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CATCHES OF YELLOWFIN TUNA IN 2006

This report commenting on the decline in the catch of yellowfin tuna was sent to CPCs at the end of last year.

The catch of yellowfin tuna during the first half of 2006 was the lowest since the 1980s. The assessment presented at the 74th meeting of the IATTC in June 2006 indicated that the annual recruitment during 2002-2004 was close to the average for 1983-2004, and that the recruitment for 2005 was relatively strong. The estimates of recruitment for the most recent years are rather imprecise, however. On a quarterly basis, the recruitment was estimated to be relatively weak during the first and second quarters of 2005, but strong during the third quarter of that year.

The staff's advice was that, while the current fishing effort (taking account of the recent increase in the size of the purse-seine fleet) was greater than that that would produce the average maximum sustainable yield (AMSY), the stock was not overfished. It seemed then that the most likely explanation for the low catches of yellowfin during early 2006 was reduced catchability of the fish.

The analyses have recently been updated to include data for the first half of 2006. These updated estimates indicate weaker recruitment for the first quarter of 2003 through the second quarter of 2005 than had previously been estimated. However, the recruitment during the third and fourth quarters of 2005 appears to have been strong. The weaker recruitment during 2003, 2004, and the first half of 2005 appears to have caused a decline in the biomass of the stock, which is now below the level that would produce the AMSY.

In addition, the average size of yellowfin in the catch has been reduced as the fleet appears to be switching its effort from offshore areas, where larger fish predominate in the catches, to inshore areas, where smaller fish are more common. It also appears that some vessels that ordinarily direct their effort mostly toward yellowfin have been directing it more toward skipjack and bluefin. The change is illustrated in the table below, which shows the catches in the first semester of 2001-2006 by set type, and the average weights of yellowfin in those catches. The catch in the first semester of 2006 declined precipitously for sets on dolphin-associated fish offshore, moderately for sets on dolphin-associated fish inshore, only slightly for sets on unassociated fish, and not at all for sets on fish associated with floating objects.

Year	Floating objects		Unassociated		Dolphin, inshore		Dolphin, offshore	
	Catch (t)	Average weight (kg)	Catch (t)	Average weight (kg)	Catch (t)	Average weight (kg)	Catch (t)	Average weight (kg)
2001	47,332	9.3	58,037	12.4	45,252	17.8	71,392	30.4
2002	20,835	4.9	39,182	15.4	64,231	23.3	92,290	31.1
2003	15,184	5.2	52,357	8.5	65,619	13.2	86,193	29.3
2004	11,263	5.6	50,978	9.1	47,398	13.4	60,572	30.6
2005	11,880	4.2	50,925	5.9	45,772	14.6	63,574	20.3
2006	12,832	2.9	43,001	5.4	30,597	13.0	21,932	22.1

During the first two quarters of 2006, the average weights of the yellowfin from the two apparently strong

2005 cohorts (from the 3rd and 4th quarters) ranged from 2 to 7 kg. The fish were taken in sets on floating objects and unassociated schools, and comprised more than half of the catch of yellowfin in that time. Normally, most of the catch of yellowfin is taken in sets associated with dolphins. The cohorts from the 3rd and 4th quarters of 2005 will not become well represented in sets on schools associated with dolphins in inshore areas until the first quarter of 2007.

It is still too early to know whether the new 2005 cohorts are really strong, or whether they are being exploited at a high rate. This should become clear in the stock assessment performed in 2007. If those cohorts turn out to be only average, the outlook will be low catches and the risk that fishing effort will remain directed at young fish, leading to a long-term reduction in the abundance of larger yellowfin associated with dolphins.