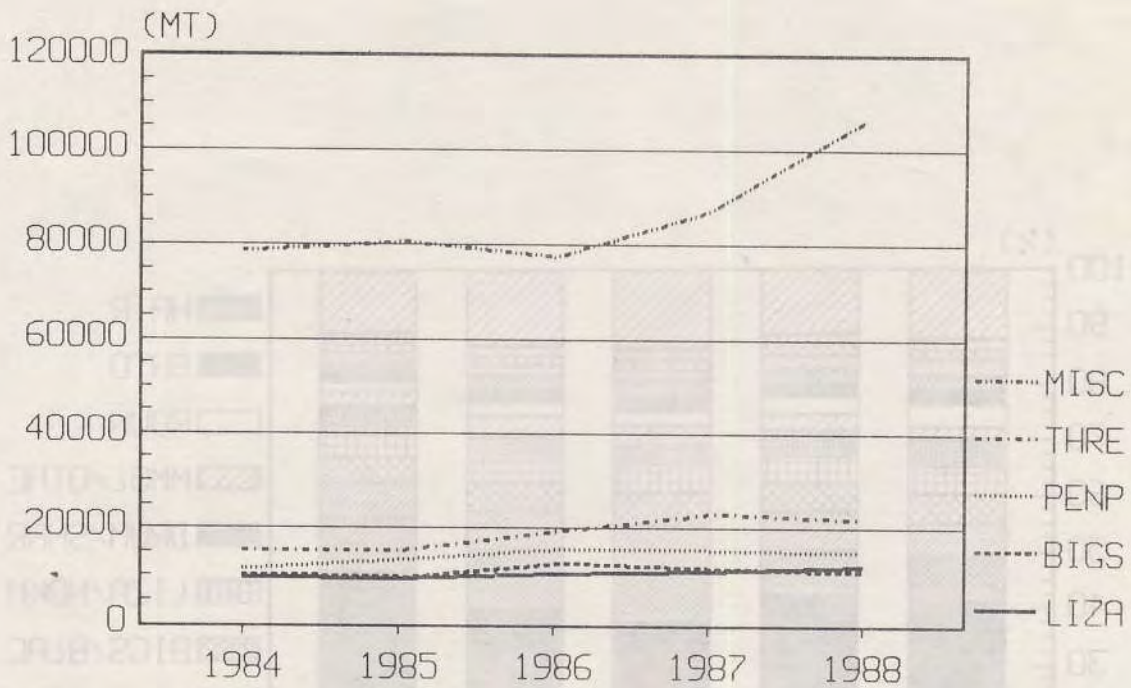


Fig. 25. Trends of catch by species group in Hong Kong from 1984 to 1988. (1) Five major species groups.

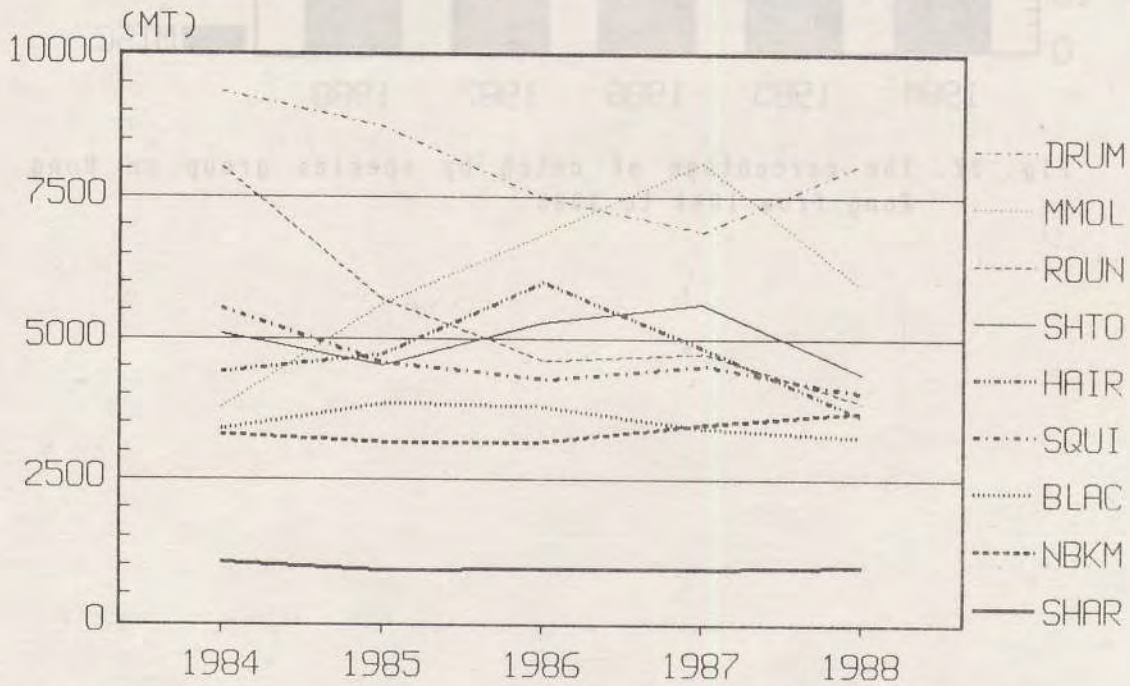


Fig. 26. Trends of catch by species group in Hong Kong from 1984 to 1988. (2) The other major species groups.

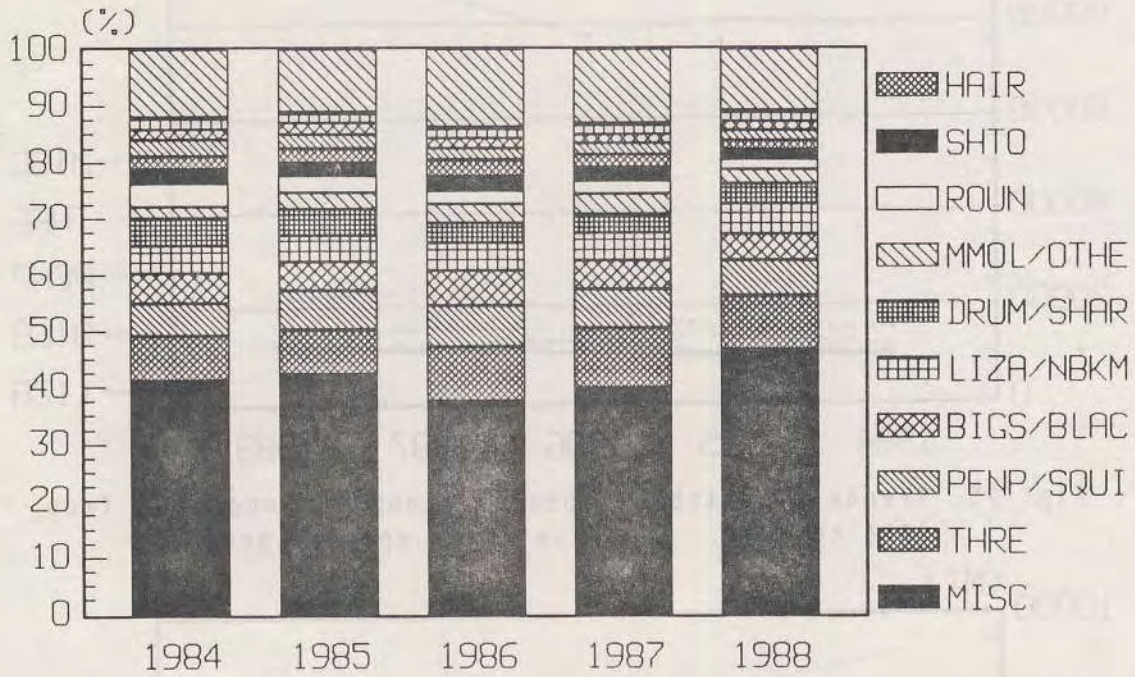


Fig. 27. The percentage of catch by species group in Hong Kong from 1984 to 1988.

2.2.4 Kampuchea

This Section describes trends for the total marine catch in Kampuchea from 1984 to 1988. Data on marine capture fishery in Kampuchea was obtained from the FAO Yearbook of Fishery Statistics.

Total Catch

The trends of marine capture fishery production in Kampuchea are shown in Table 14 and Fig. 28. The total catch in Kampuchea showed a steady increase from 5,500 MT in 1984 to 6,500 MT in 1986; a 500 MT increase per year. It then remained constant up to 1988 at 6,500 MT. Kampuchea's total catch accounted for a tiny 0.1% of the total in the Area.

Table 14. Marine capture fishery production in Kampuchea from 1984 to 1988.

Year	1984	1985	1986	1987	1988
Catch	5,500	6,000	6,500	6,500	6,500

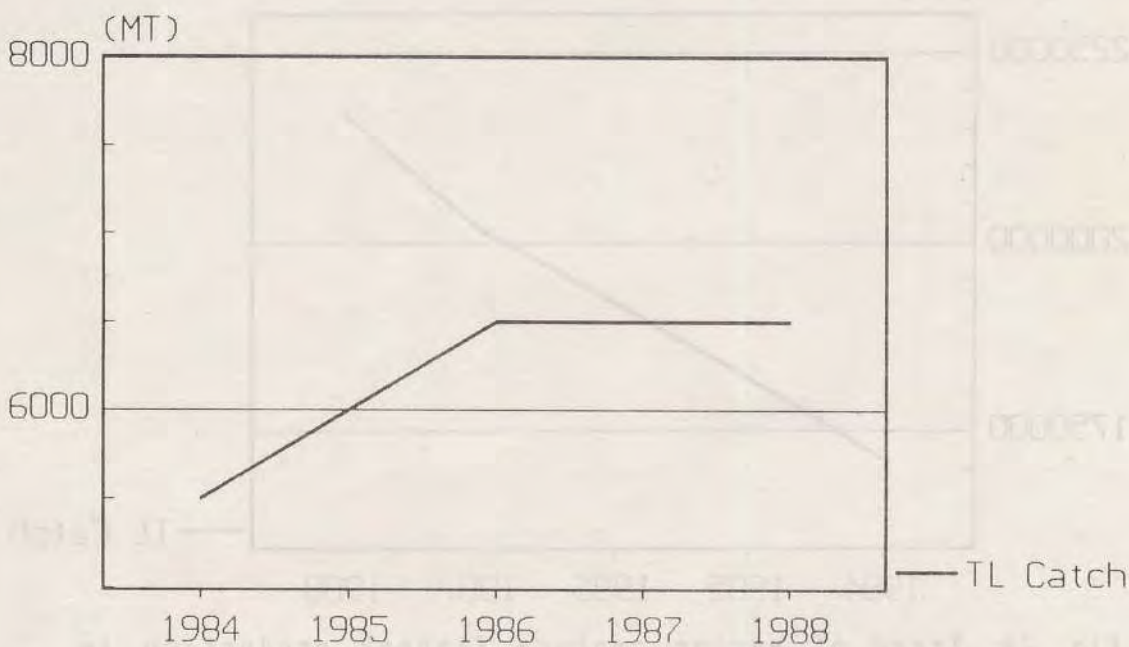


Fig. 28. Trend of marine capture fishery production in Kampuchea from 1984 to 1988.

2.2.5 Indonesia

This Section describes trends for total marine catch, catch by type of fishing gear, and catch by major species groups in Indonesia from 1984 to 1988.

Total Catch

The trends of marine capture fishery production in Indonesia are shown Table 15 and Fig. 29. The total catch in Indonesia showed a steady increase from 1,712,800 MT in 1984 to 2,169,600 MT in 1988; a 26.7% increase over the five years.

Table 15. Marine capture fishery production in Indonesia from 1984 to 1988.

Year	1984	1985	1986	1987	1988
Catch	1,712,804	1,821,725	1,922,781	2,017,350	2,169,557

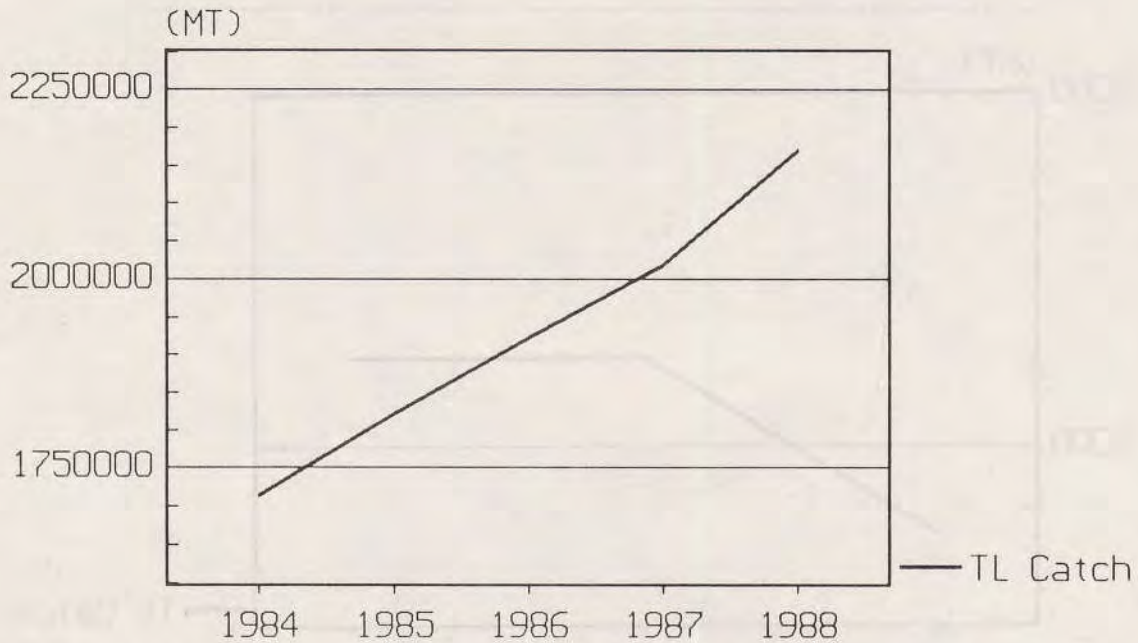


Fig. 29. Trend of marine capture fishery production in Indonesia from 1984 to 1988.

Marine Catch by Type of Fishing Gear

Trends of marine catches by type of fishing gear in 1987 and 1988 are shown in Table 16 and Fig. 30. The Gill net catch was the most dominant and increased from 490,100 MT in 1987 to 539,200 MT in 1988; around 24% of the total in both years (Fig. 31).

The Hook-and-line catch increased slightly from 347,700 MT in 1987 to 376,300 MT in 1988; the percentage remaining constant at about 17% of the total.

The Seine net catch went up from 269,400 MT in 1987 to 319,500 MT in 1988; a slight increase from 13.4% to 14.7% of the total.

The Surrounding net catch decreased from 305,800 MT in 1987 to 297,100 MT in 1988; a slight drop from 15.2% to 13.7% of the total.

The Lift net catch increased from 241,100 MT in 1987 to 253,200 MT in 1988, remaining constant at about 12% of the total.

The Trap catch decreased from 192,500 MT in 1987 to 189,200 MT in 1988; a slight drop from 9.5% to 8.7% of the total.

The Shellfish and seaweed collecting gear catch went down from 121,200 MT in 1987 to 119,500 MT in 1988, dropping from 6.0% to 5.5% of the total.

Table 16. Catch by type of fishing gear in Indonesia in 1987 and 1988.
Data was not available from 1984 to 1986.

Gear\Year	(MT)				
	1984	1985	1986	1987	1988
Surrounding net	-	-	-	305,814	297,108
Seine net	-	-	-	269,435	319,493
Trawl	-	-	-	-	-
Gill net	-	-	-	490,070	539,153
Lift net	-	-	-	241,120	253,228
Trap	-	-	-	192,471	189,183
Hook-and-line	-	-	-	347,672	376,284
Push net	-	-	-	-	-
Shellfish c. g.	-	-	-	121,242	119,514
Others	-	-	-	1,941,756	75,594
Total	-	-	-	2,017,350	2,169,557

Shellfish c. g., Shellfish and seaweed collecting gear.

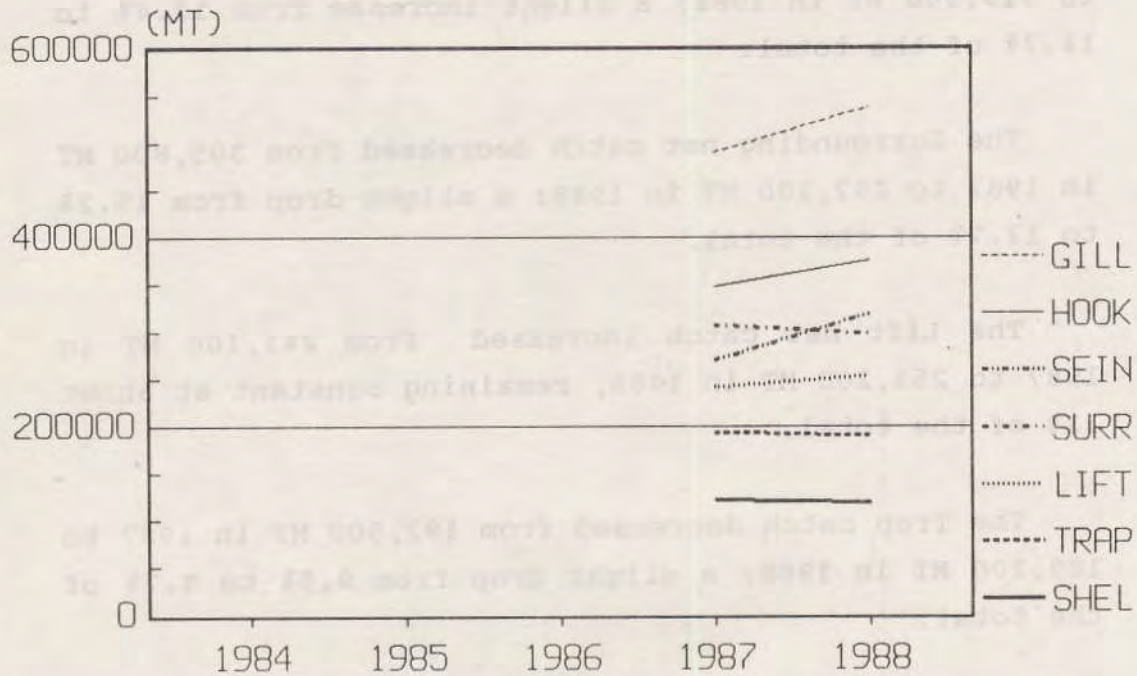


Fig. 30. Trends of catch by type of fishing gear in Indonesia in 1987 and 1988. Data was not available from 1984 to 1986.

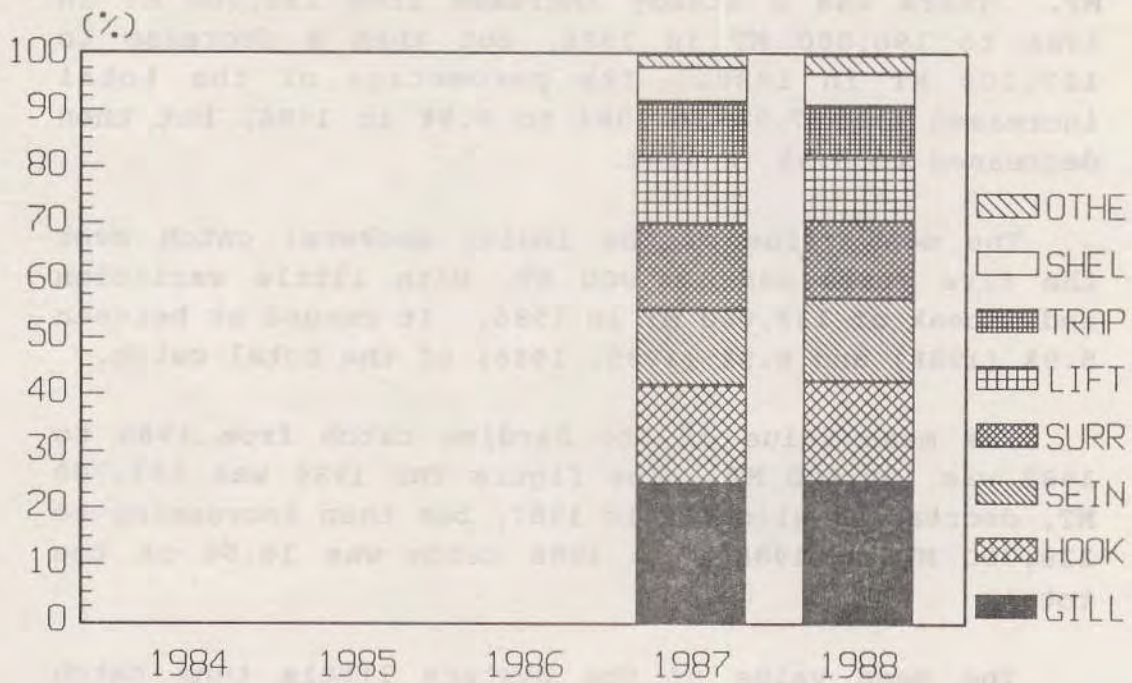


Fig. 31. The percentage of catch by type of fishing gear in Indonesia in 1987 and 1988. Data was not available from 1984 to 1986.

Marine Catch by Species Group

Trends of marine catch by species group from 1984 to 1988 in Indonesia are shown in Table 17 and Figs. 32 and 33. An analysis of the mean values of the catch over the five years, showed Miscellaneous fish was the most dominant at 393,100 MT. The catch decreased slightly from 492,700 MT in 1984 to 473,600 MT in 1985, and then fell drastically by 31.7% to 323,500 MT in 1986, remaining constant at 334,500 MT in 1988. The percentage fell from 28.8% in 1984 to 16.8% in 1986, and then 15.4% in 1988 (Fig. 34).

The mean value of the Round scad catch was 154,100 MT. There was a steady increase from 135,300 MT in 1984 to 190,000 MT in 1986, but then a decrease to 127,200 MT in 1988. Its percentage of the total increased from 7.9% in 1984 to 9.9% in 1986, but then decreased to 5.9% in 1988.

The mean value of the Indian mackerel catch over the five years was 124,000 MT, with little variation and a peak of 132,000 MT in 1986. It ranged at between 5.9% (1988) and 6.9% (1985, 1986) of the total catch.

The mean value of the Sardine catch from 1986 to 1988 was 198,800 MT. The figure for 1986 was 187,700 MT, decreasing slightly in 1987, but then increasing to 228,700 MT in 1988. The 1988 catch was 10.5% of the total.

The mean value of the Eastern little tuna catch over the five years was 114,500 MT, with an increase from 103,200 MT in 1984 to 122,700 MT in 1987. The percentage remained fairly constant at about 6% from 1984 to 1987, but then decreased slightly to 5.4% in 1988.

The five year mean value of the Anchovy catch was 112,300 MT, varying between 106,900 MT (1985) and 118,000 MT (1987). The percentage ranged between 5.3% (1988) and 6.4% (1984).

The mean value of the Skipjack tuna catch was 89,300 MT, with a dramatic 2.9 times increase from 30,700 MT in 1984 to 87,400 MT in 1985, and then a steady increase to 127,500 MT in 1988. Its percentage of the total increased from 1.8% in 1984 to 4.8% in 1985, and then 5.9% in 1988.

The mean value of the Selar scad catch was 68,300 MT, with a steady increase from 55,800 MT in 1984 to 80,500 MT in 1988. There was a slight increase from 3.3% of the total in 1984 to 3.7% in 1988.

The five year mean value of the Non-penaeid prawn catch was 66,300 MT. Figures increased slightly from 46,500 MT in 1984 to 53,300 MT in 1985, and then leapt by 58.4% to 84,400 MT in 1986. They then decreased to 66,900 MT in 1987, before recovering to 80,200 MT in 1988. The percentage ranged between 2.7% (1984) and 4.4% (1986) of the total during this period.

The mean value of the Penaeid prawn catch was 62,800 MT. In 1984 it was 54,400 MT and remained constant in 1985. There were increases of 30.1%, to 69,500 MT in 1986, and 72,300 MT in 1988. The percentage of the total ranged between 2.9% (1985) and 3.6% (1986).

The mean value of the Narrow-barred king mackerel catch was 43,400 MT. It decreased slightly from 42,300 MT in 1984 to 40,700 MT in 1985, but then increased again to 44,900 MT in 1986, then remaining constant until 1988. It ranged at between 2.1% (1988) and 2.5% (1984) of the total.

The mean value of the Pony fish catch over the five years was 38,300 MT, increasing slightly from 36,900 MT in 1984 to 39,000 MT in 1986, but then decreasing in 1987, before recovering to 40,900 MT in 1988. The percentage decreased gradually from 2.2% in 1984 to 1.8% of the total in 1987.

The mean value of other species catch over the five years was as follows: Shark - 37,700 MT; Blood cockle - 37,500 MT; Marine catfish - 36,800 MT; Red snapper - 30,500 MT; Drum and croaker - 23,300 MT; Yellowfin tuna

(over three years from 1986 to 1988) - 40,300 MT. The mean values of Mullet, Threadfin, Jack-cavalla-trevally, Wolf herring, Grouper, Threadfin bream and Squid catches over the five years were more than 10,000 MT each.

Table 17. Catch by species group in Indonesia from 1984 to 1988.

Species\Year	1984	1985	1986	1987	1988
Miscellaneous fish	492,689	473,551	323,530	341,391	334,496
Round scad	135,253	172,534	190,000	145,304	127,191
Indian mackerel	114,281	124,988	132,000	121,265	127,505
Sardine	0	0	187,740	179,828	228,720
Eastern little tuna	103,179	111,630	116,975	122,675	117,898
Anchovy	109,299	106,887	111,800	117,995	115,601
Skipjack tuna	30,658	87,448	98,500	102,559	127,543
Selar scad	55,811	64,430	67,880	72,977	80,467
Non-penaeid prawn	46,513	53,313	84,440	66,868	80,192
Penaeid prawn	54,442	53,429	69,520	64,074	72,295
N-b. king mackerel	42,293	40,691	44,930	44,805	44,458
Pony fish	36,940	38,663	39,000	36,203	40,912
Shark	36,998	35,562	40,000	36,884	39,055
Blood cockle	48,926	30,959	42,650	33,255	31,945
Marine catfish	34,782	34,199	37,670	38,385	39,208
Red snapper	26,275	25,665	28,300	31,758	40,652
Yellowfin tuna	0	0	37,410	40,505	42,979
Drum and croaker	20,751	18,853	20,100	26,512	30,530
Mullet	16,771	17,509	23,510	20,705	20,828
Threadfin	12,115	13,897	14,000	19,046	17,928
Jack-cavalla-trevally	14,145	13,087	14,670	14,257	18,672
Wolf herring	11,766	15,644	15,350	12,571	14,846
Grouper	9,285	9,608	10,880	15,364	16,665
Threadfin bream	10,282	10,013	11,000	9,529	17,809
Squid	8,615	10,531	10,000	11,164	14,088
Jellyfish	442	3,380	6,760	7,792	12,958
Indo-Pacific mackerel	6,100	6,796	0	7,522	0
Others	234,193	248,458	144,166	276,217	314,116
Total	1,712,804	1,821,725	1,922,781	2,017,350	2,169,557

N-b. king mackerel, Narrow-barred king mackerel.

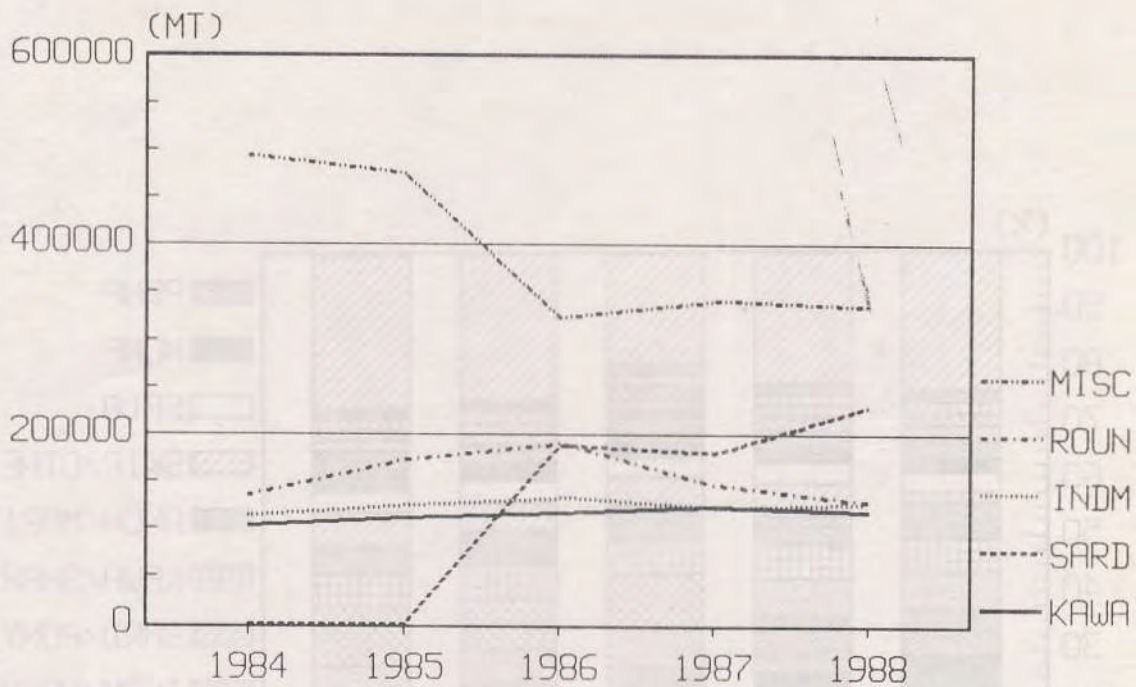


Fig. 32. Trends of catch by species group in Indonesia from 1984 to 1988. (1) Five major species groups.

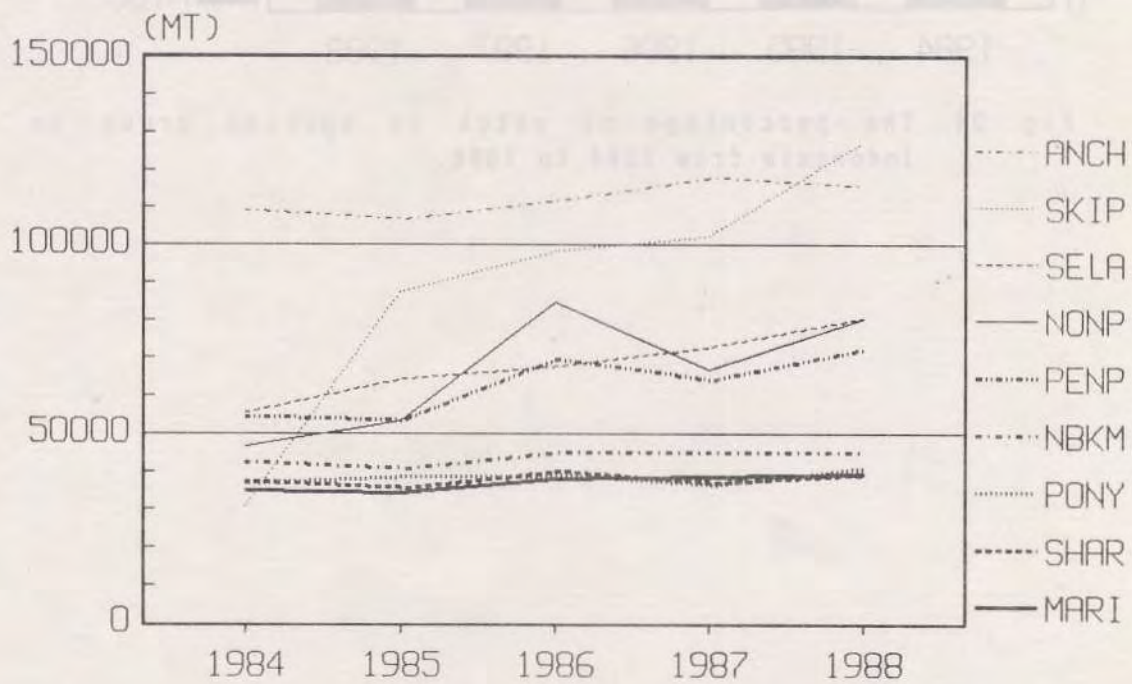


Fig. 33. Trends of catch by species group in Indonesia from 1984 to 1988. (2) The other major species groups.

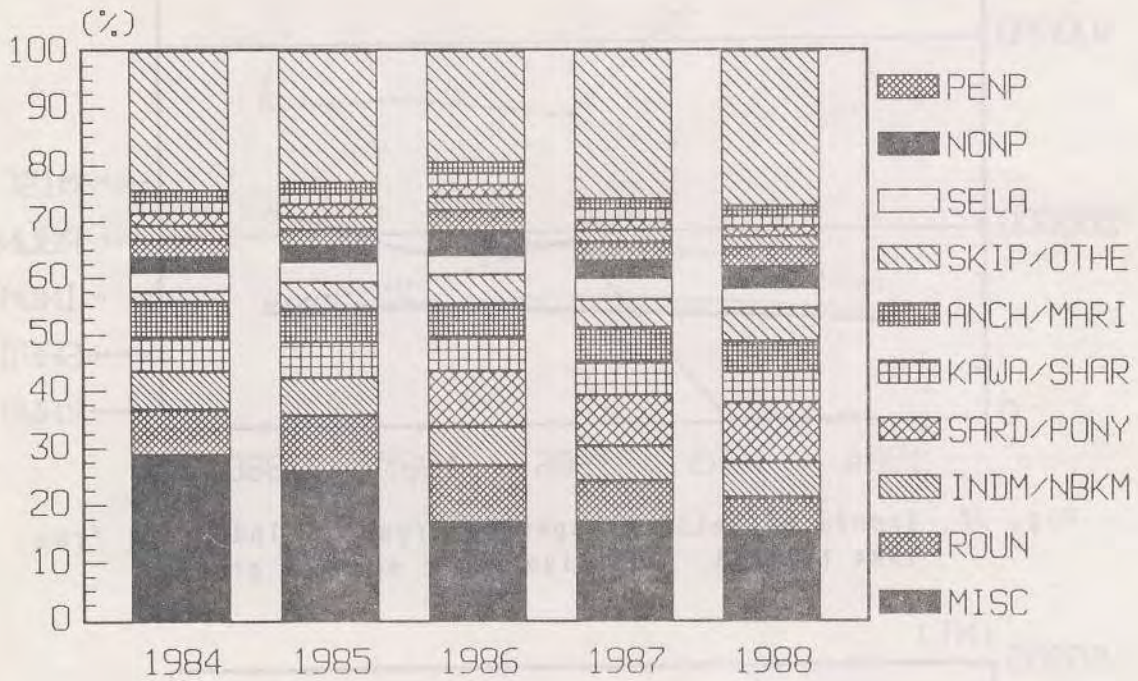


Fig. 34. The percentage of catch by species group in Indonesia from 1984 to 1988.

2.2.6 Malaysia

This Section describes trends for the total marine catch, catch by type of fishing gear, and catch by major species groups in Malaysia from 1984 to 1988.

Total Catch

The trends of marine capture fishery production in Malaysia are shown in Table 18 and Fig. 35. The total catch in Malaysia showed a slight decrease from 600,500 MT in 1984 to 563,500 MT in 1986. It increased dramatically in 1987 to 858,800 MT, but then fell to 823,200 MT in 1988. The method for collecting the fishery statistics in Malaysia changed in 1987.

Table 18. Marine capture fishery production in Malaysia from 1984 to 1988.

Year	1984	1985	1986	1987	1988
Catch	600,473	574,354	563,459	858,807	823,240

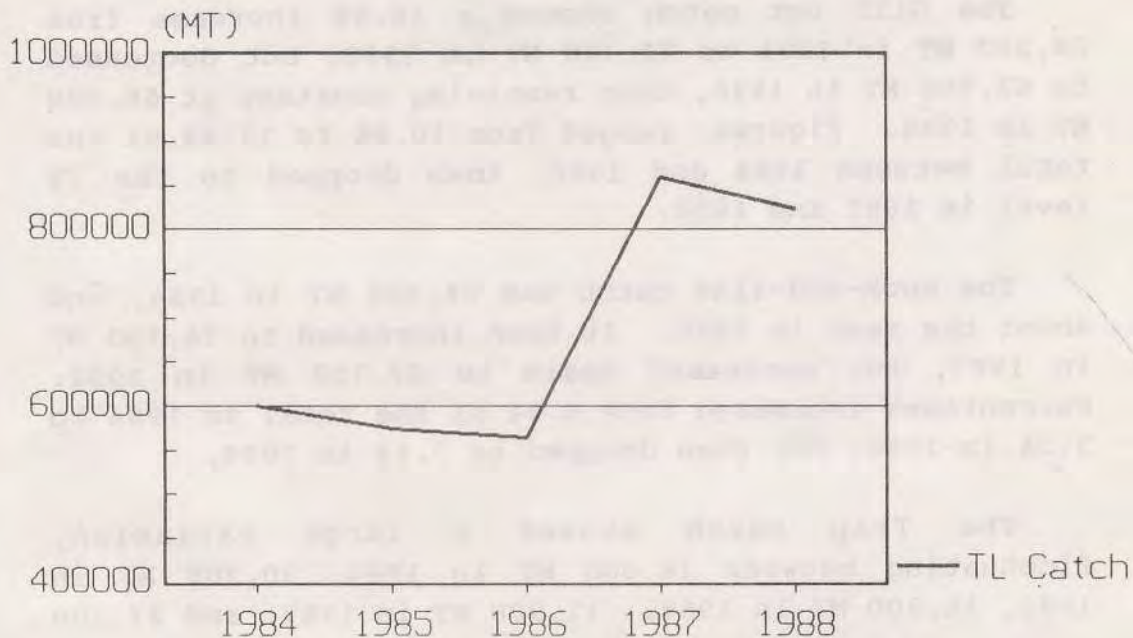


Fig. 35. Trend of marine capture fishery production in Malaysia from 1984 to 1988.

Marine Catch by Type of Fishing Gear

Trends of marine catches by type of fishing gear from 1984 to 1988 in Malaysia are shown in Table 19 and Fig. 36. The Trawl catch, the most dominant during the five years, recorded 233,900 MT in 1984, remained constant in 1985, and increased slightly to 285,200 MT in 1986. Then in 1987 it showed a dramatic 56.0% increase from the previous year reaching 444,900 MT, and remaining constant in 1988. As a percentage of the total the Trawl catch showed a steady increase from about 40% in 1984 and 1985, to about 51% in 1986 and 1987, reaching 54.6% in 1988 (Fig. 37).

The Surrounding net catch decreased from 190,700 MT in 1984 to 152,400 MT in 1985, and then fell further by 46.6%, to 81,400 MT in 1986. In 1987 the catch recovered to 174,500 MT remaining steady at 175,000 MT in 1988. There was a drastic drop from 31.8% of the total in 1984, to 14.5% in 1986, but an increase to 20.3% in 1987 and 21.3% in 1988.

The Gill net catch showed a 18.9% increase from 60,200 MT in 1984 to 71,700 MT in 1985, but decreased to 62,900 MT in 1986, then remaining constant at 65,000 MT in 1988. Figures ranged from 10.0% to 12.5% of the total between 1984 and 1986, then dropped to the 7% level in 1987 and 1988.

The Hook-and-line catch was 28,500 MT in 1984, and about the same in 1985. It then increased to 34,200 MT in 1987, but decreased again to 27,700 MT in 1988. Percentages increased from 4.8% of the total in 1984 to 5.5% in 1986, but then dropped to 3.4% in 1988.

The Trap catch showed a large variation, fluctuating between 16,600 MT in 1984, 30,200 MT in 1985, 16,900 MT in 1986, 11,900 MT in 1987, and 27,100

MT in 1988. It ranged between 1.4% (1987) and 5.3% (1985) of the total.

The Seine net catch showed a dramatic increase from 20,400 MT in 1985 to 39,400 MT in 1986 and 48,500 MT in 1987, but then fell sharply to 16,800 MT in 1988. It increased from 3.6% in 1985 to 7.0% of the total in 1986, but then dropped to 5.6% in 1987 and 2.0% in 1988.

The Lift net catch increased from 15,000 MT in 1984 to 17,200 MT in 1985, decreased to 10,200 MT in 1986, and then increased again slightly to 13,400 MT in 1988. It showed a maximum 3.0% of the total in 1985, dropping to 1.3%, the minimum, in 1987.

The Push net catch showed a double increase from 4,400 MT in 1986 to 8,900 MT in 1987, but it then decreased to 2,000 MT in 1988. It was 1.0% of the total in 1987, but only 0.8% and 0.2% in 1986 and 1988 respectively.

The Shellfish and seaweed collecting gear catch showed large variations with a minimum of 840 MT in 1986 and a maximum of 20,500 MT in 1987. At its highest, it was 2.4% of the total (1987), but in other years was lower than 1%.

Table 19. Catch by type of fishing gear in Malaysia from 1984 to 1988.
(MT)

Gear\Year	1984	1985	1986	1987	1988
Surrounding net	190,723	152,434	81,392	174,543	175,015
Seine net	0	20,375	39,416	48,467	16,776
Trawl	233,858	229,629	285,232	444,948	449,402
Gill net	60,246	71,658	62,902	61,430	64,969
Lift net	15,014	17,190	10,153	11,218	13,401
Trap	16,601	30,163	16,919	11,946	27,104
Hook-and-line	28,500	27,390	31,015	34,209	27,701
Push net	0	0	4,381	8,889	2,005
Shellfish c. g.	4,359	2,644	836	20,488	1,534
Others	51,172	403,967	31,213	42,669	45,333
Total	600,473	574,354	563,459	858,807	823,240

Shellfish c. g., Shellfish and seaweed collecting gear.

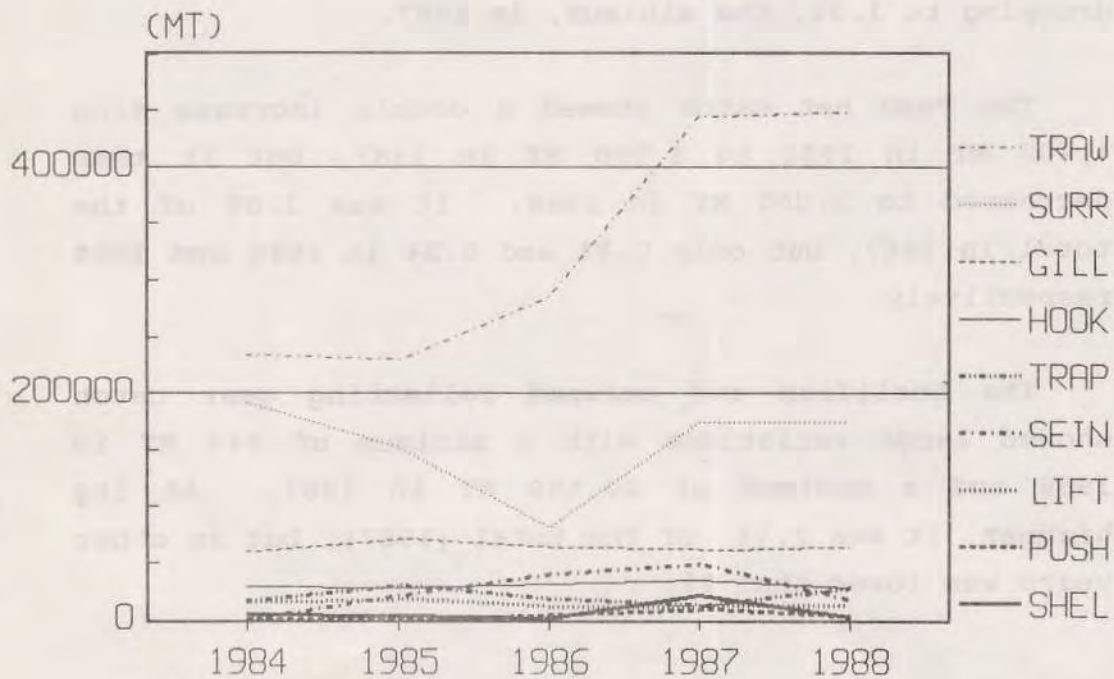


Fig. 36. Trends of catch by type of fishing gear in Malaysia from 1984 to 1988.

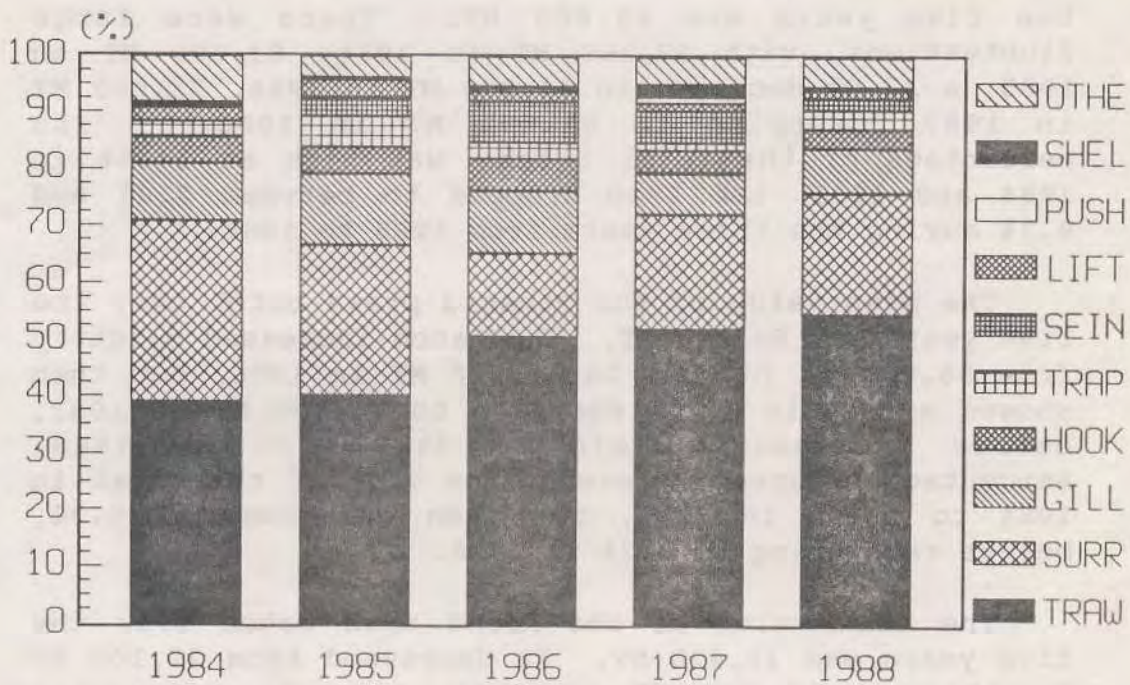


Fig. 37. The percentage of catch by type of fishing gear in Malaysia from 1984 to 1988.

Marine Catch by Species Group

The trends of marine catch by species group from 1984 to 1988 in Malaysia are shown in Table 20 and Figs. 38 and 39. An analysis of the mean values of the catch over the five years, showed Trash fish was the most dominant at 157,800 MT. It increased gradually from 112,000 MT in 1984 to 133,400 MT in 1986, and then showed a dramatic 67.8% increase to 223,800 MT in 1987, before decreasing slightly to 202,500 MT in 1988. It increased steadily from 18.7% of the total in 1984 to 26.1% in 1987, but then dropped to 24.6% in 1988 (Fig.40).

The mean value of the Indian mackerel catch over the five years was 68,600 MT. There were large fluctuations, with 87,100 MT in 1984, 83,000 MT in 1985, a 47.0% decrease to 44,000 MT in 1986, 71,500 MT in 1987, dropping to 57,500 MT in 1988. Its percentage of the total catch was high at 14.5% in 1984 and 1985, but then dropped to between 7.0% and 8.3% during the three years from 1986 to 1988.

The mean value of the Penaeid prawn catch over the five years was 59,800 MT. The catch increased slightly from 56,000 MT in 1984 to 65,200 MT in 1986, but then showed a drastic 30.5% decrease to 45,400 MT in 1987, before increasing again to 71,900 MT in 1988. Percentage figures increased from 9.3% of the total in 1984 to 11.6% in 1986, but then decreased to 5.3%, before recovering to 8.7% in 1988.

The mean value of the Round scad catch over the five years was 31,400 MT. It decreased from 25,100 MT in 1984 to 17,800 MT in 1986, but then showed a dramatic 3.1 times increase to 55,000 MT in 1987, before decreasing to 36,700 MT in 1988. It ranged at between 3.2% (1986) and 4.5% (1988) of the total with the exception of 6.4% in 1987.

The mean value of the Miscellaneous fish catch over the five years was 29,500 MT. In 1984 it was 25,000 MT, remaining constant in 1986, then showing a dramatic 63.5% increase to 36,100 MT in 1987, and 39,600 MT in 1988. It showed slight percentage variations at between 3.9% (1986) and 4.8% (1988) of the total.

The mean value of the Selar scad catch over the five years was 24,600 MT. In 1984 it was 29,000 MT, remaining constant in 1985, but then decreasing drastically by 62.7% to 11,300 MT in 1986. It then increased again slightly to 18,900 MT in 1987, and then by 78.1% to 33,600 MT in 1988. It ranged between 2.0% (1986) and 5.3% (1985) of the total.

The mean value of the Anchovy catch over the five years was 23,700 MT. It decreased from 23,500 MT in 1984 to 16,800 MT in 1985, but then increased slightly to 18,300 MT in 1986. There was a 54.2% increase to 28,200 MT in 1987, and then a further increase to 32,100 MT in 1988. It ranged between 2.9% (1985) and 3.9% (1984, 1988) of the total.

The mean value of the Non-penaeid prawn catch over the five years was 20,300 MT. There was a dramatic 2.3 times increase from 7,500 MT in 1984 to 17,700 MT in 1985, remaining constant in 1986, and then again showing a dramatic 2.9 times increase to 48,500 MT in 1987, before decreasing to 10,600 MT in 1988. It showed a relatively large variation of between 1.3% (1984, 1988) and 5.7% (1987) of the total catch.

The mean value of the Longtail tuna catch over the five years was 19,900 MT, increasing slightly from 17,700 MT in 1984 to 19,200 MT in 1985, decreasing to 16,600 MT in 1986, but then showing a 53.6% increase to 25,500 MT in 1987, before decreasing again to 20,700 MT in 1988. The percentage varied at between 2.5% (1988) and 3.3% (1985) of the total.

The mean value of the Sardine catch over the five years was 17,700 MT, with a decrease of 14,800 MT in 1984 to 10,500 MT in 1986. It then showed a dramatic 2.7 times increase to 28,100 MT in 1987, before decreasing again to 24,100 MT in 1988. Percentages of the total ranged between 1.9% (1985, 1986) and 3.3% (1987).

The mean value of the Jellyfish catch over the five years was 17,400 MT, with a decrease from 14,700 MT in 1984 to 10,000 MT in 1985. It increased slightly in 1986, then showed a dramatic 2.2 times increase to 25,700 MT in 1987, remaining constant at 25,200 MT in 1988. It was between 1.7% (1985) and 3.1% (1988) of the total.

The mean value of the Threadfin bream catch from 1984 to 1988 was 16,700 MT, with a 21.0% decrease from 11,200 MT in 1984 to 8,900 MT in 1985, followed by a steady increase from 11,200 MT in 1986 to 30,600 MT in 1988. The percentages also increased steadily from 1.5% in 1985 to 3.7% in 1988.

The mean values of the Squid, Drum and croaker, and Narrow-barred king mackerel catch over the five years were more than 10,000 MT each. The mean value of the Marine miscellaneous crustacea over the three years (catch data in 1985 and 1986 was not available) was 12,700 MT.

Table 20. Catch by species group in Malaysia from 1984 to 1988.

Species\Year	(MT)				
	1984	1985	1986	1987	1988
Trash fish	111,975	117,447	133,407	223,822	202,481
Indian mackerel	87,054	83,029	43,993	71,459	57,452
Penaeid prawn	55,975	60,579	65,214	45,355	71,906
Round scad	25,091	22,307	17,820	55,011	36,717
Miscellaneous fish	24,954	24,739	22,061	36,070	39,617
Selar scad	29,019	30,224	11,276	18,861	33,597
Anchovy	23,500	16,776	18,252	28,153	32,065
Non-penaeid prawn	7,535	17,659	17,000	48,522	10,601
Longtail tuna	17,723	19,151	16,590	25,484	20,730
Sardine	14,849	11,071	10,505	28,134	24,129
Jellyfish	14,705	10,007	11,541	25,736	25,227
Threadfin bream	11,215	8,865	11,217	21,384	30,636
Squid	10,298	9,148	9,704	21,430	20,243
Drum and croaker	12,033	12,709	15,789	13,319	15,360
N-b. king mackerel	9,268	8,687	12,241	12,798	10,398
Hardtail scad	15,161	7,486	6,944	8,653	10,551
Jack-cavalla-trevally	4,357	4,212	12,625	18,788	8,376
Misc. m. crustaceans	15,954	0	0	177	21,891
Shark	5,281	4,745	4,820	4,699	5,252
Eastern little tuna	6,871	3,315	2,713	4,528	6,322
Indo-Pacific mackerel	3,717	3,068	3,731	2,856	3,049
Pony fish	2,502	2,620	2,214	1,677	1,832
Others	91,436	96,510	113,802	141,891	134,808
Total	600,473	574,354	563,459	858,807	823,240

N-b. king mackerel, Narrow-barred king mackerel,
Misc. m. crustaceans, Miscellaneous marine crustaceans.

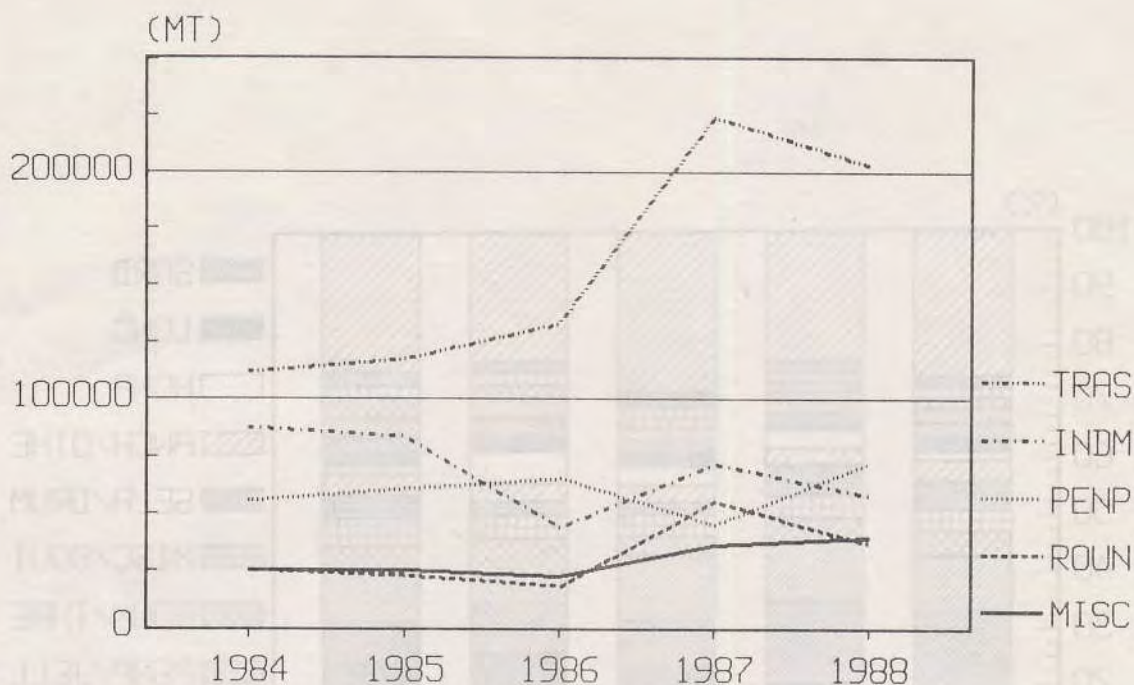


Fig. 38. Trends of catch by species group in Malaysia from 1984 to 1988. (1) Five major species groups.

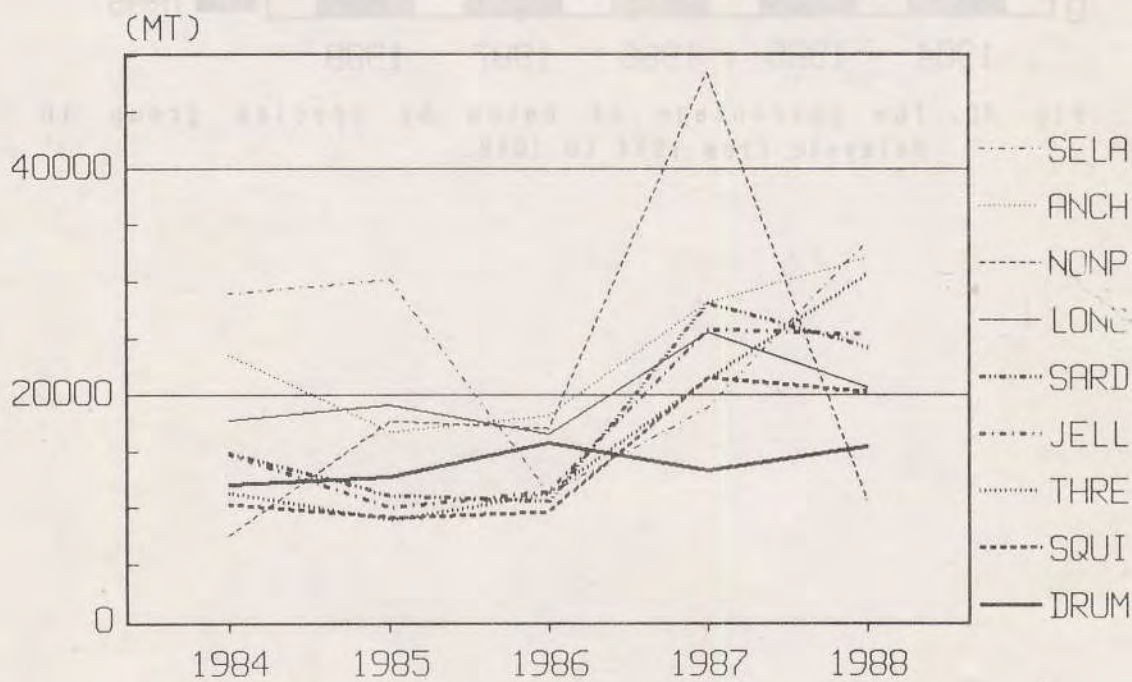


Fig. 39. Trends of catch by species group in Malaysia from 1984 to 1988. (2) The other major species groups.

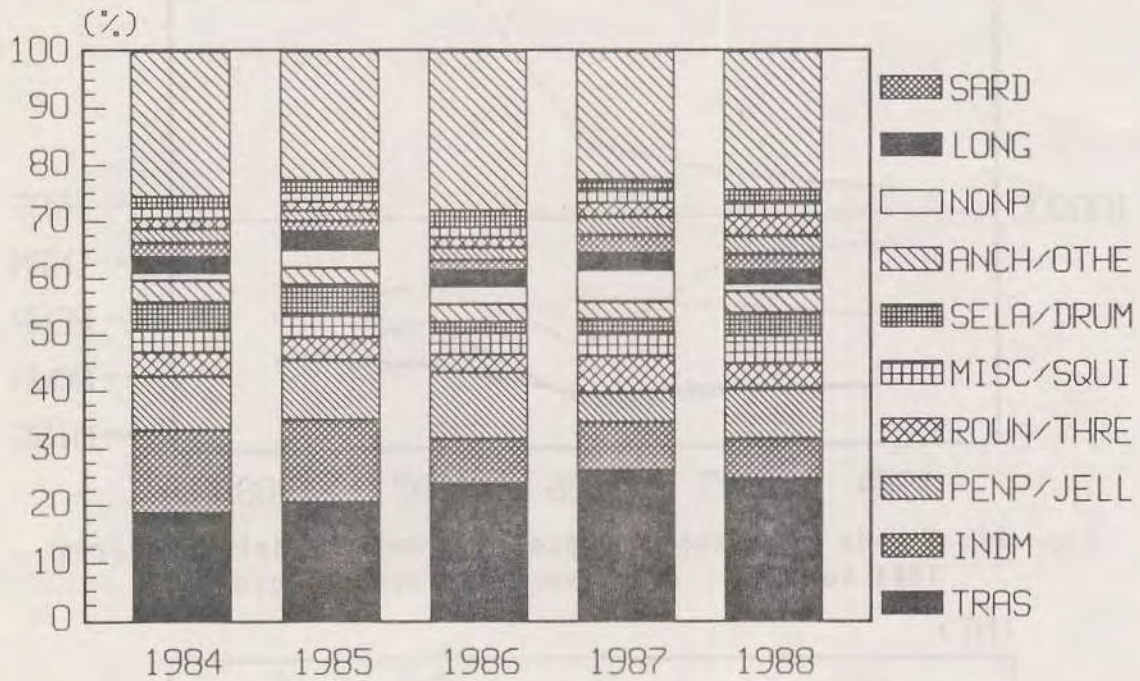


Fig. 40. The percentage of catch by species group in Malaysia from 1984 to 1988.

2.2.7 Philippines

This Section describes trends for the total marine catch, catch by type of fishing gear, catch by major species groups in the Philippines from 1984 to 1988.

Total Catch

The trends of marine capture fishery production in the Philippines are shown in Table 21 and Fig. 41. The total catch in the Philippines showed a slight decrease from 1,303,300 MT in 1984 to 1,297,100 MT in 1985, but it then increased steadily to 1,438,400 MT in 1988; a 10.4% increase over the five years.

Table 21. Marine capture fishery production in the Philippines from 1984 to 1988.

	(MT)				
Year	1984	1985	1986	1987	1988
Catch	1,303,310	1,297,119	1,353,505	1,407,439	1,438,361

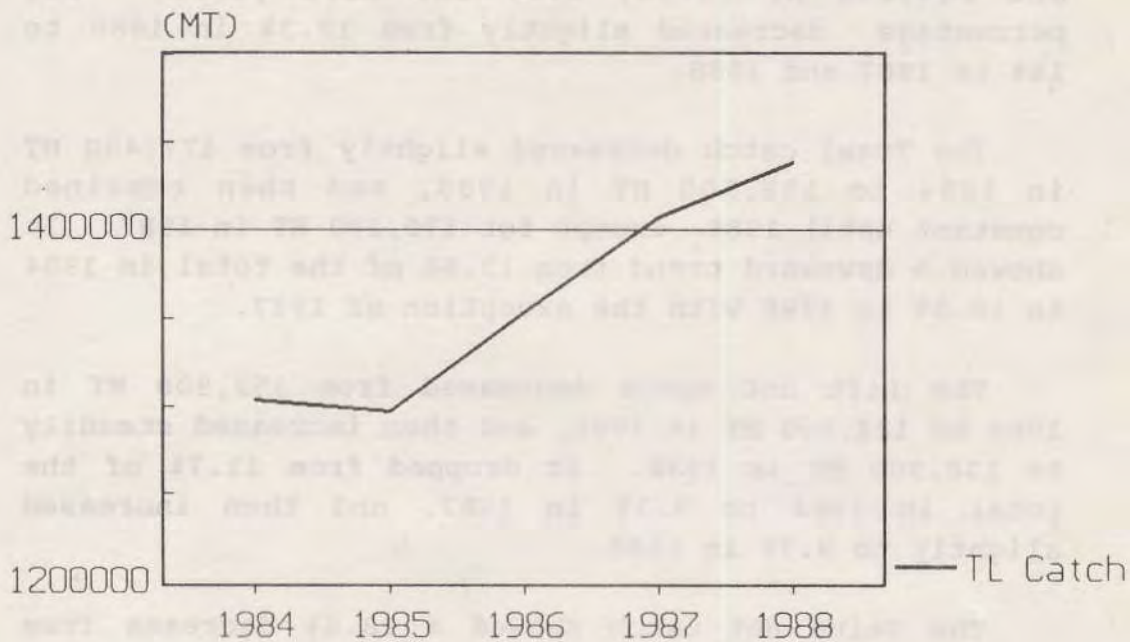


Fig. 41. Trend of marine capture fishery production in the Philippines from 1984 to 1988.

Marine Catch by Type of Fishing Gear

Trends of marine catches by type of fishing gear from 1984 to 1988 in the Philippines are shown in Table 22 and Fig. 42. The Surrounding net catch, the most dominant during the five years, decreased slightly from 307,800 MT in 1984 to 300,300 MT in 1985, and then increased steadily to 407,200 MT in 1988. The percentage remained constant at a 23% level of the total in 1984 and 1985, increasing to 28.3% in 1988 (Fig. 43).

The Hook-and-line catch increased steadily from 221,500 MT in 1984 to 276,200 MT in 1986, and then remained constant at 264,100 MT until 1988. The percentage increased from 17.0% of the total in 1984 to 20.4% in 1986, and then dropped slightly to 18.4% in 1988.

The Gill net catch varied between 224,300 MT (1984) and 243,200 MT (1986) over the five years. The percentage decreased slightly from 18.3% in 1985 to 16% in 1987 and 1988.

The Trawl catch decreased slightly from 177,400 MT in 1984 to 159,700 MT in 1985, and then remained constant until 1988 except for 170,200 MT in 1987. It showed a downward trend from 13.6% of the total in 1984 to 10.0% in 1988 with the exception of 1987.

The Lift net catch decreased from 152,900 MT in 1984 to 128,300 MT in 1986, and then increased steadily to 138,900 MT in 1988. It dropped from 11.7% of the total in 1984 to 9.3% in 1987, and then increased slightly to 9.7% in 1988.

The Seine net catch showed a 18.6% decrease from 81,900 MT in 1984 to 66,600 MT in 1985, but then

increased steadily to 124,300 MT in 1988. It dropped from 6.3% of the total in 1984 to 5.1% in 1985, but then increased steadily to 8.6% in 1988.

The Trap catch increased from 67,500 MT in 1984 to 81,300 MT in 1985, decreased to 51,300 MT in 1987, then increased again to 53,300 MT in 1988. It increased from 5.2% of the total in 1984 to 6.3% in 1985, but then showed a downward trend to 3.7% in 1988.

The Push net catch decreased from 16,100 MT in 1984 to 11,600 MT in 1986, but then increased to 14,000 MT in 1988. The percentage ranged between 0.9% (1986, 1987) and 1.2% (1984).

The Shellfish and seaweed collecting gear catch remained constant at the 13,000 MT level between 1985 and 1988 with the exception of 17,300 MT in 1987. It ranged around 1.0% of the total over the four years.

Table 22. Catch by type of fishing gear in the Philippines from 1984 to 1988.

Gear\Year	(MT)				
	1984	1985	1986	1987	1988
Surrounding net	307,766	300,282	337,084	376,872	407,181
Seine net	81,861	66,599	80,743	112,398	124,294
Trawl	177,402	159,725	159,314	170,224	143,959
Gill net	224,319	236,697	243,194	227,103	233,956
Lift net	152,908	142,075	128,263	130,762	138,876
Trap	67,534	81,269	59,360	51,345	53,330
Hook-and-line	221,463	243,436	276,172	263,593	264,121
Push net	16,144	14,983	11,583	12,618	14,023
Shellfish c. g.	0	13,401	13,391	17,318	13,915
Others	53,913	0	44,401	45,206	44,706
Total	1,303,310	1,297,119	1,353,505	1,407,439	1,438,361

Shellfish c. g., Shellfish and seaweed collecting gear.

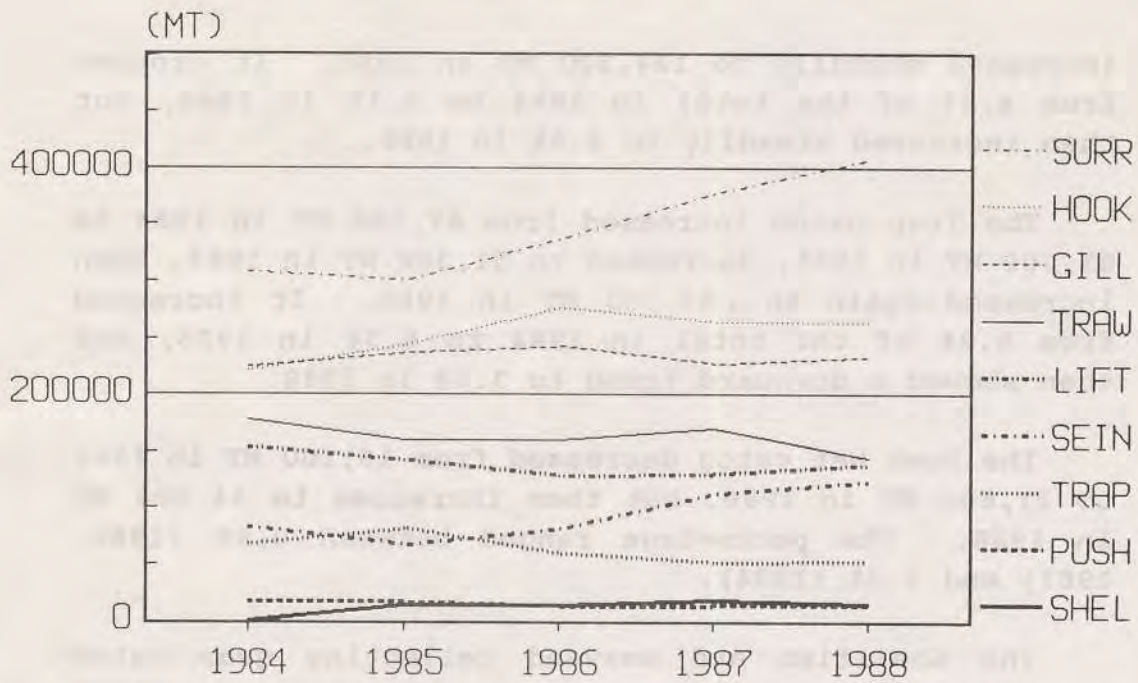


Fig. 42. Trends of catch by type of fishing gear in the Philippines from 1984 to 1988.

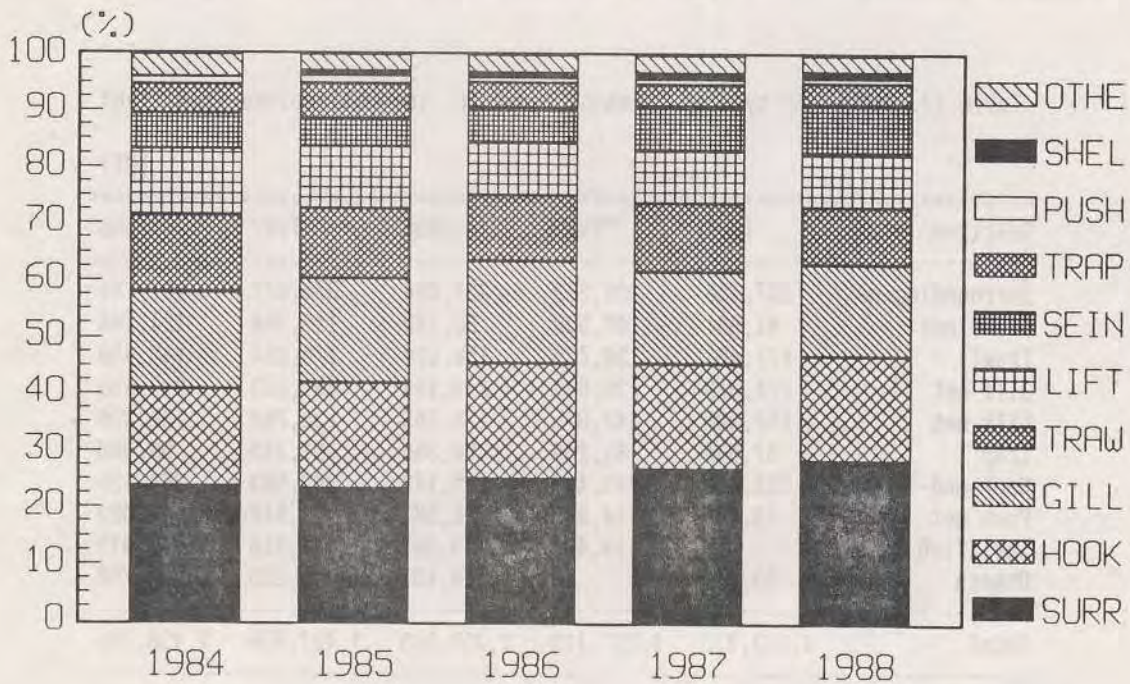


Fig. 43. The percentage of catch by type of fishing gear in the Philippines from 1984 to 1988.

Marine Catch by Species Group

Trends of marine catch by species group from 1984 to 1988 in the Philippines are shown in Table 23 and Figs. 44 and 45. An analysis of the mean values of the catch over the five years, shows Round scad was the most dominant at 160,400 MT. It registered 131,600 MT in 1984, remained constant in 1985, but then increased by 33.5% to 175,900 MT in 1986. It then continued to increase to 184,400 MT in 1987, but decreased slightly to 178,700 MT in 1988. It increased from 10.1% of the total in 1984 to 13.1% in 1987, but decreased slightly to 12.4% in 1988 (Fig. 46).

The mean value of the Anchovy catch over the five years was 108,800 MT, with 99,500 MT in 1984, 109,900 MT in 1985, 99,700 MT in 1986, and 126,400 MT in 1988. The percentage increased slightly from 7.6% in 1984 to 8.5% in 1985, decreased to 7.4% in 1986, but increased again to 8.8% in 1988.

The mean value of the Frigate tuna catch over the five years was 93,300 MT, with an increase from 80,300 MT in 1984 to 95,700 MT in 1985. It then increased further to 105,400 MT in 1988, having fallen to 87,200 MT in 1986. The percentage figures rose gradually, with the exception of 1985, from 6.2% of the total in 1984 to 7.3% in 1988.

The mean value of the Sardine catch over the five years was 91,900 MT, with a decrease from 109,000 MT in 1984 to 73,300 MT in 1986, increasing to 96,400 MT in 1988. Percentages decreased from 8.4% of the total in 1984 to 5.4% in 1986, then rose to 6.7% in 1988, after reaching a high of 7.0% in 1987.

The mean value of the Pony fish catch over the five years was 65,000 MT, recording between 66,800 MT in

1984 and 65,700 MT in 1988 with the exception of 61,700 MT in 1987. The percentage of the total decreased slightly from 5.1% in 1984 to 4.6% in 1988.

The mean value of the Skipjack tuna catch over the five years was 62,400 MT, with a large increase from 44,700 MT in 1984 to 77,000 MT in 1986. It then decreased again to 55,900 MT in 1988. Percentages increased from 3.4% of the total in 1984 to 5.7% in 1986, then decreased to 3.9% in 1988.

The mean value of the Yellowfin tuna catch over the five years was 58,300 MT, with a slight increase from 58,900 MT in 1984 to 64,300 MT in 1985. It then decreased to 51,800 MT in 1987, but increased again to 57,100 MT in 1988. It ranged at between 3.7% (1987) and 5.0% (1985) of the total.

The mean value of the Eastern little tuna catch over the five years was 45,700 MT. It remained constant at between 41,900 MT in 1984 and 42,400 MT in 1986, and then went up to 56,300 MT in 1988. Figures ranged between 3.1% and 3.3% of the total from 1984 to 1987, then increased to 3.9% in 1988.

The mean value of the Threadfin bream catch over the five years was 44,300 MT. There was an increase from 41,300 MT in 1984 to 46,300 MT in 1986, remaining constant in 1987, but decreasing to 43,300 MT in 1988. The percentage varied between 3.0% (1988) and 3.4% (1985, 1986) of the total.

The mean value of the Jack-cavalla-trevally catch over the five years was 44,000 MT. It remained steady at between 45,600 MT in 1984 and 45,700 MT in 1988 with the exception of a 42,000 MT level in both 1985 and 1986. The percentages were between 3.1% (1986, 1987) and 3.5% (1984) of the total.

The mean value of the Indian mackerel catch over the five years was 40,800 MT, with a steady increase from 33,200 MT in 1984 to 51,800 MT in 1988. Its percentage of the total increased slightly from 2.6% in 1984 to 2.9% in 1985, then remained constant until 1987, increasing to 3.6% in 1988.

The mean value of the Selar scad catch over the five years was 35,500 MT, with a fall from 37,500 MT in 1984 to 33,500 MT in 1985, increasing gradually to 36,500 MT in 1988. It decreased slightly from 2.9% of the total in 1984 to 2.5% in 1986, then remained constant until 1988.

The mean value of the Round herring catch over the five years was 31,900 MT, with a decrease from 35,100 MT in 1984 to 28,800 MT in 1985. It then remained constant until rising to 31,900 MT in 1987, and 35,600 MT in 1988. It decreased from 2.7% of the total in 1984 to 2.1% in 1986, but then increased to 2.5% in 1988.

The mean values of the Indo-Pacific mackerel, Goat fish, Squid and Grouper catch over the five years were more than 20,000 MT each.

Table 23. Catch by species group in the Philippines from 1984 to 1988.
(MT)

Species\Year	1984	1985	1986	1987	1988
Round scad	131,583	131,708	175,855	184,411	178,687
Anchovy	99,545	109,885	99,687	108,373	126,373
Frigate tuna	80,305	95,725	87,225	98,032	105,436
Sardine	109,027	81,927	73,303	98,694	96,405
Pony fish	66,784	65,316	65,415	61,738	65,724
Skipjack tuna	44,671	60,536	77,031	73,751	55,940
Yellowfin tuna	58,924	64,293	59,510	51,809	57,060
Eastern little tuna	41,899	41,060	42,445	46,934	56,266
Threadfin bream	41,321	43,977	46,276	46,448	43,331
Jack-cavalla-trevally	45,614	42,350	42,150	44,189	45,710
Indian mackerel	33,192	37,445	38,942	42,726	51,768
Selar scad	37,513	33,481	34,407	35,461	36,530
Round herring	35,125	28,839	28,016	31,872	35,624
Indo-Pacific mackerel	27,650	28,929	26,534	25,327	28,323
Goat fish	25,368	30,146	24,355	27,049	25,567
Squid	20,314	24,623	26,632	26,431	28,835
Grouper	24,403	24,655	28,843	25,217	19,189
Penaeid prawn	15,588	15,497	22,863	17,622	17,813
Fusilier	19,817	16,278	15,063	16,051	15,128
Blue swimming crab	17,983	15,563	16,687	13,064	16,506
Non-penaeid prawn	7,792	17,865	18,197	14,670	16,350
N-b. king mackerel	13,725	12,739	15,150	17,852	13,796
Drum and croaker	10,187	10,065	12,431	9,623	11,779
Lizard fish	9,290	8,684	9,684	10,185	9,863
Shark	5,983	5,801	9,853	6,967	7,134
Trash fish	4,449	2,986	6,948	7,866	13,367
Jellyfish	91	5	34	88	17,718
Miscellaneous fish	2,034	2,628	2,877	2,953	3,085
Others	273,133	244,113	247,092	262,036	239,054
Total	1,303,310	1,297,119	1,353,505	1,407,439	1,438,361

N-b. king mackerel, Narrow-barred king mackerel.

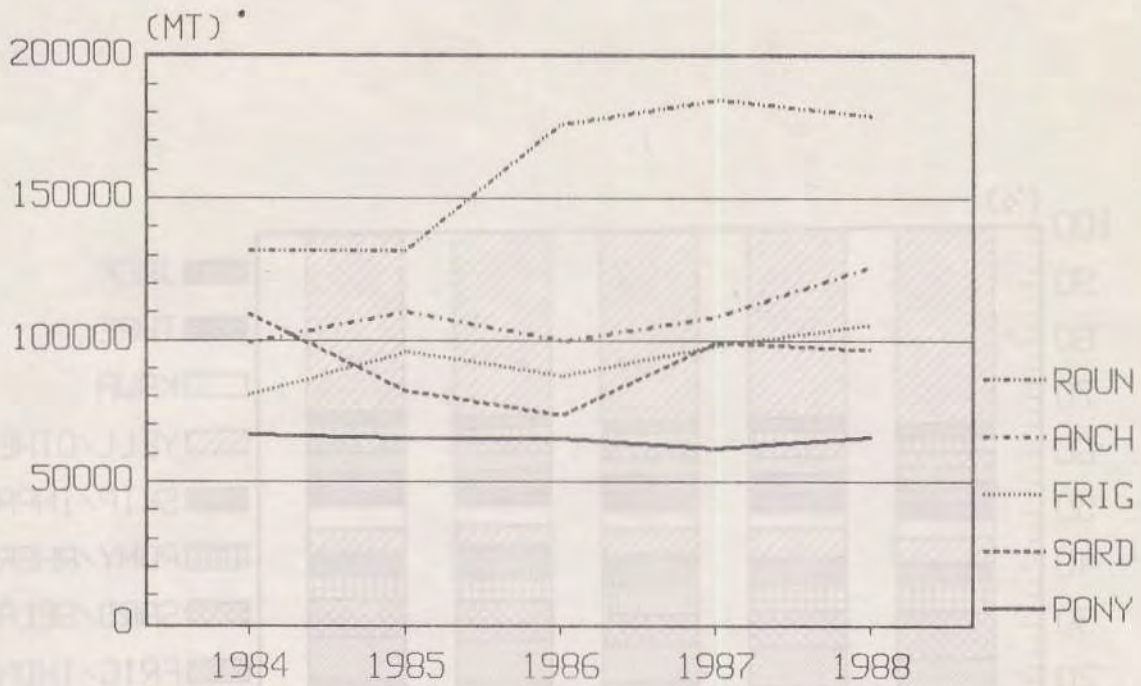


Fig. 44. Trends of catch by species group in the Philippines from 1984 to 1988. (1) Five major species groups.

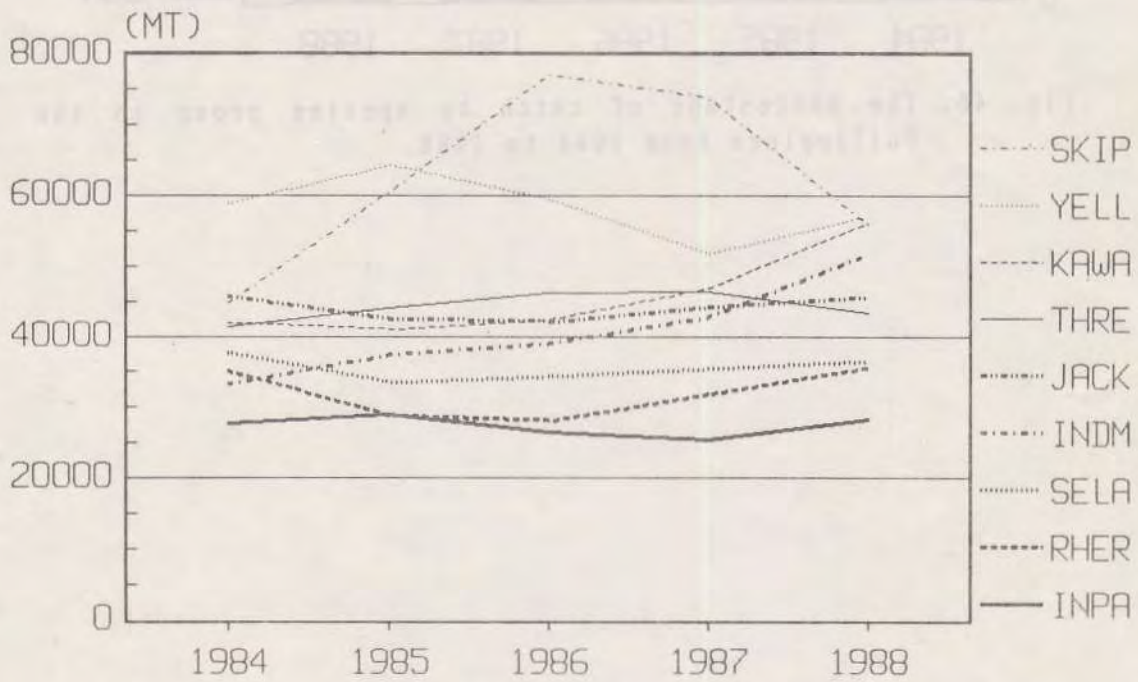


Fig. 45. Trends of catch by species group in the Philippines from 1984 to 1988. (2) The other major species groups.

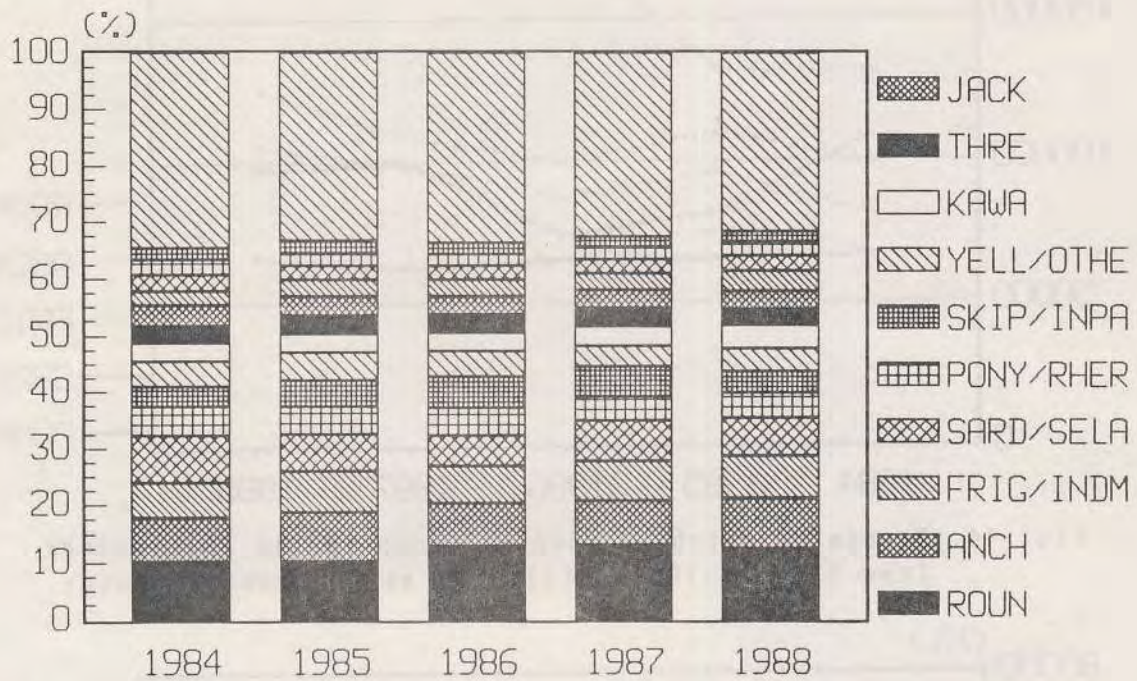


Fig. 46. The percentage of catch by species group in the Philippines from 1984 to 1988.

2.2.8 Singapore

This Section describes trends for the total marine catch, and catch by major species groups, in Singapore from 1984 to 1988.

Total Catch

The trends of marine capture fishery production in Singapore are shown in Table 24 and Fig. 47. The total catch in Singapore showed a decreasing trend from 25,000 MT in 1984 to 13,200 MT in 1988.

Table 24. Marine capture fishery production in Singapore from 1984 to 1988.

	(MT)				
Year	1984	1985	1986	1987	1988
Catch	25,042	22,761	20,279	15,096	13,151

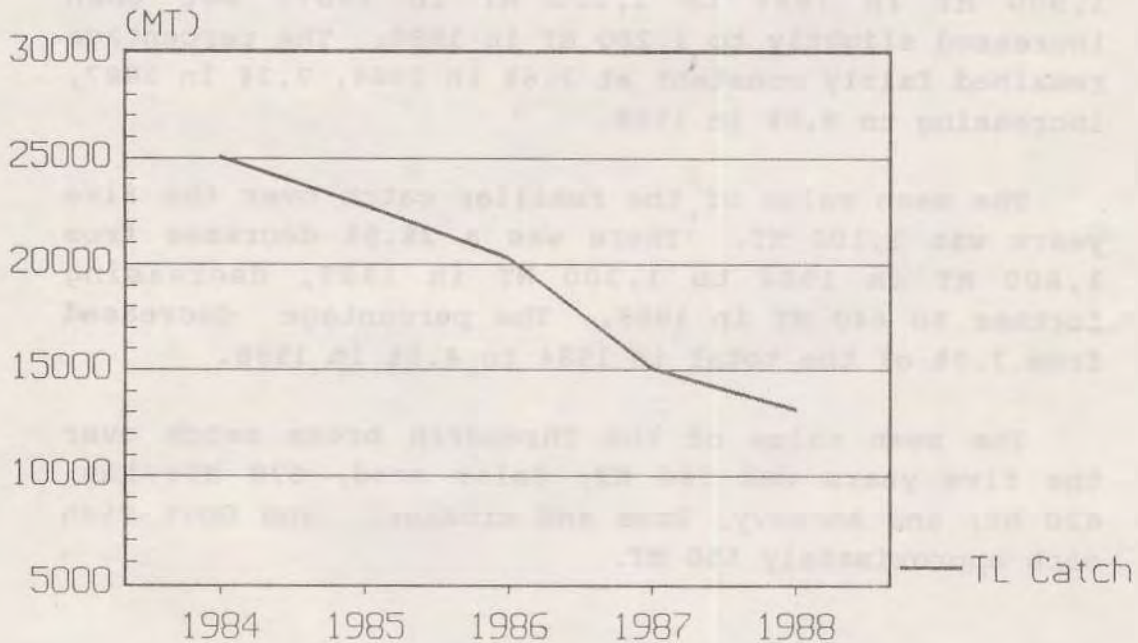


Fig. 47. Trend of marine capture fishery production in Singapore from 1984 to 1988.

Marine Catch by Species Group

Trends of marine catch by species group from 1984 to 1988 in Singapore are shown in Table 25 and Figs. 48 and 49. An analysis of the mean values of the catch over the five years, showed that Trash fish was the most dominant at 2,100 MT. It decreased from 3,000 MT in 1984 to 1,400 MT in 1988, with a drastic 28.4% reduction in 1986. The catch percentage decreased from 12.1% of the total in 1984 to 9.5% in 1986, but then increased to the 10% level until 1988 (Fig. 50).

The mean value of the Penaeid prawn catch over the five years was 1,700 MT. The catch decreased by 35.2% from 2,200 MT in 1984 to 910 MT in 1988. The percentage remained constant at 8.7% of the total in 1984, 8.5% in 1985, then increased slightly to 9.3% in 1987, before dropping to 6.9% in 1988.

The mean value of the Miscellaneous fish catch over the five years was 1,500 MT. The catch decreased from 1,900 MT in 1984 to 1,100 MT in 1987, but then increased slightly to 1,200 MT in 1988. The percentage remained fairly constant at 7.6% in 1984, 7.3% in 1987, increasing to 9.5% in 1988.

The mean value of the Fusilier catch over the five years was 1,100 MT. There was a 28.5% decrease from 1,800 MT in 1984 to 1,300 MT in 1985, decreasing further to 640 MT in 1988. The percentage decreased from 7.3% of the total in 1984 to 4.9% in 1988.

The mean value of the Threadfin bream catch over the five years was 780 MT; Selar scad, 670 MT; Ray, 620 MT; and Anchovy, Drum and croaker, and Goat fish each approximately 550 MT.

Table 25. Catch by species group in Singapore from 1984 to 1988.

Species\Year	1984	1985	1986	1987	1988
Trash fish	3,041	2,700	1,933	1,658	1,365
Penaeid prawn	2,179	1,926	1,838	1,401	908
Miscellaneous fish	1,906	1,646	1,499	1,098	1,244
Fusilier	1,830	1,308	1,150	813	643
Threadfin bream	938	939	886	725	412
Selar scad	781	769	729	630	438
Ray	837	695	631	425	526
Anchovy	592	496	761	567	543
Drum and croaker	612	544	563	501	533
Goat fish	697	800	485	397	287
Yellowfin tuna	417	675	455	330	549
Squid	694	712	409	322	270
Shark	598	533	445	327	358
Sardine	493	350	481	206	398
Others	9,427	8,668	8,014	5,696	4,677
Total	25,042	22,761	20,279	15,096	13,151

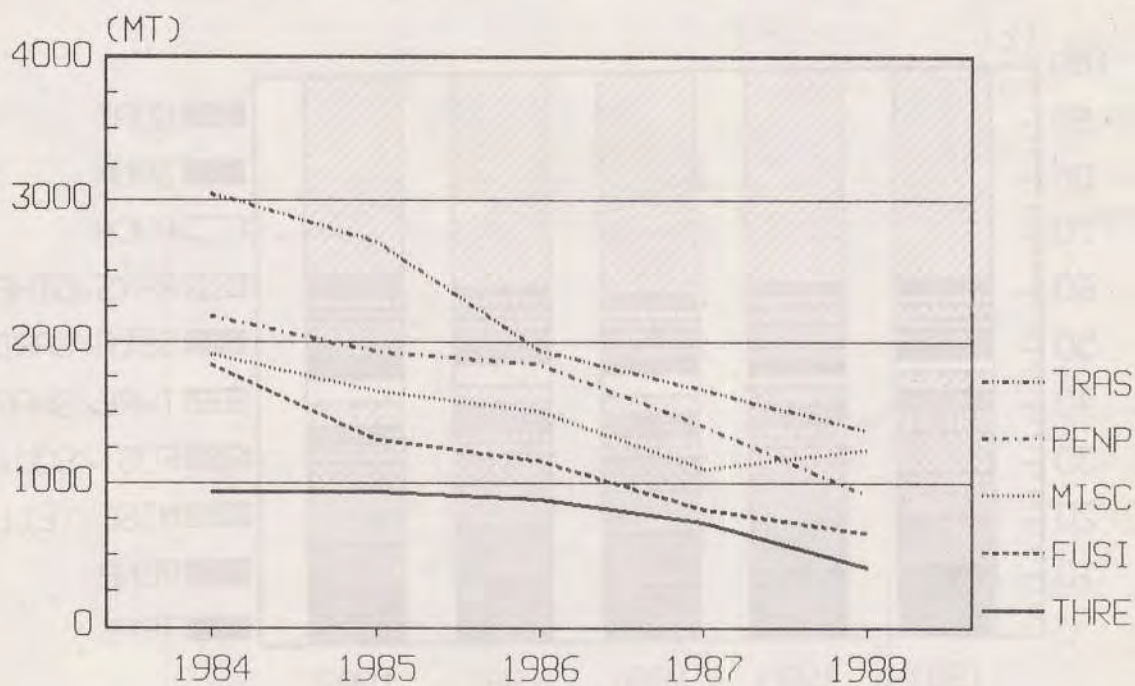


Fig. 48. Trends of catch by species group in Singapore from 1984 to 1988. (1) Five major species groups.

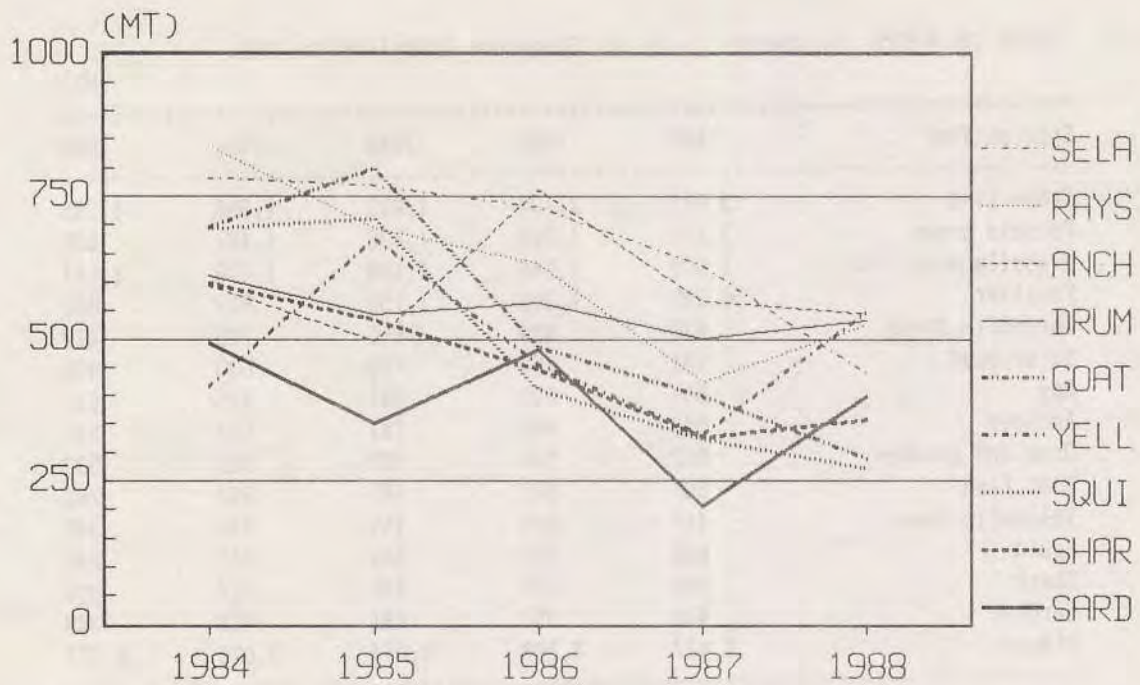


Fig. 49. Trends of catch by species group in Singapore from 1984 to 1988. (2) The other major species groups.

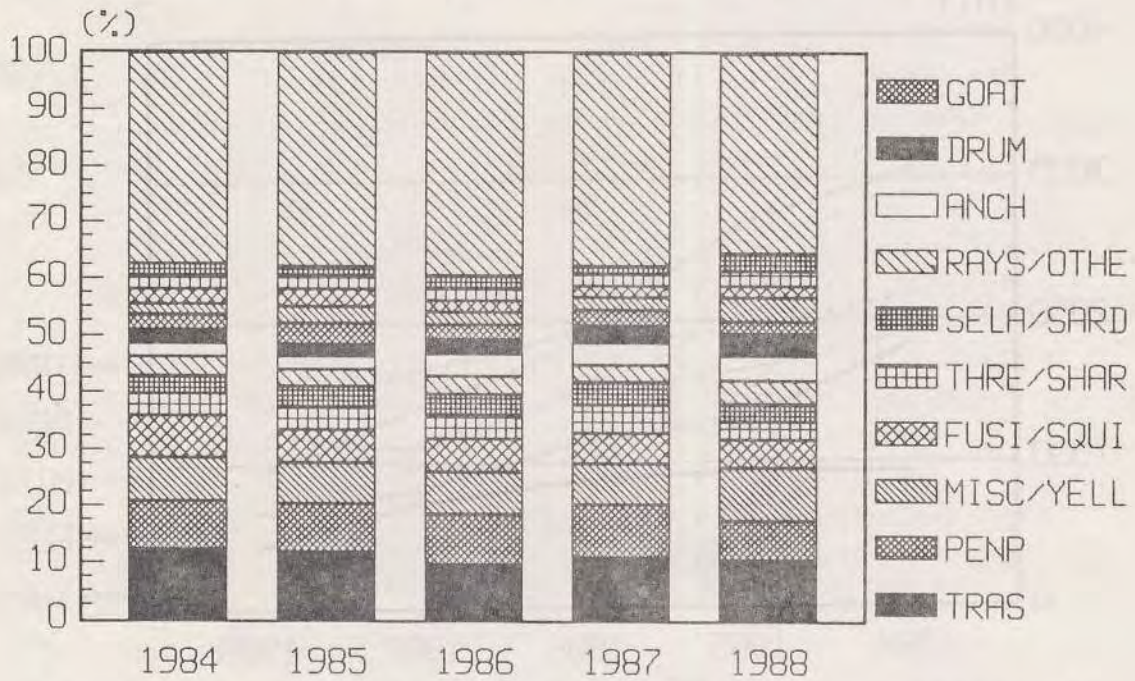


Fig. 50. The percentage of catch by species group in Singapore from 1984 to 1988.

2.2.9 Thailand

This Section describes trends for the total marine catch; catch by type of fishing gear; and catch by major species groups; in Thailand from 1984 to 1988.

Total Catch

The trends of marine capture fishery production in Thailand are shown in Table 26 and Fig. 51. The total catch in Thailand showed a slight increase initially from 1,911,500 MT in 1984 to 1,997,200 MT in 1985, but then recorded a marked 15.6% increase to 2,309,500 MT in 1986, reaching a peak of 2,540,100 MT in 1987, before decreasing slightly to 2,337,200 MT in 1988.

Table 26. Marine capture fishery production in Thailand from 1984 to 1988.

	(MT)				
Year	1984	1985	1986	1987	1988
Catch	1,911,485	1,997,165	2,309,480	2,540,052	2,337,216

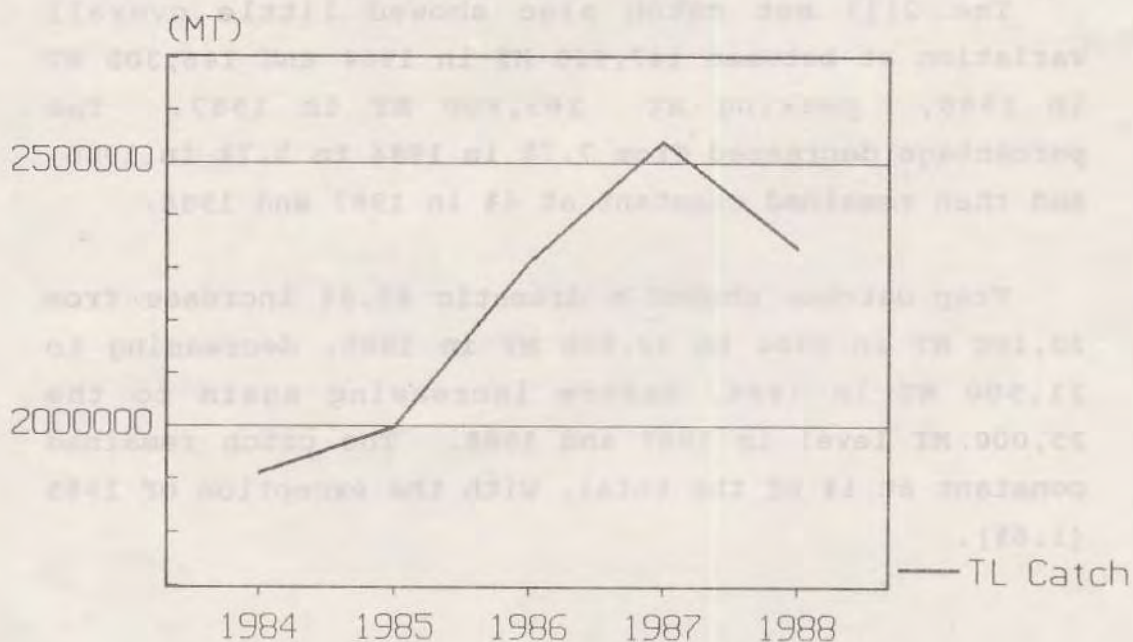


Fig. 51. Trend of marine capture fishery production in Thailand from 1984 to 1988.

Marine Catch by Type of Fishing Gear

Trends of marine catches by type of fishing gear from 1984 to 1988 in Thailand are shown in Table 27 and Fig. 52. Trawl catch, the most dominant during the five years, remained constant at 1,016,600 MT in 1984 and 1,002,400 MT in 1985, but showed a dramatic 25.1% increase reaching 1,253,800 MT in 1986, and 1,399,800 MT in 1987, but decreasing again to 1,260,000 MT in 1988. Trawl ranged between 50.2% of the total in 1985 and 55.1% in 1987 (Fig. 53).

The Surrounding net catches increased steadily from 516,900 MT in 1984 to 640,000 MT in 1987, then decreased slightly to 629,600 MT in 1988. The percentage remained relatively high, with slight variations between 25.2% (1987) and 28.6% (1985) of the total catch.

The Gill net catch also showed little overall variation at between 147,900 MT in 1984 and 146,300 MT in 1988, peaking at 163,400 MT in 1987. The percentage decreased from 7.7% in 1984 to 5.7% in 1986, and then remained constant at 6% in 1987 and 1988.

Trap catches showed a dramatic 63.8% increase from 20,100 MT in 1984 to 32,800 MT in 1985, decreasing to 21,900 MT in 1986, before increasing again to the 25,000 MT level in 1987 and 1988. The catch remained constant at 1% of the total, with the exception of 1985 (1.6%).

The Push net catch fell by 41.6%, from 26,500 MT in 1985 to 15,500 MT in 1986, increasing slightly to 17,600 MT in 1987, before decreasing again to 11,500 MT in 1988. The percentage decreased from 1.3% in 1985 to 0.7% in 1986, and finally 0.5% in 1988.

The Hook-and-line catch remained fairly constant, ranging between 8,400 MT in 1984 and 7,700 MT in 1988. The percentage decreased from 0.4% to 0.3% of the total, over the five years.

Table 27. Catch by type of fishing gear in Thailand from 1984 to 1988.
(MT)

Gear\Year	1984	1985	1986	1987	1988
Surrounding net	516,934	570,917	602,355	640,001	629,597
Seine net	-	-	-	-	-
Trawl	1,016,637	1,002,392	1,253,764	1,399,773	1,260,036
Gill net	147,947	141,868	132,242	163,351	146,309
Lift net	-	-	-	-	-
Trap	20,077	32,833	21,907	25,811	25,192
Hook-and-line	8,402	8,413	7,969	7,474	7,724
Push net	0	26,526	15,493	17,609	11,518
Shellfish c. g.	-	-	-	-	-
Others	201,488	214,216	275,750	286,033	2,051,183
Total	1,911,485	1,997,165	2,309,480	2,540,052	2,337,216

Shellfish c. g., Shellfish and seaweed collecting gear.

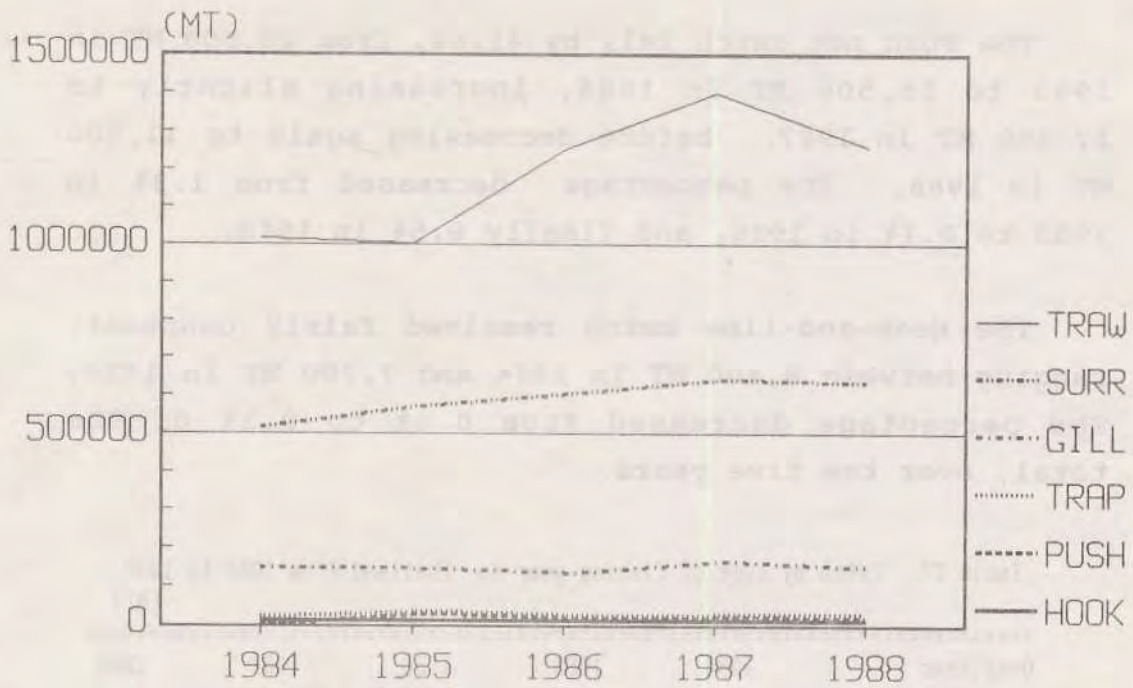


Fig. 52. Trends of catch by type of fishing gear in Thailand from 1984 to 1988.

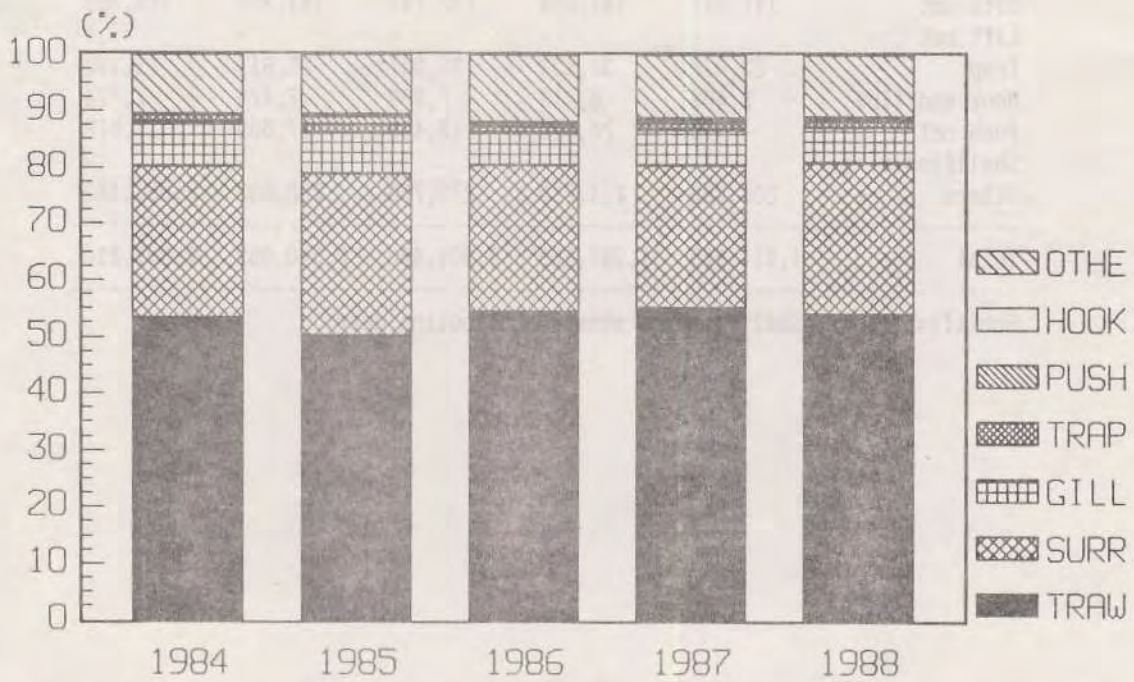


Fig. 53. The percentage of catch by type of fishing gear in Thailand from 1984 to 1988.

Marine Catch by Species Group

Trends of marine catch by species group from 1984 to 1988 in Thailand are shown in Table 28 and Figs. 54 and 55. An analysis of the mean catch of five years, shows Trash fish was the most dominant at 914,400 MT, recording 757,600 MT in 1984, remaining constant in 1985, but then increasing by 25.7% to 976,200 MT in 1986. The catch was consistently over 950,000 MT from 1986 until 1988, with a peak of 1,105,700 MT in 1987. The percentage was very high each year, ranging between 38.9% (1985) and 43.5% (1987) of the total catch (Fig. 56).

The mean value of the Indo-Pacific mackerel catch over the five years was 118,900 MT, with a slight decrease from 129,100 MT in 1984 to 111,700 MT in 1988. The percentage fell from 6.8% in 1984 to 4.9% in 1986, where it remained until 1988.

The mean value of the Sardine catch over the five years was 117,500 MT, falling from 117,300 MT in 1984 to 97,700 MT in 1985, but then showing a 24.0% increase to 121,200 MT in 1986, and 127,200 MT in 1987, before decreasing again to 123,700 MT in 1988. It varied at between 6.1% of the total in 1984, 4.9% in 1985, and 5.3% in 1986, where it remained constant until 1988.

The mean value of the Miscellaneous fish catch over the five years was 116,000 MT, with a steady increase from 92,700 MT in 1984 to 132,100 MT in 1988. The percentage of the total increased slightly from 4.9% in 1984 to 5.3% in 1985, decreased to 5.1% in 1987, and then increased to 5.7% in 1988.

The mean value of the miscellaneous marine molluscs catch over the five years was 107,000 MT, more than doubling from 61,300 MT in 1984 to 141,000 MT in 1987, before decreasing to 120,000 MT in 1988. The percentage increased steadily from 3.2% in 1984 to 5.6% in 1987, before dropping slightly to 5.1% in 1988.

The mean value of the Non-penaeid prawn catch over the five years was 101,400 MT, increasing from 101,100 MT in 1984 to 115,100 MT in 1987, but then decreasing to 89,000 MT in 1988. The percentage decreased from 5.3% of the total in 1984 to 4.6% in 1985, and then remained constant until 1987, falling again to 3.8% in 1988.

The mean value of the Anchovy catch over the five years was 76,100 MT, showing a slight increase from 90,100 MT in 1984 to 104,200 MT in 1985, but falling drastically by 43.4% to 59,000 MT in 1986, and then remaining constant until 1988. Its percentage of the total increased slightly from 4.7% in 1984 to 5.2% in 1985, but then decreased to 2.6% in 1986, remaining constant until 1988.

The mean value of the Squid catch over the five years was 68,900 MT, decreasing slightly from 66,300 MT in 1984 to 64,000 MT in 1985, then increasing to 75,400 MT in 1987, before dropping again to roughly the same level (67,200 MT) as in 1984. It decreased gradually from 3.5% of the total in 1984 to 2.9% in 1988.

The mean value of the Longtail tuna catch over the five years was 59,900 MT. There was a rise from 44,400 MT in 1984 to 48,300 MT in 1986, before dramatic increases of 36.5% to 65,900 MT in 1987, and 41.0% to a

record 92,900 MT in 1988. Its percentage of the total remained fairly constant, ranging between 2.3% (1984) and 2.6% (1987), before increasing to 4.0% in 1988.

The mean value of the Cuttlefish catch over the five years was 48,400 MT, decreasing gradually from 56,400 MT in 1984 to 45,300 MT in 1988. It dropped from 3.0% of the total catch in 1984 to 2.1% in 1985, where it remained constant until 1988.

The mean value of the Eastern little tuna over the five years was 41,400 MT, showing a steady increase from 32,500 MT in 1984 to 45,500 MT in 1986, dropping slightly to 36,700 MT in 1987, but then increasing dramatically by 45.6% to reach 53,500 MT in 1988. The percentage of the total increased gradually from 1.7% in 1984 to 2.3% in 1988, with the exception of 1987.

The mean value of the Jack-cavalla-trevally catch over the five years was 41,400 MT, showing a dramatic 2.6 times increase from 20,300 MT in 1984 to 52,100 MT in 1985, decreasing slightly to 42,200 MT in 1986, but then gradually increasing again to reach 48,900 MT in 1988. It was 1.1% of the total in 1984, 2.6% in 1985, 1.8% in 1986, and 2.1% in 1988.

The mean values of Round scad, Sea mussels, Indian mackerel and Jellyfish catch were more than 30,000 MT each over the five years.

Table 28. Catch by species group in Thailand from 1984 to 1988.

(MT)					
Species \ Year	1984	1985	1986	1987	1988
Trash fish	757,637	776,421	976,236	1,105,654	956,113
Indo-Pacific mackerel	129,094	121,107	113,497	119,182	111,657
Sardine	117,323	97,742	121,242	127,208	123,739
Miscellaneous fish	92,713	106,487	120,204	128,678	132,075
Misc. marine molluscs	61,338	95,607	117,275	140,996	119,960
Non-penaeid prawn	101,097	91,347	110,488	115,142	88,962
Anchovy	90,087	104,196	58,987	57,769	69,378
Squid	66,340	63,996	71,344	75,420	67,176
Longtail tuna	44,378	48,000	48,299	65,911	92,925
Cuttlefish	56,352	42,814	51,625	45,695	45,308
Eastern little tuna	32,460	38,881	45,473	36,708	53,450
Jack-cavalla-trevally	20,323	52,111	42,204	43,197	48,918
Round scad	44,256	33,692	26,411	56,140	31,763
Sea mussel	48,682	35,113	17,015	37,711	52,672
Indian mackerel	33,436	36,970	41,891	39,876	25,808
Jellyfish	10,992	29,018	76,090	40,476	18,352
Blue swimming crab	22,356	22,233	30,432	34,707	37,102
Threadfin bream	15,052	17,096	26,801	34,134	29,559
Selar scad	25,284	18,418	19,609	25,960	18,882
Big eye snapper	10,000	12,705	18,190	24,999	22,571
Hardtail scad	11,217	8,902	19,130	22,248	24,879
Penaeid prawn	22,452	19,442	11,842	11,591	20,546
N-b. king mackerel	10,364	11,724	14,770	15,502	15,258
Drum and croaker	11,534	12,073	14,831	13,392	13,723
Others	76,718	101,070	115,594	121,756	116,440
Total	1,911,485	1,997,165	2,309,480	2,540,052	2,337,216

Misc. marine molluscs, Miscellaneous marine molluscs;
 N-b. king mackerel, Narrow-barred king mackerel.

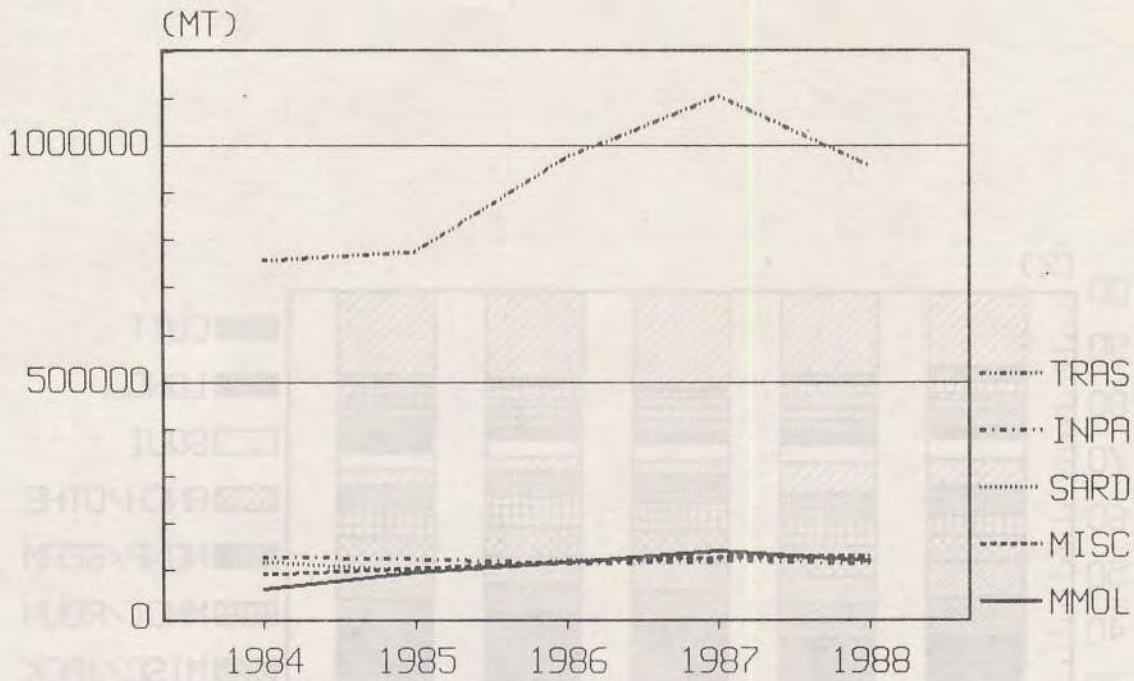


Fig. 54. Trends of catch by species group in Thailand from 1984 to 1988. (1) Five major species groups.

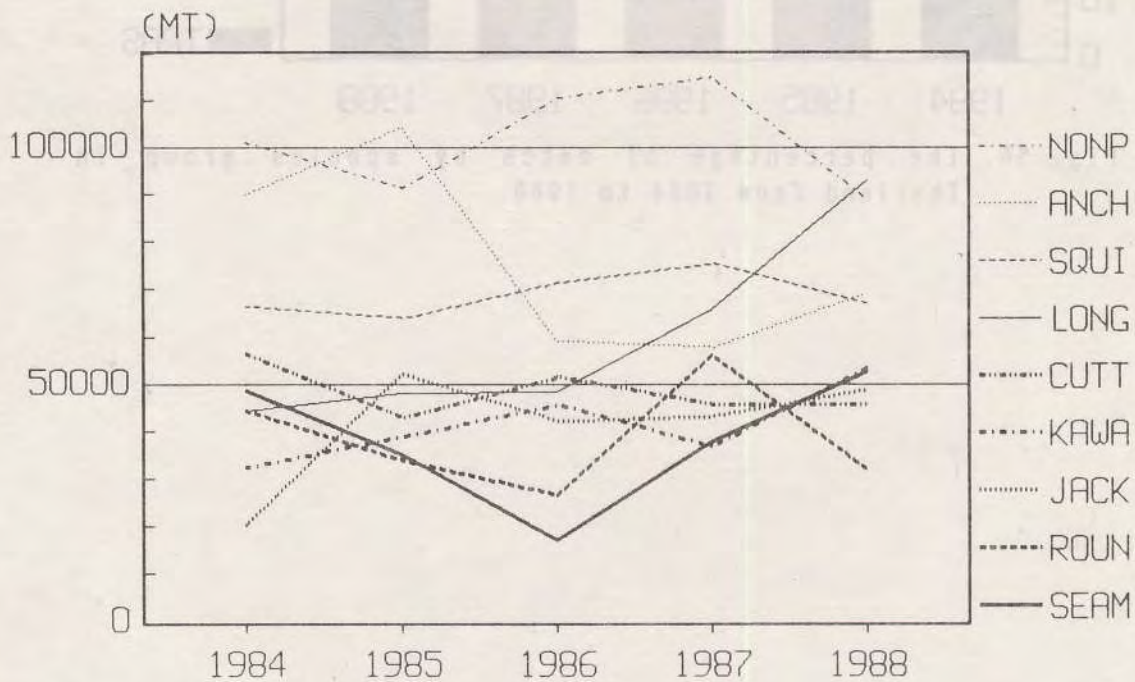


Fig. 55. Trends of catch by species group in Thailand from 1984 to 1988. (2) The other major species groups.

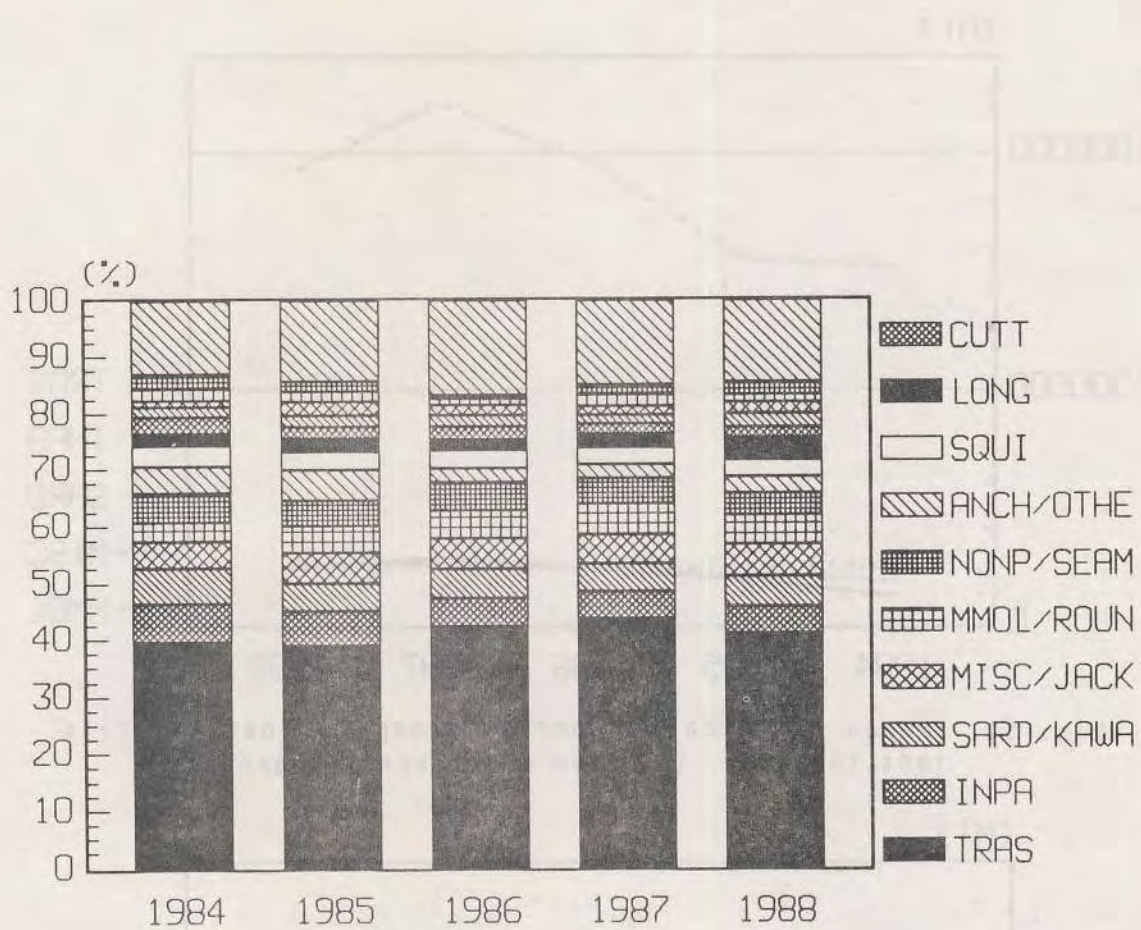


Fig. 56. The percentage of catch by species group in Thailand from 1984 to 1988.

2.2.10 Vietnam

This Section describes the trends for the total marine catch in Vietnam from 1984 to 1988. Data on marine capture fishery in Vietnam were obtained from the FAO Yearbook of Fishery Statistics.

Total Catch

The trends of marine capture fishery production in Vietnam are shown in Table 29 and Fig. 57. The total catch in Vietnam showed a 12.8% increase from 553,000 MT in 1984 to 624,000 MT in 1988. The percentages ranged between 7.7% and 8.4% of the total catch in the Area.

Table 29. Marine capture fishery production in Vietnam from 1984 to 1988.

Year	1984	1985	1986	1987	1988
Catch	553,029	576,860	582,077	620,404	624,000

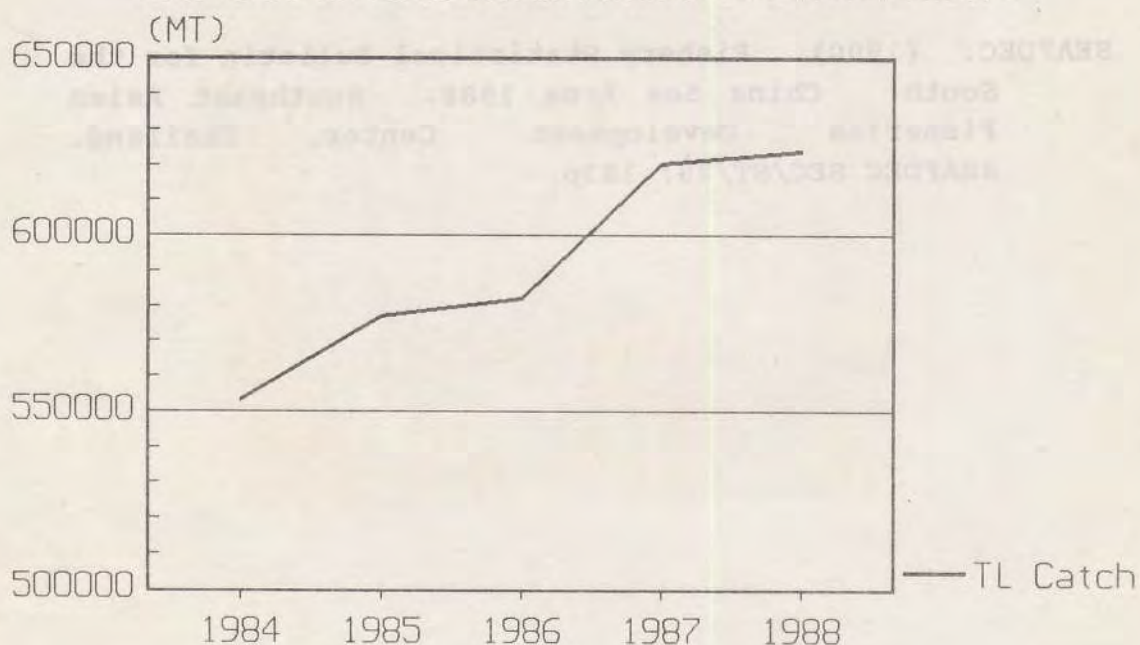


Fig. 57. Trend of marine capture fishery production in Vietnam from 1984 to 1988.

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