INTER-AMERICAN TROPICAL TUNA COMMISSION
COMISIÓN INTERAMERICANA DEL ATÚN TROPICAL

74TH MEETING

BUSAN (KOREA)
26-30 JUNE 2006

DOCUMENT IATTC-74-05

STAFF RECOMMENDATIONS ON CONSERVATION

Resolution C-04-09 on a multi-annual program for the conservation of tunas in the eastern Pacific Ocean (EPO) provides measures for the conservation of yellowfin and bigeye tuna in 2004-2006. This paper makes recommendations for 2007-2009 for yellowfin and bigeye and for a limit on the catch of swordfish in the southeastern Pacific Ocean. Summaries of the stock assessments for all species are provided in Document IATTC-74-04, *Tunas and billfishes in the eastern Pacific Ocean in 2005*.

1. YELLOWFIN TUNA

The stock assessment for yellowfin is similar to that of 2005. The base case assessment indicates that the spawning stock size has declined from a high point in 2001 to about the level corresponding to the average maximum sustainable yield (AMSY). The fishing mortality rate in the most recent years for which there are good estimates, 2003-2004, is near to that corresponding to the AMSY. The base case assessment did not include a stock-recruitment relationship; if that were incorporated (the alternative assessment), the fishing mortality corresponding to the AMSY would be only about 67% of the 2003-2004 level.

The staff recommendation is based on the base case assessment. The staff has been aware of the increase in recruitment and stock size after 1985, and has for 20 years attributed the increased recruitment to an environmental change that led to greater spawning biomasses, rather than to dependence of recruitment on spawning stock size. Nevertheless, it is possible that this interpretation is wrong and that the increase after 1985 was related to a stock-recruit relationship with steepness significantly less than 1. If that were the case, the stock would currently be overfished, and the fishing mortality would need to be reduced by about 40% to bring it to the level corresponding to the AMSY.

Regardless of the recruitment, the total catch and stock size could be increased if the average size of the yellowfin in the catch were increased. The longline fishery catches the largest fish, but takes less than 5% of the total catch. The purse-seine fishery takes yellowfin of a wide range of sizes, depending on set type. Increasing the proportion of the catch made by longlines or by purse-seine sets on tunas associated with dolphins would increase the sustainable yields and the biomass.

Since the beginning of 2004, the first year of the current Resolution, the carrying capacity of the purse-seine fleet has increased by about 9%. To maintain the effect of Resolution C-04-09, the period during which purse-seining is allowed (46 weeks) should be reduced accordingly.

The staff **recommends** that the closure periods for the purse-seine fishery in Resolution C-04-09 be extended by an additional 27 days to 69 days, and that the closure period be extended further if the carrying capacity of the purse-seine fleet continues to increase. It is expected that this would maintain the stock at the level that could provide the AMSY.

2. BIGEYE TUNA

The stock assessment results are generally similar to those of previous assessments, except that the previously-reported decline has been interrupted by above-average recruitment in 2001 and 2002.

The stock is currently below the AMSY level, but if recruitment is maintained at the levels estimated for the last 30 years, it is expected to increase to the level corresponding to the AMSY in 2007, and subsequently decline. The base case assessment estimates that the fishing mortality rate corresponding to

the AMSY is 68% of the fishing mortality rate during 2003-2004, and the alternative assessment, which includes a stock-recruitment relationship, suggests that it is 51% of that rate.

The staff recommendation is based on the base case assessment. In contrast to yellowfin, there is no information in the history of the fishery that supports a stock-recruit relationship with steepness significantly less than 1. Nevertheless, the steepness is very difficult to estimate, and there remains a possibility that inferences made using the base case assessment underestimate the extent to which the stock is overfished.

The estimated AMSY is 106,000 t, and with the recent mix of purse-seine and longline fishing, 46,000 t would be taken by the purse-seine fishery and 60,000 t by the longline fishery

Longline catches have declined to below the levels allowed by Resolution C-04-09, making the impact of this fishery less than that envisaged in the Resolution. However, the growth in the carrying capacity of the purse-seine fleet has militated against the effect of the Resolution.

Further measures are necessary to allow the stock to be maintained at or above the AMSY level. The AMSY has been significantly reduced by purse-seine catches of small bigeye, and measures that encourage purse-seine vessels to avoid catching bigeye while fishing for skipjack would be beneficial. The fishing effort should be reduced by 32% relative to that of 2003-2004. To offset the increase in the carrying capacity of the purse-seine fleet since 2004, the total reduction for purse-seine vessels should be 38%.

Reductions of differing amounts for each of the two fleets could also achieve the goal of providing the AMSY.

The staff **recommends** that purse-seine fishing effort on floating objects be reduced by 38%.

The 69-day closure of all purse-seine fishing recommended above is not sufficient to achieve the management objective for bigeye. Additional measures are required, and four options for achieving that are:

a) Close the purse-seine fishery on floating objects for an additional 95 days; this would be most effective during the second half of the year; or

b) Close the purse-seine fishery on floating objects when the estimated purse-seine catch of bigeye tuna reaches 46,000 t; or

c) Limit the total annual catch of bigeye by each purse-seine vessel to 930 t by prohibiting further sets on floating objects by that vessel after this limit is reached. The catch of bigeye would be estimated either by the observer or, at the request of the captain, by sampling of the vessel's catch conducted by IATTC staff members at the time of unloading. If the latter option is chosen, the vessel would be responsible for reasonable costs of the sampling. Included in this option would also be a total catch limit for bigeye of 46,000 t, after which all sets on floating objects would be prohibited; or

d) Close an area-time stratum of the fishery to sets on floating objects. At the 2006 annual meeting, the staff will present an analysis of area-time strata closures that would be expected to achieve the objective of a 38% reduction in the fishing mortality of bigeye tuna.

The estimates of the bigeye catches referred to in b and c above should be calculated on the basis of species composition sampling of unloadings, and the Director should give CPCs one month's notice of the date on which the estimates that the catch limit will be reached.

Of the four options presented, the staff believes that b and c would be most likely to achieve the reductions in the the catch of bigeye with the least reduction in that of skipjack.

The staff also **recommends** that the longline catch limits be reduced to 94% of those in Resolution C-04-09 for 2007-2009.

3. SOUTHEASTERN PACIFIC SWORDFISH

The stock assessment for southeastern Pacific swordfish indicates that the stock is currently above the level corresponding to the AMSY, but that the current catches are slightly above the AMSY level. The staff assessment for 2004 suggested that the stock was overfished. As a precautionary measure, the staff **recommends** that the catches be limited to recent levels, pending more certainty in the assessment.

4. NORTHERN ALBACORE TUNA

The stock assessment for northern albacore has not been updated. For clarity, the meaning of the word "current" in paragraph 1 of Resolution C-05-02 should be specified.