

## Executive Summary of the Status of the Indo-Pacific king mackerel Resource

New document to be submitted for consideration by the SC in Nov06

### BIOLOGY

The Indo-Pacific king mackerel (*Scomberomorus guttatus*) is a migratory species that forms small schools and inhabits coastal waters, sometimes entering estuarine areas. It is found in waters from the Persian Gulf, India and Sri Lanka, Southeast Asia, as far north as the Sea of Japan.

Adults can reach a maximum length of 76 cm fork length. Maturity is reached at around 48-52 cm total length (TL) or 1-2 years old in southern India, and about 40 cm (TL) in Thailand. Based on the occurrence of ripe females and the size of maturing eggs, spawning probably occurs from April to July in southern India and in May in Thailand waters. Fecundity increases with age in the Indian waters, ranging from around 400,000 eggs at age 2 years to over one million eggs at age 4 years.

The Indo-Pacific king mackerel feeds mainly on small schooling fishes (e.g. sardines and anchovies), squids and crustaceans.

No information is available on the stock structure of Indo-Pacific king mackerel stock structure in Indian Ocean.

### FISHERIES

The Indo-Pacific king mackerel is mostly caught by gillnet fisheries in the Indian Ocean (Figure 1), in particular artisanal fleets from India and more recently Indonesia (Table 1). The catch estimates for Indo-Pacific king mackerel were derived from very small amounts of information and are therefore highly uncertain<sup>1</sup> (Figure 2). The catches provided in Table 1 are based on the information available at the Secretariat and the following observations on the catches cannot currently be verified. Estimated catches have increased steadily since the mid 1960's, reaching around 10,000 t in the early 1970's and over 30,000 t by 1989. Current catches are around 33,000 t. In 2005, the countries attributed with the highest catches were Indonesia (14,250 t, or 42.3% of the estimated total catch), India (13,116 t, 38.9%) and Iran (4,279 t, 12.7 %) (Table 1).

In 2005, seven countries reported catches of Indo-Pacific king mackerel in the IOTC region. Catches for other countries known to catch this species are estimated by the Secretariat according to the species composition per gear declared during the previous year or by the major fishing countries of the region (Figure 3).

### AVAILABILITY OF INFORMATION FOR STOCK ASSESSMENT

There is no information on the stock structure of Indo-Pacific king mackerel in the Indian Ocean.

Age and growth, fecundity estimates and size at first maturity information is available for Indo-Pacific king mackerel in the Indian Ocean.

Possible fishery indicators:

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<sup>1</sup> The uncertainty in the catch estimates has been assessed by the Secretariat and is based on the amount of processing required to account for the presence of conflicting catch reports, the level of aggregation of the catches by species and or gear, and the occurrence of unreporting fisheries for which catches had to be estimated.

1. **Trends in catches:** The catch estimates for Indo-Pacific king mackerel are highly uncertain. Catches fluctuate from year to year but have been steadily increasing since the mid 1960's.
2. **Nominal CPUE Trends:** data not available.
3. **Average weight in the catch by fisheries:** data not available.
4. **Number of squares fished:** CE data not available.

### **STOCK ASSESSMENT**

No quantitative stock assessment has been undertaken by the IOTC Working Party on Neritics.

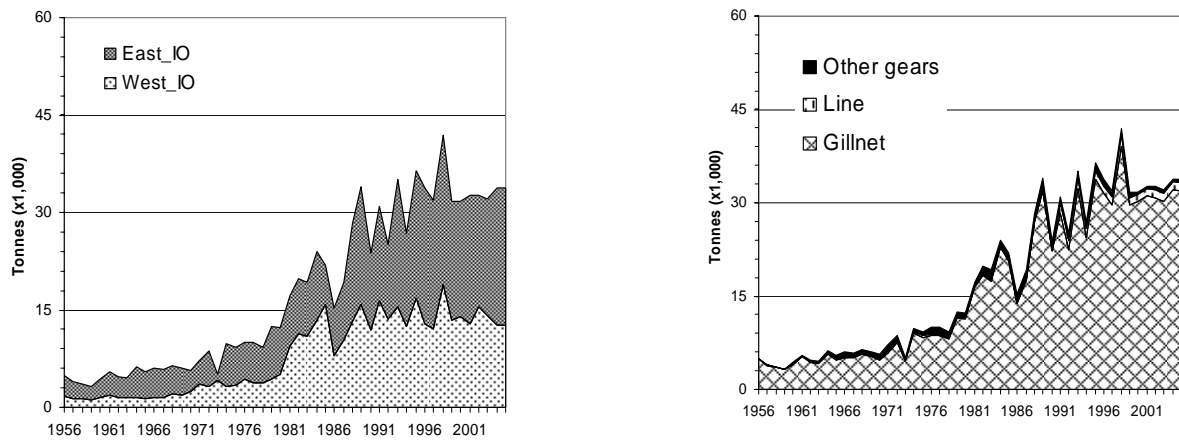
### **MANAGEMENT ADVICE**

No quantitative stock assessment is currently available for the Indo-Pacific king mackerel in the Indian Ocean, therefore the stock status is uncertain. This species is a relatively productive species with high fecundity and rapid growth and this makes it relatively resilient and not prone to overfishing.

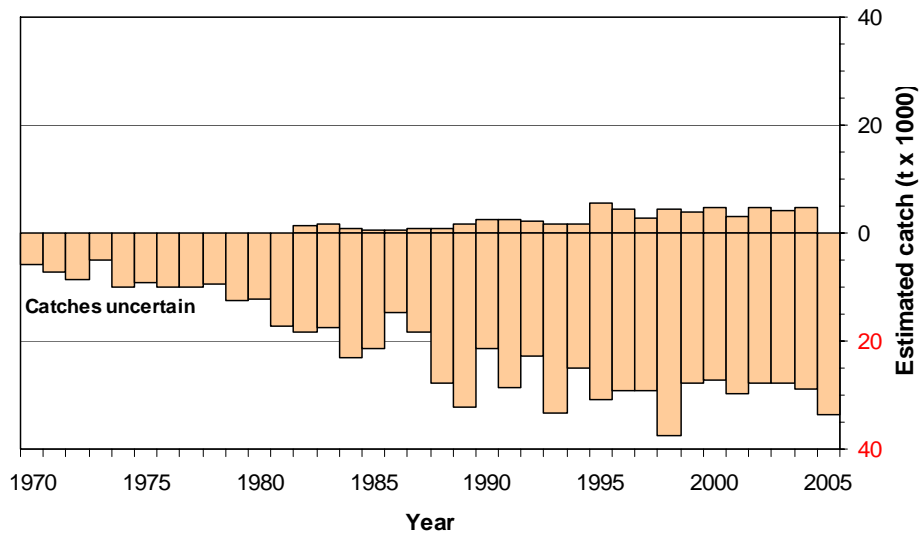
The SC recommends Indo-Pacific king mackerel be reviewed every three years by the WPN.

### **INDO-PACIFIC KING MACKEREL SUMMARY**

Maximum Sustainable Yield :	-
Current (2005) Catch:	33,700 tonnes
Mean catch over the last 5 years (2001-05)	33,000 tonnes
Current Replacement Yield :	-
Relative Biomass ( $B_{\text{current}}/B_{\text{MSY}}$ ) :	-
Relative Fishing Mortality ( $F_{\text{current}}/F_{\text{MSY}}$ ):	-



**Figure 1.** Indo-Pacific king mackerel: annual catches from 1956 to 2005 by area (left) and gear (right). Data as of October 2006

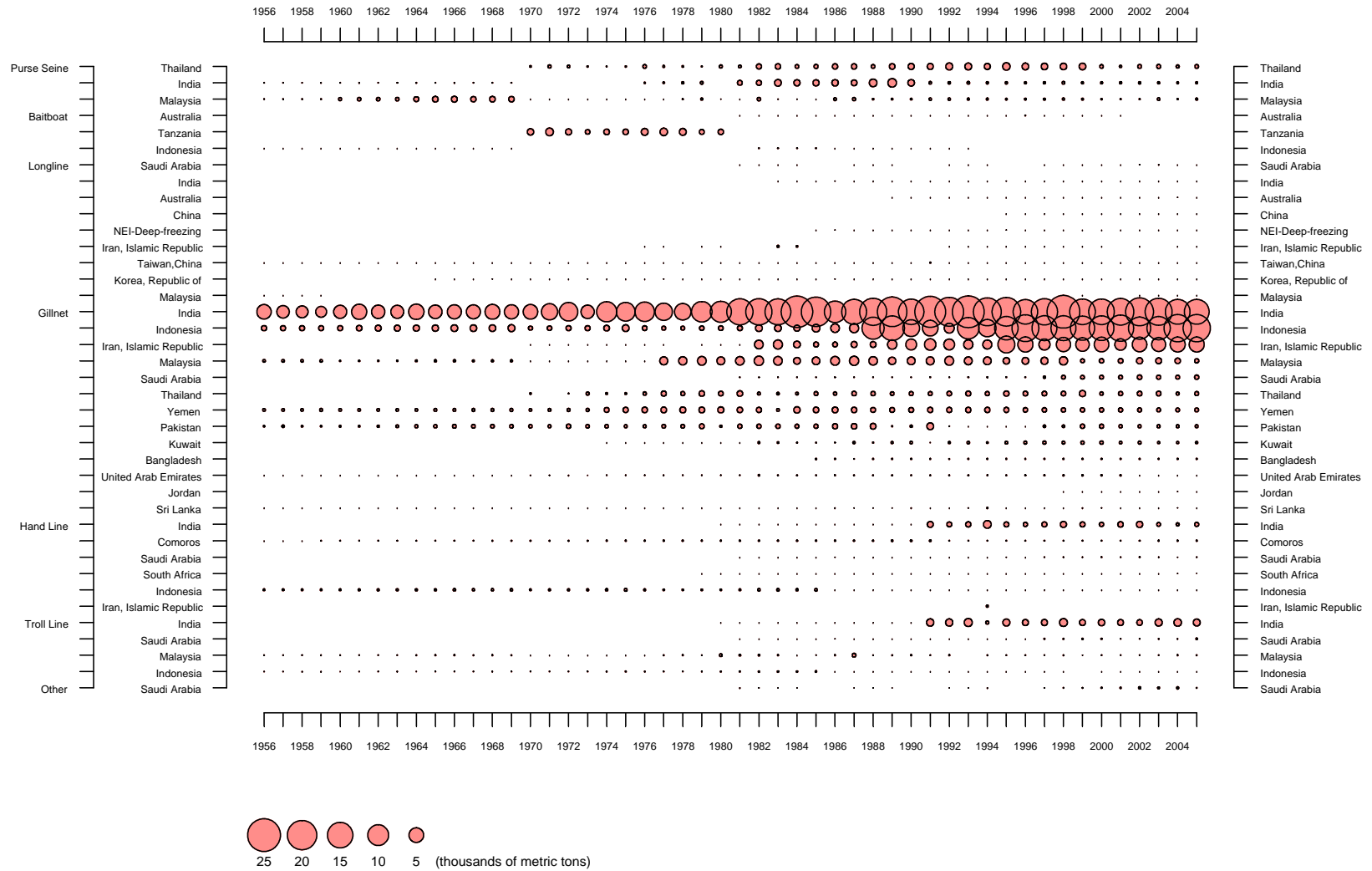


**Figure 2.** Indo-Pacific king mackerel: uncertainty of annual catch estimates. The amount of the catch below the zero-line has been categorised as uncertain according to the criteria given in the text. Data as of October 2006

**Table 1. Indo-Pacific king mackerel: estimated catches by gear and main fleets for the period 1956-2005 (in thousands of tonnes). Data as of 9 October 2006**

Gear	Fleet	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	
Gillnet	India	4.0	3.0	2.7	2.3	3.2	4.4	3.4	3.2	4.5	3.5	3.7	3.7	4.2	3.8	4.1	5.0	6.6	3.4	7.7	6.7	7.2	5.7	5.2	8.0	8.5	13.0	13.2	
	Indonesia Iran, Islamic Republic	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.3	0.4	0.5	0.5	0.6	0.9	0.4	0.3	0.3	0.4	0.4	0.5	0.9	
	Malaysia	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1								1.2	1.3	1.5	1.2	1.4	1.7	
	Saudi Arabia																										0.0	0.0	
	Thailand															0.0		0.0	0.2	0.1	0.1	0.2	0.5	0.3	0.6	0.4	0.6	0.2	
	Yemen	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.5	0.5	0.6	0.6	0.7	0.6	0.7	0.6	0.5	
	Pakistan	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.1	0.4	0.4
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	Total	4.8	3.9	3.6	3.1	4.0	5.2	4.4	4.2	5.7	4.7	5.2	5.1	5.6	5.2	4.8	5.8	7.6	4.5	9.1	8.4	8.7	8.7	8.1	11.6	11.3	16.5	18.3	
	Line	Other Fleets	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Total		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	
Other gears	Thailand															0.1	0.2	0.1	0.0	0.0	0.0	0.3	0.1	0.1	0.0	0.2	0.2	0.5	
	India	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							0.0	0.1	0.1	0.2		0.4	0.5	
	Other Fleets	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.5	0.6	0.7	0.6	0.6	0.6	0.8	1.1	0.7	0.4	0.6	0.6	0.9	1.1	0.9	0.6	0.6	0.0	0.2	
	Total	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.5	0.6	0.7	0.6	0.6	0.6	0.9	1.3	0.8	0.5	0.6	0.6	1.2	1.2	1.1	0.7	0.7	0.6	1.2	
All	Total	4.9	4.0	3.6	3.2	4.3	5.6	4.7	4.6	6.3	5.5	6.0	5.8	6.4	6.0	5.8	7.2	8.6	5.1	9.9	9.2	10.1	10.0	9.3	12.4	12.3	17.2	19.8	

Gear	Fleet	Av01/05	Av56/05	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	
Gillnet	India	13.2	9.5	12.8	19.0	16.5	8.9	11.9	14.1	16.8	12.4	18.3	15.9	19.3	14.9	15.6	11.5	13.1	20.6	12.6	12.5	13.6	14.9	13.9	11.8	11.8	
	Indonesia Iran, Islamic Republic	12.3	4.0	0.9	0.7	1.2	1.4	1.6	9.3	11.6	5.4	4.7	1.9	8.9	5.7	10.6	13.8	11.9	11.8	11.2	11.7	13.2	9.5	10.5	14.3	14.3	
	Malaysia	3.8	1.2	1.6	0.9	0.5	0.5	0.7	0.7	1.7	2.3	2.5	2.2	1.6	1.6	5.4	4.3	2.3	3.9	3.5	4.1	2.5	4.0	3.7	4.3	4.3	
	Thailand	0.6	0.6	1.4	0.9	1.1	1.5	1.6	1.4	1.0	1.1	1.2	1.5	1.2	1.2	0.8	0.9	1.0	1.3	0.3	0.4	0.4	0.7	0.7	0.6	0.4	
	Saudi Arabia	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	
	Yemen	0.3	0.2	0.1	0.1	0.3	0.2	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.3	0.6	0.4	0.4	0.4	0.7	0.2	0.3	0.4	0.4	0.2	0.3
	Pakistan	0.3	0.4	0.1	0.8	0.6	0.7	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	Other Fleets	0.2	0.2	0.4	0.3	0.4	0.5	0.6	0.6	0.0	0.1	0.9	0.0						0.1	0.1	0.4	0.3	0.2	0.2	0.2	0.2	0.2
	Total	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1
	Total	31.2	16.4	17.4	22.8	20.6	13.7	17.5	26.9	31.9	22.2	28.3	22.5	32.2	24.4	33.7	31.6	29.7	39.0	29.6	30.2	31.0	30.7	30.2	32.0	31.9	
Line	India	1.3	0.4									1.7	1.4	1.8	1.4	1.4	1.1	1.2	1.9	1.1	1.1	1.2	1.4	1.3	1.3	1.3	
	Other Fleets	0.1	0.1	0.2	0.2	0.2	0.1	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	
	Total	1.3	0.5	0.2	0.2	0.2	0.1	0.3	0.0	0.1	0.1	1.7	1.5	1.8	1.5	1.4	1.1	1.2	1.9	1.2	1.2	1.3	1.4	1.3	1.3	1.4	
Other gears	Thailand	0.2	0.3	0.5	0.3	0.3	0.5	0.5	0.3	0.6	0.7	0.7	0.9	0.9	0.7	1.1	0.9	0.8	0.8	0.8	0.2	0.1	0.3	0.3	0.2	0.3	
	India	0.1	0.2	0.9	0.7	0.7	0.8	0.7	1.1	1.4	0.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	Other Fleets	0.1	0.3	0.1	0.1	0.0	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	
	Total	0.4	0.8	1.5	1.1	1.1	1.5	1.4	1.4	2.0	1.6	0.9	1.1	1.1	0.9	1.2	1.0	1.0	1.0	1.0	0.4	0.3	0.5	0.6	0.4	0.4	
All	Total	33.0	17.7	19.2	24.0	21.9	15.3	19.2	28.4	34.0	23.9	31.0	25.2	35.1	26.7	36.4	33.7	31.9	41.9	31.7	31.8	32.6	32.6	32.1	33.7	33.7	



**Figure 3.** Indo-Pacific king mackerel: estimated catches by gear and main fleets for the period 1956-2005 (in thousands of tonnes). Data as of October 2006