Preliminary yellowfin tuna sex-ratio analysis from observer data obtained during the experimental cruise on Spanish longliners in the Southwestern Indian Ocean

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Abstract

This document presents the preliminary sex ratio results corresponding to yellowfin tuna (*Thunnus albacares* - YFT) obtained by observers in experimental Spanish longline fisheries with several types of hooks and bait. The pilot action is being undertaken by two surface longliners that commenced their activities on 12 December 2004. The working area is in international waters between 25º S and 35º S and 30º E and 50º E. Until now the sex of 244 YFT specimens has been determined, resulting in a total of 129 males (53%) and 115 females (47%). Practically all the yellowfin specimens caught by long line in these campaigns fall into sizes ranging from 110 and 170 cm of LF, with 92% of the samples concentrated between 120 and 165 cm of LF.

1.- Introduction

At the meeting of the Scientific Committee of the IOTC in November 2004, information was provided about the experimental campaign being carried out by the Spanish Oceanographic Institute (IEO) on two surface longliners in the waters of the Southwestern Indian Ocean.

Scientific observers have been present on the two participating vessels from the onset (mid December 2004) of these experimental fisheries, which consists of using several types of hooks and bait. At all the sets the observers collect data about the catches and biological data of the various species caught.

Although the experimental fishery has not yet finalised—it is midway through—, partial data are currently available for the sex per size interval of the various species present in the catch.

This document presents the preliminary sex ratio results corresponding to yellowfin tuna (*Thunnus albacares* - YFT) from the data obtained until now.

2.- Material and Methods

The pilot action is being undertaken by two surface longliners that commenced their activities on 12 December 2004. The working area is in international waters between 25º S and 35º S and 30º E and 50º E (Figure 1).

Although there is a space-time stratification for sampling in the prospection area, it has not been taken into consideration for this document. Joint analysis has been made of all the specimens sampled since activities began (268 sets) for the entire area.

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Given that yellowfin samples are gutted on board, scientific observers take the individual weight of each specimen, the size (LF in cm), sex and the degree of gonadal development.

Sizes have been grouped into 5 cm intervals for results presentation.

3.- Results

Table 1 shows the results of sex-size sampling undertaken by observers since the end of May 2005.

Until now the sex of 244 YFT specimens has been determined, resulting in a total of 129 males (53%) and 115 females (47%).

Practically all the yellowfin specimens caught by long line in these campaigns fall into sizes ranging from 110 and 170 cm of LF (Figure 2), with 92% of the samples concentrated between 120 and 165 cm of LF.

Figure 3 shows the sex ratio obtained. For better represented sizes, the sex ratio is close to 50%. Values for sizes below 105 cm are difficult to interpret, given the limited number of specimens analysed. Similarly, there has been little sampling for sizes above 150 cm, although the decrease in the female percentage based on this size coincides with previous results.

Thunnus albacares **YFT** Indian Ocean AP08/2004 Sex ratio				
LF cm	males	females	Total	% FEMALES
50-54			0	
55-59			0	
60-64	1		1	0
65-69			0	
70-74			0	
75-79	1		1	0
80-84		1	1	100
85-89			0	
90-94			0	
95-99	1	1	2	50
100-104		1	1	100
105-109	1	1	2	50
110-114	2	4	6	67
115-119	2	2	4	50
120-124	5	3	8	38
125-129	11	10	21	48
130-134	32	35	67	52
135-139	27	18	45	40
140-144	13	19	32	59
145-149	17	14	31	45
150-154	7	2	9	22
155-159	6	3	9	33
160-164	2	1	3	33
165-169	1		1	0
170-174				
175-179				
Total	129	115	244	47.13

Table 1 Sex of yellowfin specimens per size interval of 5 cm LF, obtained by observers on board the AP 08-2004, percentage of females per size interval and total.

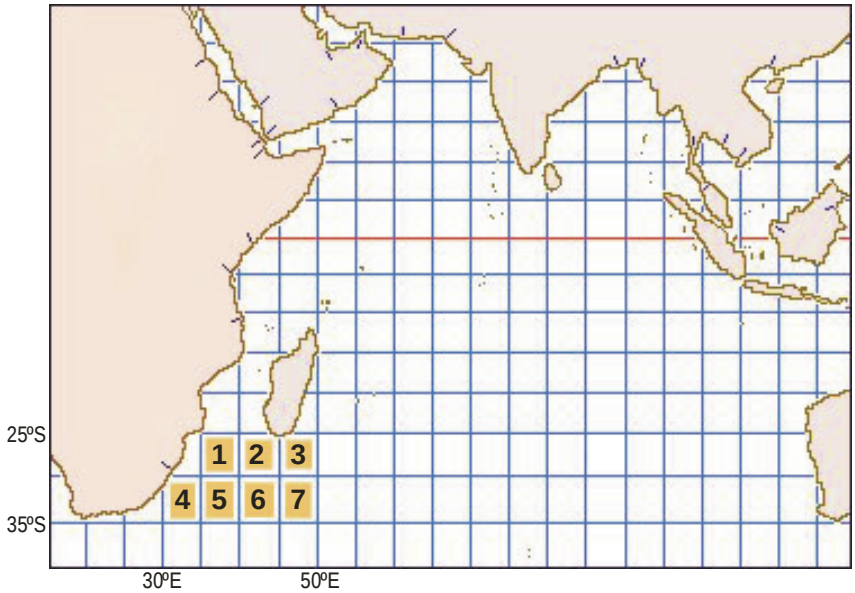

Figure 1 Area covered by the AP 08-2004.

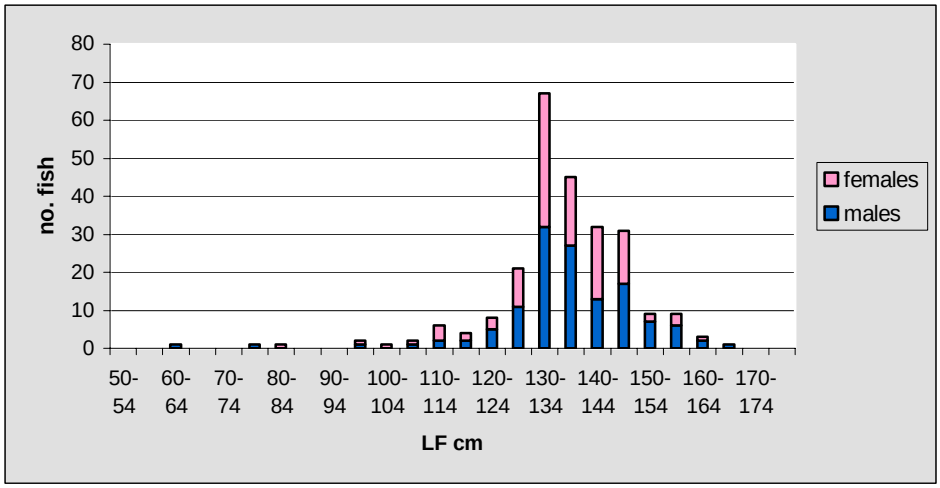

Figure 2 Size distribution of YFT specimens sampled for sex analysis, grouped in intervals of 5 cm of LF.

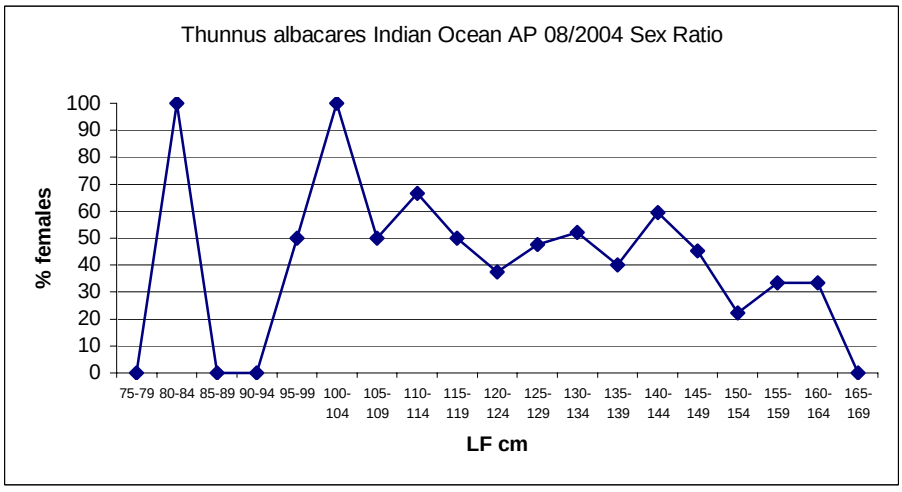

Figure 3 Percentage of females per size interval of 5 cm of LF.