Executive Summary of the Status of the Wahoo Resource

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

BIOLOGY

Wahoo (*Acanthocybium solandri*) occurs widely in the tropical and sub-tropical waters of the major oceans. Larger individuals are solitary but may also be found in small, loose aggregations. Like other oceanic scombrids, wahoo are often found in association with current lines, near seamounts and around floating objects and debris. Little is known of their early life history; however wahoo larvae are pelagic and prefer shallow water less than 100 m in depth. The distribution of juveniles is unknown.

As a top-level predator, wahoo, feeds on a range of open-water prey including other scombrids (e.g. skipjack tuna, frigate tuna), scads, flying fish, squid and occasionally fishes of the mixed scattering layer (e.g. lantern fish).

Wahoo live for over six years, grow rapidly and can reach a size of 210 cm fork length and around 83 kg. Size changes with latitude, with average weight increasing with distance from the equator; this is apparently correlated to cooler temperatures.

Sexual maturity occurs at around of 90 cm but some wahoo may commence spawning after one year. Spawning occurs year-round in the tropics and during the summer months in subtropical waters. Wahoo are probably multiple spawners, with spawning occurring over a protracted period when favourable conditions (temperature, food) are encountered. Fecundity is relatively high (e.g. six million eggs per spawning for a 131 cm fish). Males appear to predominate at sizes greater than 140 cm.

Little information is available on wahoo movement, although seasonal changes in availability and the latitudinal variation in average size suggest that some seasonal migration may occur.

No information is available on the stock structure of wahoo in Indian Ocean.

FISHERIES

Wahoo is mainly taken with hand line and gillnet combined with drifting long line, and is caught in similar quantities in both western and eastern areas of the Indian Ocean (Figure 1). Trolling is a common method in Maldives. The catch estimates for wahoo were derived from very small amounts of information and are therefore highly uncertain[1] (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 of wahoo jumped from negligible levels to just below 300 t in the 1980's. Catches peaked in 1991 at 885 t and thereafter fluctuated between 300 and 500 t. In 2005, catches were around 300 t.

[1] 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.

In 2005, seventeen countries reported catches of wahoo in the IOTC region. Catches for other countries known to catch wahoo 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. In recent years, the highest catches were reported by France (114 t, equivalent to 35 % of the total catch), Sri Lanka (120 t, 34%) and Indonesia (56 t, 17 %) (Figure 3).

AVAILABILITY OF INFORMATION FOR STOCK ASSESSMENT

There is no information on the stock structure of wahoo in the Indian Ocean.

Information is available on fecundity, the size at first maturity, age and growth of wahoo in other oceans.

Possible fishery indicators:

1. **Trends in catches**: The catch estimates for wahoo are highly uncertain. Catches have been variable but around the 300-500 t mark since early 1990's (Figure 1).
2. **Nominal CPUE Trends:** data not available
3. **Average weight in the catch by fisheries:**
4. **Number of squares fished:** CE data not available

STOCK ASSESSMENT

While some localised, sub-regional assessments may have been undertaken, no quantitative stock assessment has been undertaken by the IOTC Working Party on Neritics.

MANAGEMENT ADVICE

No quantitative stock assessment is currently available for wahoo in the Indian Ocean, therefore the stock status is uncertain. However, wahoo is a relatively productive species with high fecundity and rapid growth and these attributes make it relatively resilient and not prone to overfishing.

The SC recommends that this species be reviewed every 2 to 3 years by the WPN.

WAHOO SUMMARY

Maximum Sustainable Yield :	-
Current (2005) Catch:	339 t
Mean catch over the last 5 years (2001-05)	432 t
Current Replacement Yield :	-
Relative Biomass ($B_{current}/B_{MSY}$) :	-
Relative Fishing Mortality ($F_{current}/F_{MSY}$):	-

Table 1. *Catches of wahoo by gear and main fleets for the period 1956-2006 (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	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
	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
	Total	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
Line	Tanzania															0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0		
	Sri Lanka	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	0.2
	Total	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	0.1	0.1	0.1	0.1	0.0	0.2
Other gears	Indonesia																							0.0	0.0	0.0	0.0	0.0
	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
	Total																							0.0	0.0	0.0	0.0	0.0
All	Total	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	0.1	0.1	0.1	0.1	0.0	0.2

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	Sri Lanka	0.2	0.0				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1
	India	0.0	0.0	0.1	0.0	0.0	0.0			0.2	0.0	0.4	0.0	0.0		0.0	0.0	0.0					0.0	0.0	0.0	0.0
	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
	Total	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.4	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Line	France-Territories	0.1	0.0													0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1
	France-Reunion	0.1	0.0											0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0
	Tanzania	0.0	0.0		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	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
	Kenya	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
	Sri Lanka	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	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
	Total	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.2
Other gears	Indonesia	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
	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
	Total	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
All	Total	0.4	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.4	0.9	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.5	0.4	0.4	0.5	0.5	0.4	0.3

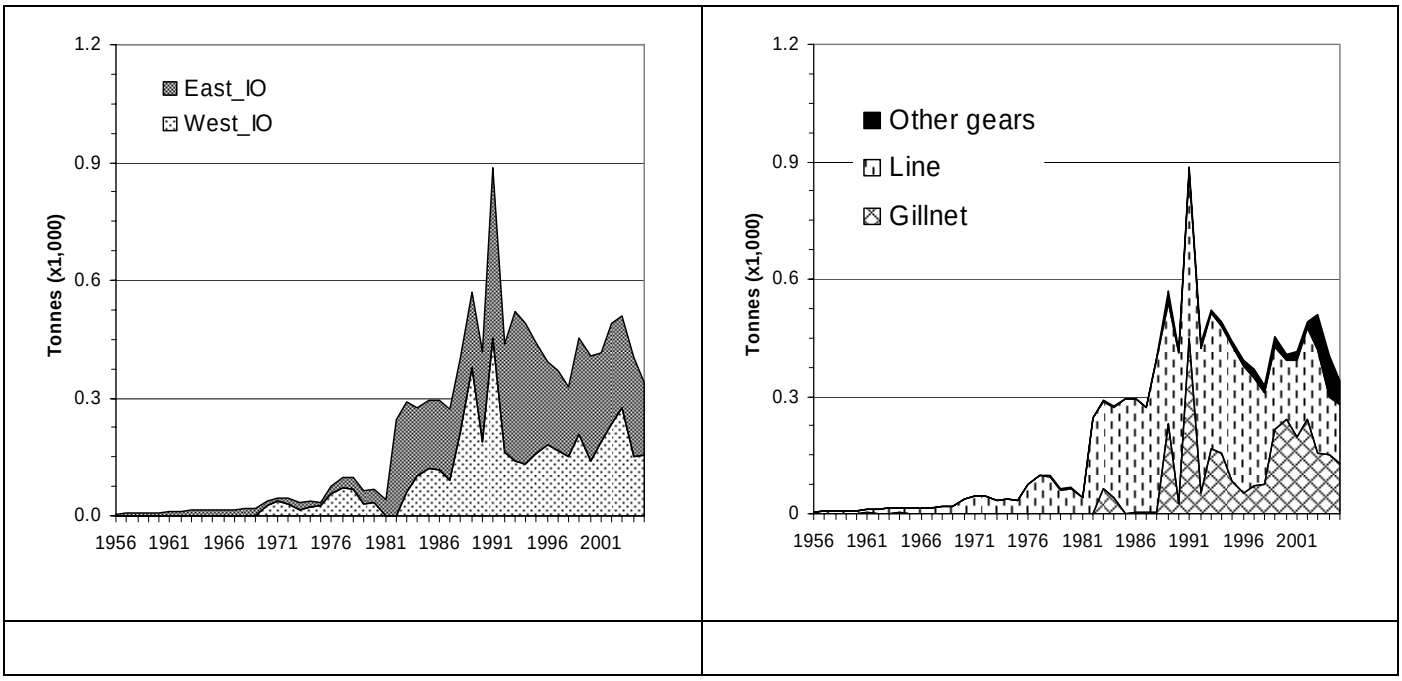

Figure 1. *Wahoo: annual catches (thousand of metric tonnes) by area (left) and gear (right) from 1956 to 2005).*

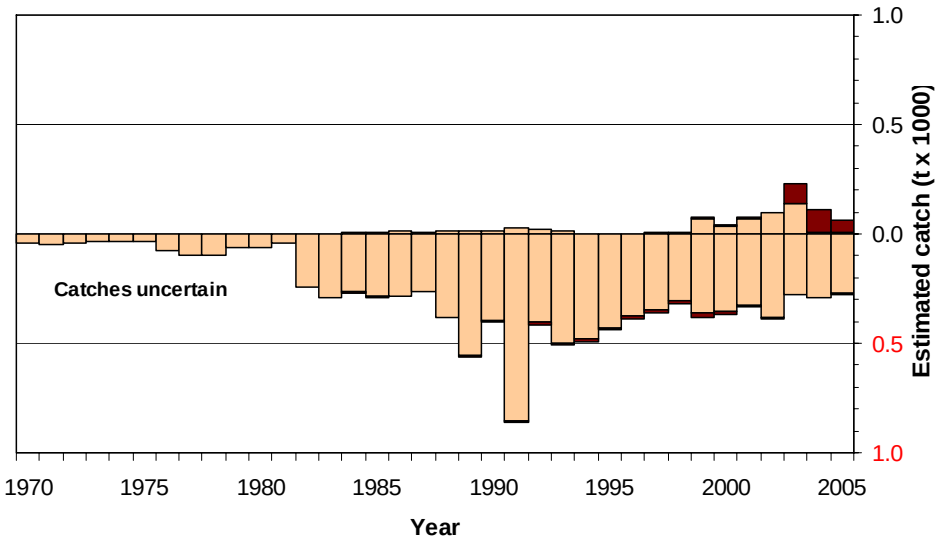

Figure 2. *Wahoo: uncertainty of annual catch estimates. The amount of the catch below the zero-line has been categorised as uncertain according to the criteria given in the text. Dark sections represent estimates of catches by industrial fleets.* *Data as of October 2006*

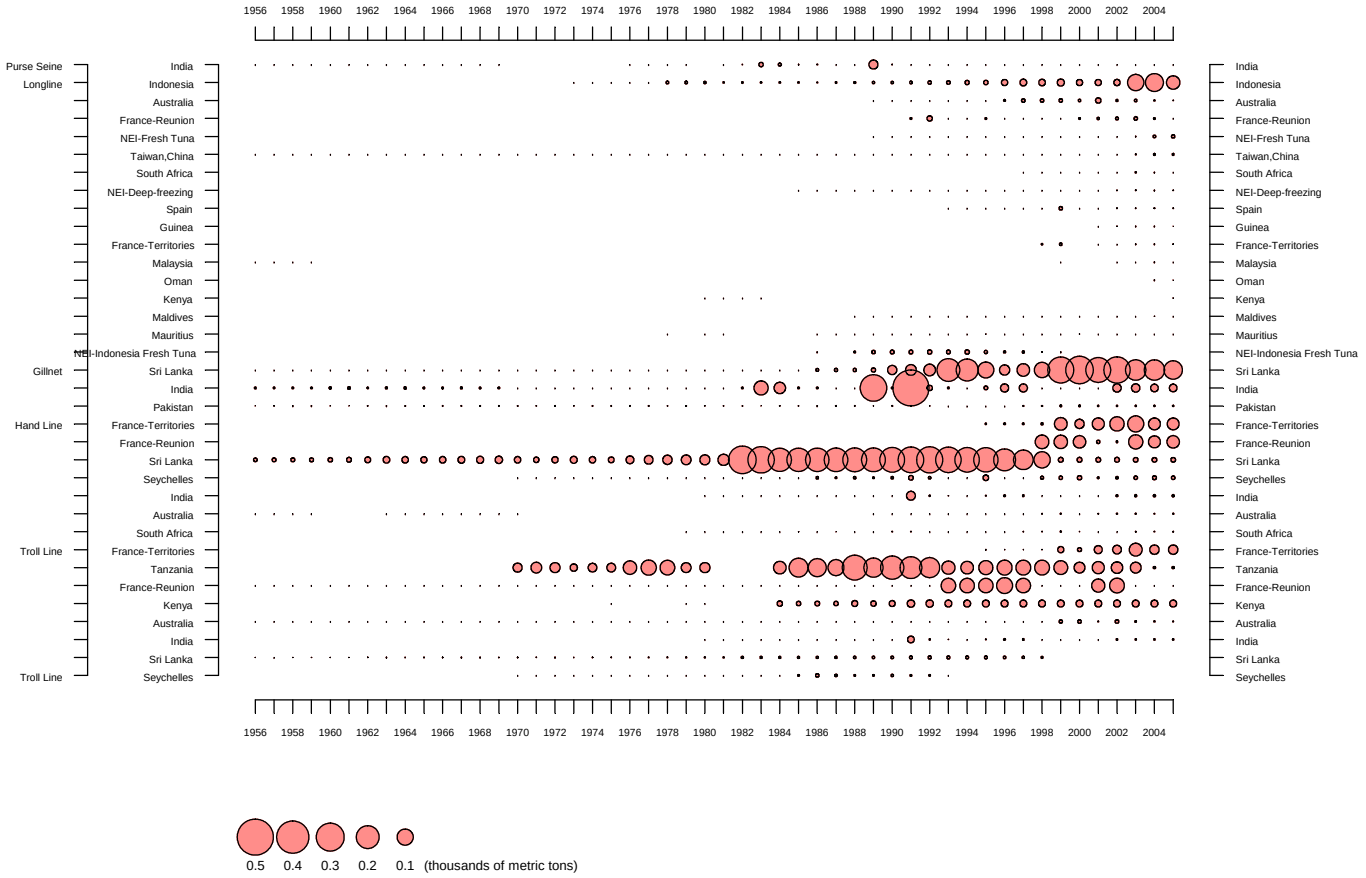

Figure 3. *Wahoo: catches by gear and main fleets for the period 1956-2006 (in thousands of tonnes).* *Data as of October 2006*