

**THE THIRD REGIONAL WORKSHOP ON SHARED STOCKS
IN THE SOUTH CHINA SEA AREA**

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**COUNTRY STATUS REPORT
MALAYSIA**

(2) SARAWAK

**STATUS REPORT: PELAGIC FISH STOCK IN
SARAWAK, MALAYSIA**

By:

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1. INTRODUCTION

- Southern part of the South China Sea
- Current pattern affected by Northeast Monsoon (October to May) and Southwest Monsoon (June - September)
- EEZ area of 160,000km²; continental shelf area of 125,000km²
- Water depth: Continental shelf up to 200 metres depth, and reach up to 2500 metres in the northern trend
- 1995, total number of fishermen; 11,659
 - * Total number of boats: 4,950
 - * No. of boats by Gear Groups;
 - Pelagic gear: 1979
(Purse seine - 25; Drift nets 1,757)
 - Bottom trawlers: 778
(Fish and prawn)
 - Others: 648
(Handline, bottom longline, traps, traditional gear)
- Landing (1980 to 1995) - 85,000 - 100,000 mt
 - * Pelagic fish 23%
 - * Demersal 60%
 - * Others 17%

2. SMALL PELAGIC SPECIES

- Characterised by maximum length of 20-30 cm
- Estimated biomass 216,300 mt, potential yield of 108,150 mt
- Landings (Fig. 2) since 1990, 15,000 - 24,000 mt, increasing yearly
- Pelagic species categorised into the following groups (Table 5)
- Main groups categorised as shared stocks
 - * Bigeye Scad, *Selar crumenophthalmus*
 - * Round Scad, *Decapterus macrosoma*
 - * Hardtail Scad, *Megalaspis cordyla*
 - * Sardine, *Sardinella spp*
 - * Round Herring, *Dussumiera acuta*
 - * Indian Mackerel, *Rastrelliger spp*
 - * Arriommatids, *Arriomma sp*
 - * Spanish Mackerel, *Scomberomorus guttatus, s. commersonii*
- Landings of main shared stock species as shown in Fig. 2
- These main species occupied 42% of the pelagic catch.

- Pelagic fish as a group are scattered and distributed over a wide area and difficult to harvest unless using FADs.
- No comprehensive study has been carried out on the small pelagic species relating to seasonal patterns, migrations, behaviour, unit stock identification and other biological information useful in the development and management of the stock.
- Some biological studies and information:
 - Decapterus russelli* - size range 15.1 - 19.1cm, mean 16.9 cm
size at first maturity 16.6 cm
 - Decapterus macrosoma* - offshore mean size 31.7 cm
coastal mean size 17.1 cm
Length-Weight relationship
 $W = 0.01118L^{2.9532}$
 - Scomberomorus commersonii* - size range 19 - 103 cm
found at coastal area
 - Scomberomorus guttatus* - size range 12 - 17 cm at
coastal area
size range 58.5 - 86.0 cm
offshore area

3. SMALL TUNA

- Usually below 20 kg in weight, mostly at juvenile stage
- Estimated biomass at 90,000 mt and potential yield of 45,000 mt
- Recent years landing has been around 2,000 mt only (Fig. 1)
- Very small compared to potential yield
- Under exploited
- Distribution as shown in Fig. 3. Generally neretic tunas along western part of coastline, oceanic tunas along the eastern coastline where continental shelf are close to shore and towards deeper waters
- Can only be harvested using FADs which attract and segregate tunas
- Larger species, yellowfins, found between northern coastline and Layang-Layang Island
- Average catch rate per FADs per operation range from 10 - 18 mt
- Average size (length 37 - 83 cm, average weight of 0.9 - 10 kg.
- Six main species:
 - Neretic species: Kawa-Kawa, *Euthynnus affinis*
Longtail, *Thunnus tonggol*
Frigate, *Auxis thazard*
 - Oceanic species: Skipjack, *Katsuwonis pelamis*
Yellowfin, *Thunnus albacares*
Bigeye, *Thunnus obesus*
- Seasonal occurrence

- Present around FAD's from March - June, much reduced present from August to February
- Biology:
 - Kawa-Kawa - Length at first maturity 39.0 cm
 - Growth at 0.16 cm/day
- Studies:
 - Tagging experiment was not successful due to poor return of tags
- Present studies carried out on tuna are to assess the effectiveness of FADs in attracting and segregating tuna and their general biology under the IRPA programme

4. LARGE TUNA

- Those tunas more than 20 kg in weight
- Distribution between Luconia shoals to Pulau Layang-Layang and western coast of Sabah
- Assessment by tuna longline shows that average catch rate is 0.41 tails per 100 hooks per operation
- Average site range 10.7 cm-15.5 cm
- Estimated population for the area at 1,500 - 4,000 tails per season
- 2 main species:
 - Yellowfin, *Thunnus albacares*
 - Bigeye, *Thunnus obesus*
- Seasonal and shared nutrition behavior
- No biological study yet on large tuna in area

5. SHARKS

- Landing has been around 2,000 mt annually (see fig. 1)
- Caught mostly by driftnets, bottom trawl, barrier net and hook and lines
- Distribution (Fig. 3)
- Species:
- Biology:

6. CEPHALOPODS

- Landing more than 1,500 mt annually since 1989 (Fig. 1)
- Mostly caught as by-catch of bottom trawl
- Distribution mainly along coastal area of Sarawak
- Seasonal fluctuation, high catch in April/May
- Species:
 - Squid, *Loligo edulis*
 - Cuttlefish, *Sepia esculenta*, *s. pharoanis*
 - Octopus

Figure 2: Trend of Landings for Pelagic Fish Species

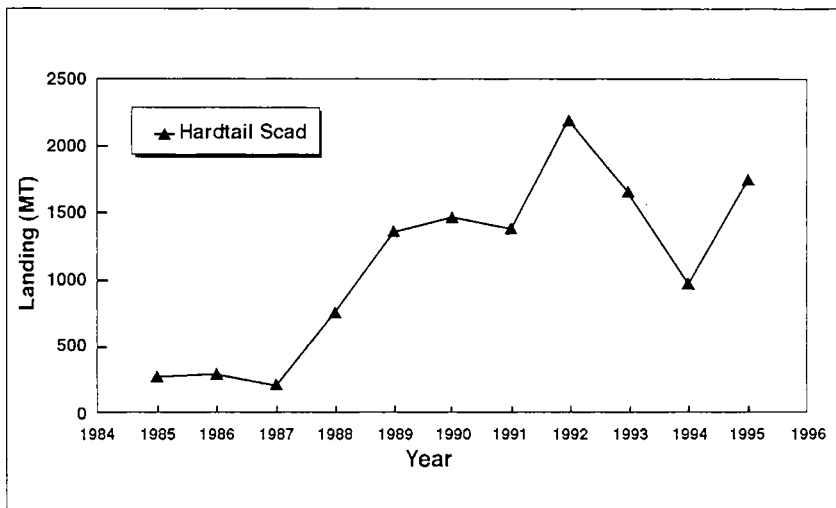
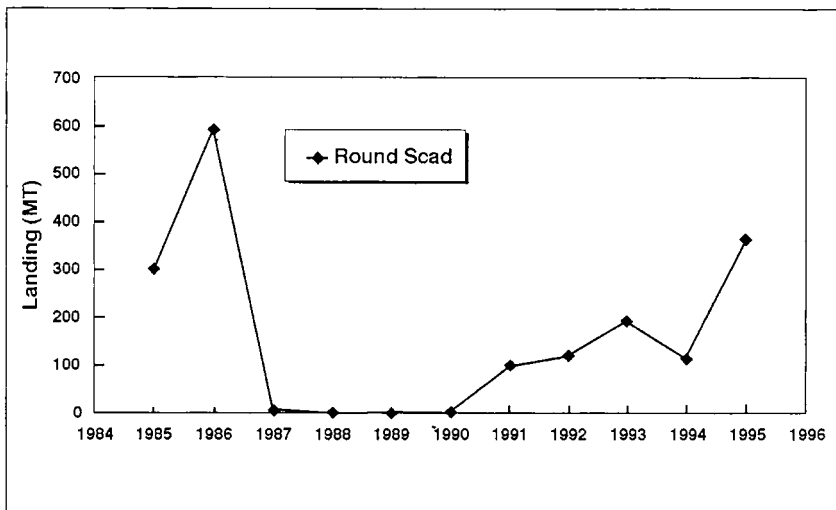
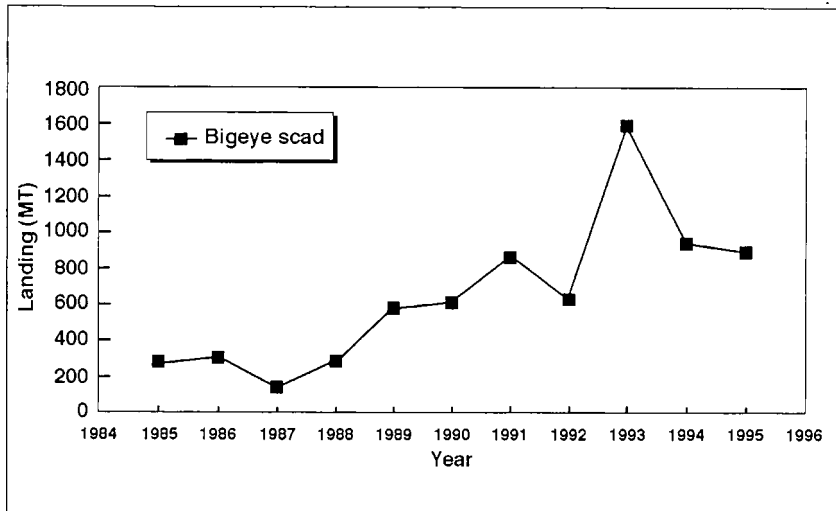


Figure 3: Landing of Species by Months, 1995

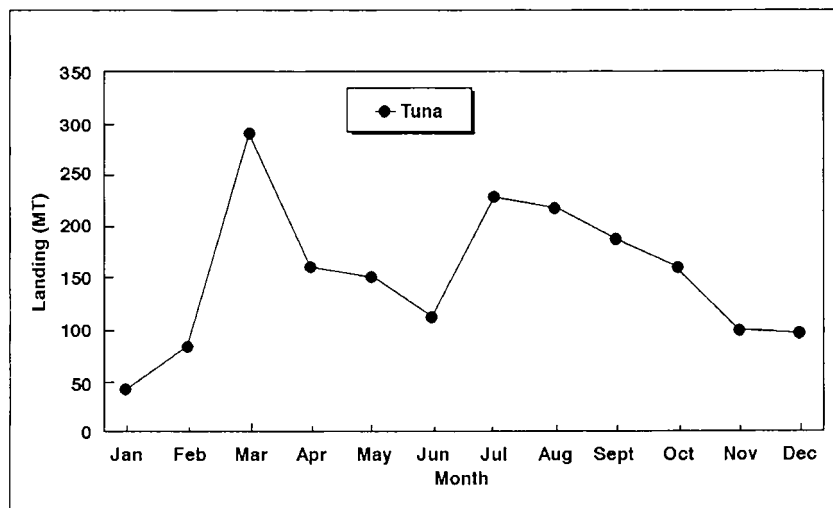
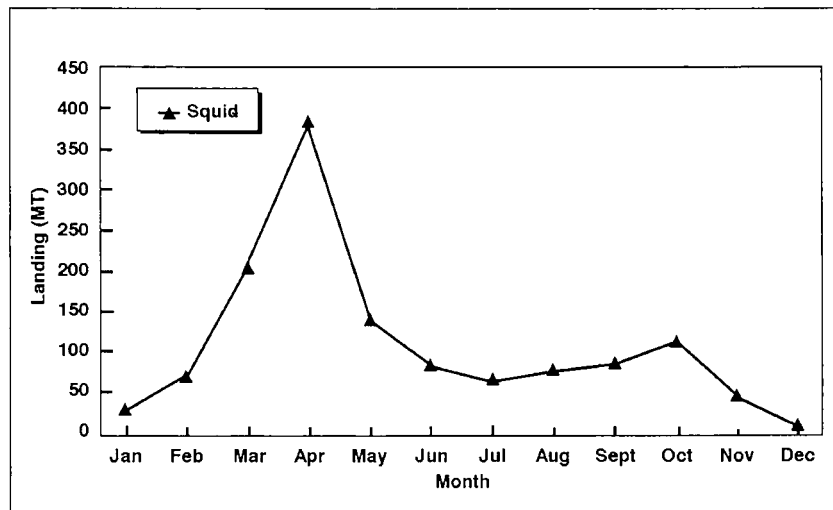
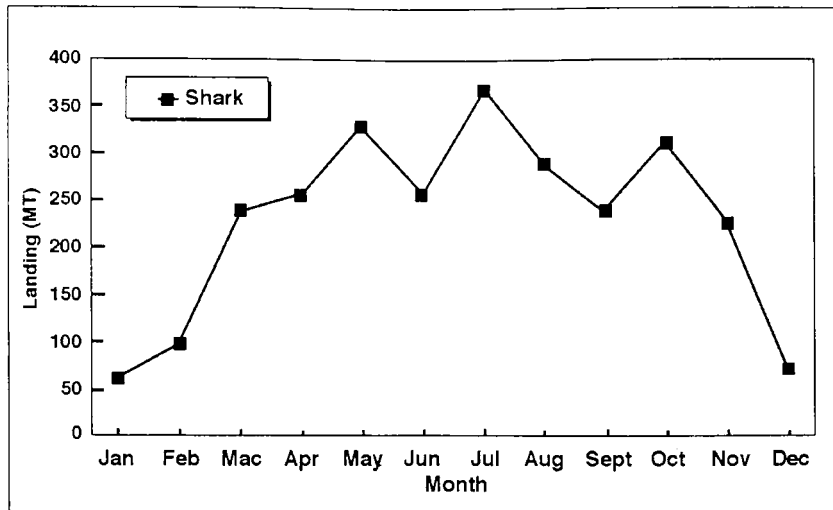


Figure 3: Continued...

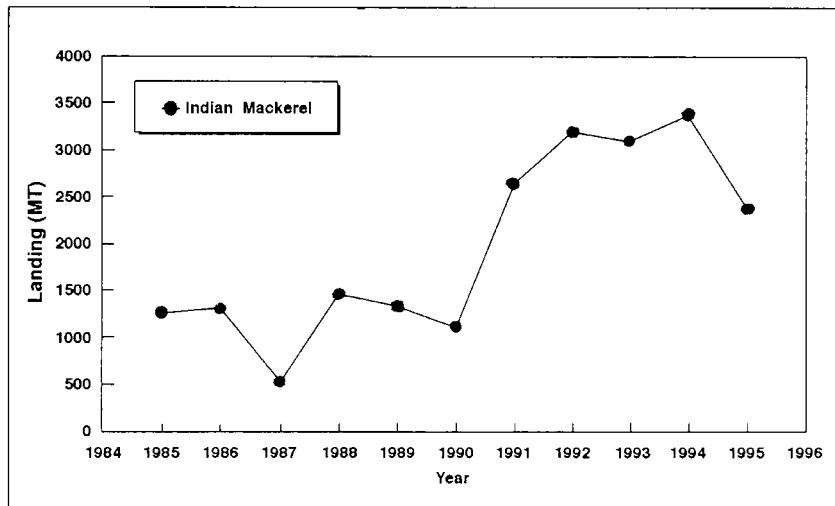
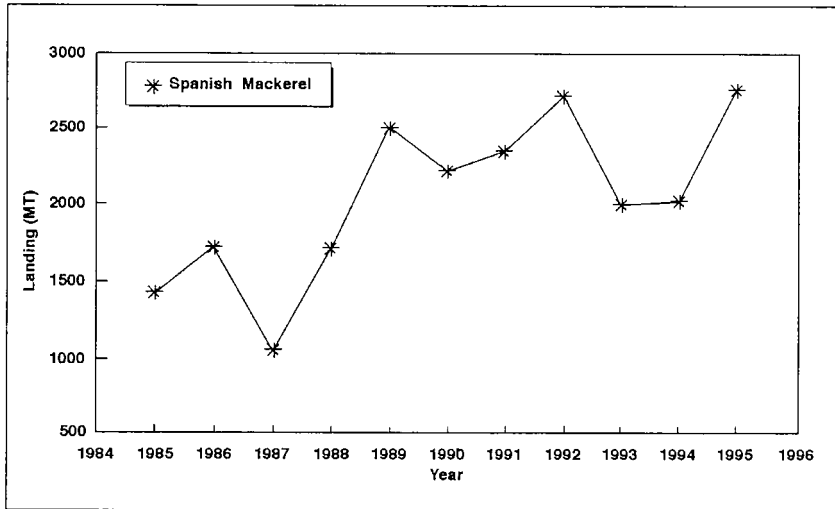
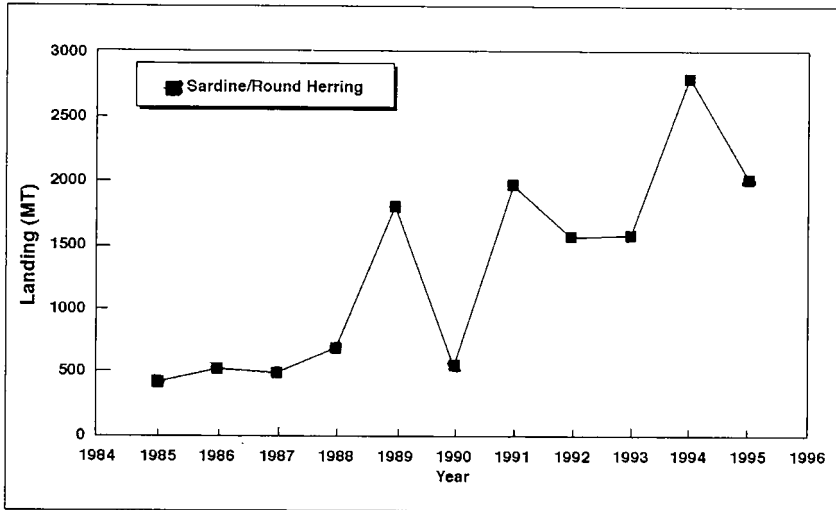


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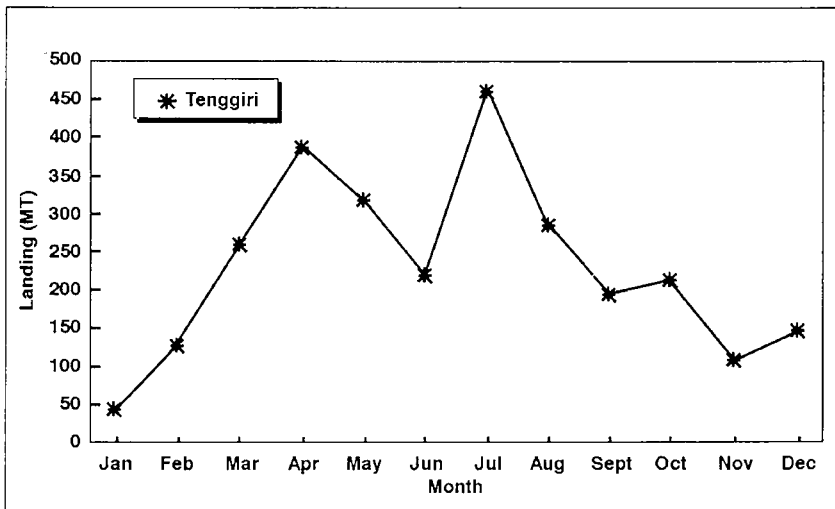
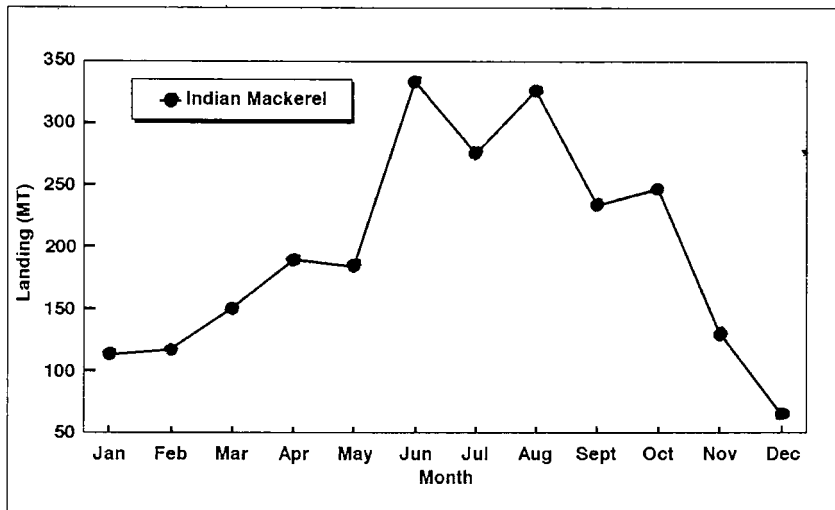
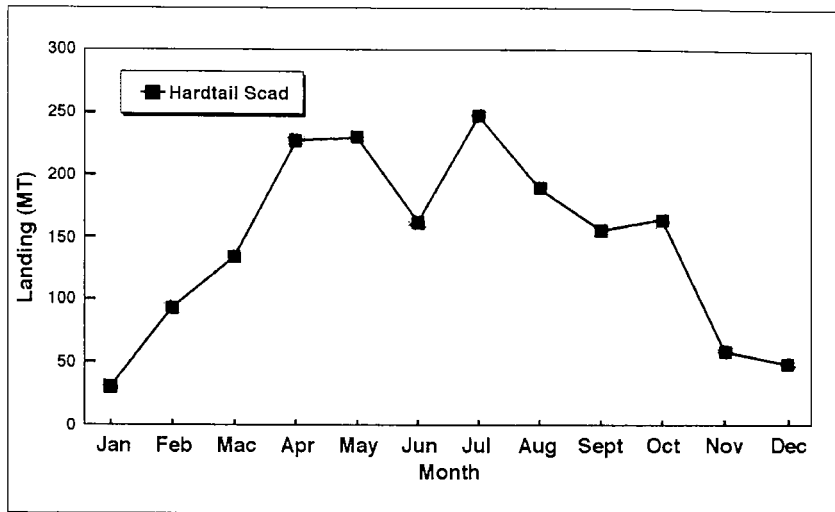


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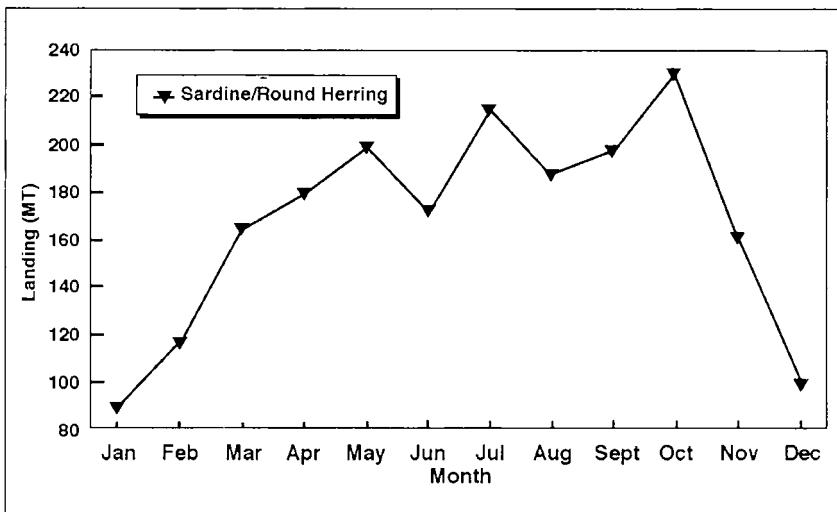
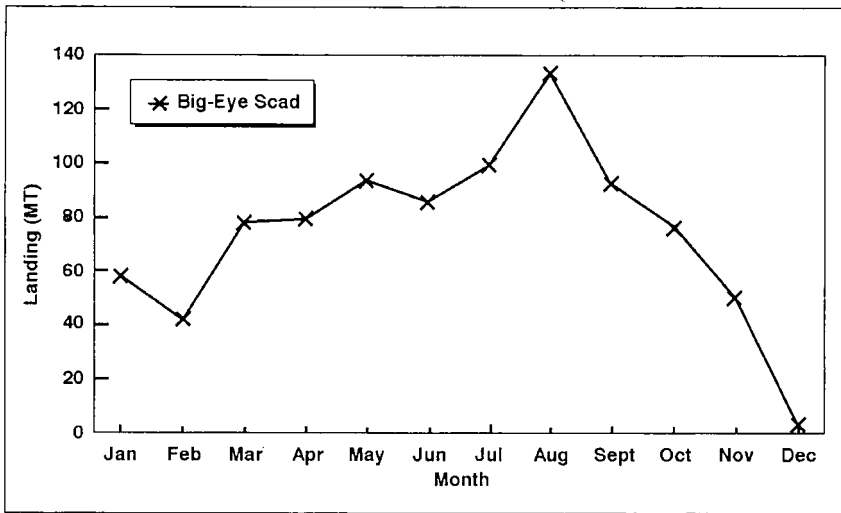
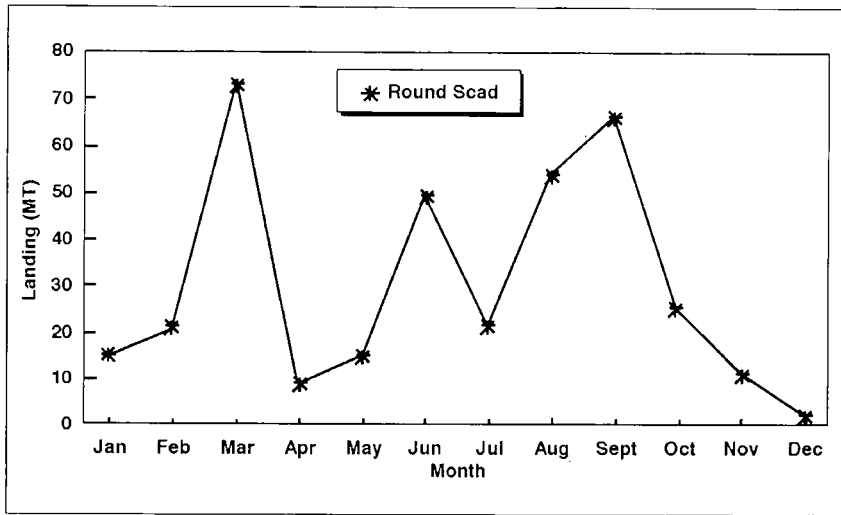


Figure 1: Trends of fish landings for Sarawak

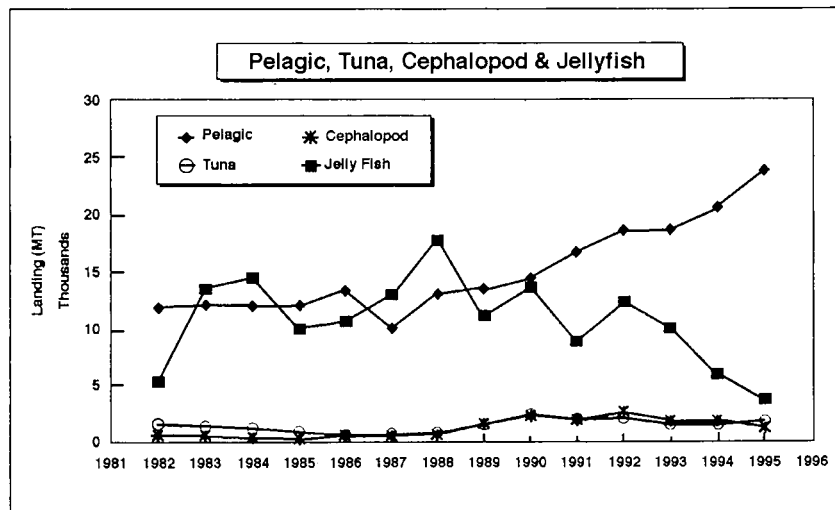
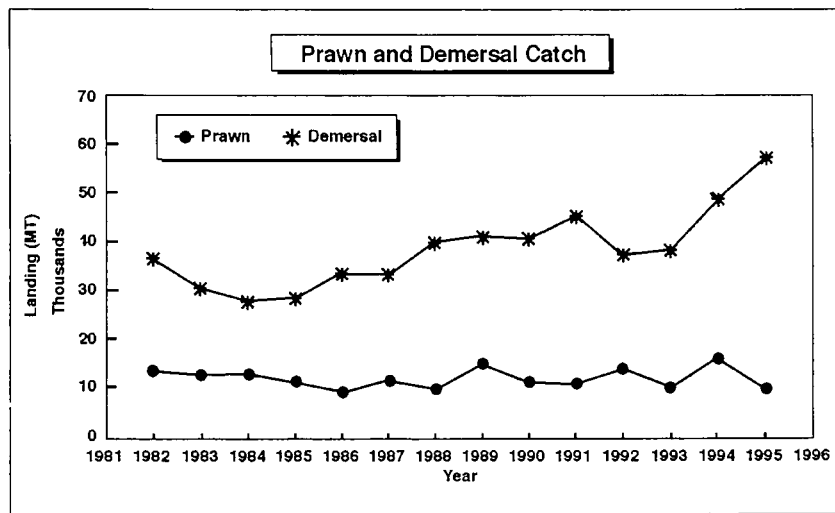
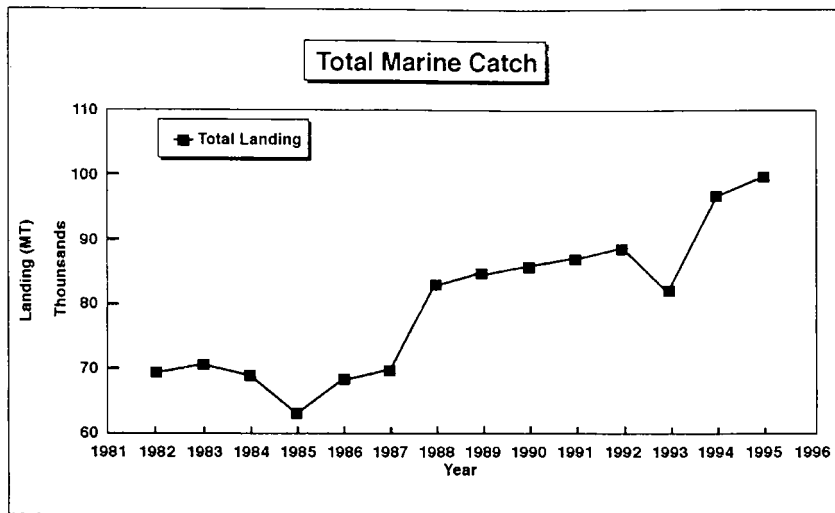


Figure d: Landings (mt) of Marine Fish by Region and Gear Groups (1992).

