INTER-AMERICAN TROPICAL TUNA COMMISSION

85TH MEETING

Veracruz, Veracruz (Mexico)
10 – 14 June 2013

DOCUMENT IATTC-85-03d

RECOMMENDATIONS BY THE STAFF FOR THE CONSERVATION OF TUNAS AND SHARKS IN THE EASTERN PACIFIC OCEAN, 2013

IATTC Resolution C-12-01 on the conservation of tunas, paragraph 14, calls for the IATTC scientific staff to "…propose, if necessary, appropriate measures to be applied in future years." At the meeting of the Scientific Advisory Committee in May 2013, the staff presented its recommendations for the conservation of tunas, as well as for silky sharks (Resolutions C-05-03 and C-11-10).

A. CONSERVATION OF TUNAS

The staff's recommendations are based on its assessment of bigeye tuna (Document SAC-04-05) carried out in 2013. A similar full assessment of yellowfin is planned for 2014; Document SAC-04-04b is an update of the 2012 assessment..

For bigeye, the staff's conclusion from this year's assessment is that fishing mortality (F) is slightly below F_{MSY}, the level corresponding to the maximum sustainable yield (MSY), as is indicated by the base case point estimate for the F multiplier[1] of 1.05 (SAC-04-05, Table 5.1), and that the measures established in Resolution C-12-01 have had the intended effect of reducing the fishing mortality of bigeye to a level not exceeding the MSY . However, there is a considerable overlap between the target F multiplier of 1.0 and the 95% confidence intervals for the F multiplier of 1.05, indicating that the evidence supporting a conclusion that fishing mortality is below the level of F_{MSY} is not definitive. Nonetheless, the staff considers that the results support the continuation of Resolution C-12-01. Another factor supporting this is the stock assessment of yellowfin, which concludes with the base case point estimate for the F multiplier of 1.01 (SAC-04-04b, Table 4.1).

As of 7 April 2013, the capacity of the purse-seine fleet operating in the eastern Pacific Ocean[2] (EPO) was 214,979 cubic meters (m^3) of well volume. It has been increasing since May 2011, when it was 208,100 m^3 after a year of an apparent declining trend; it had increased to 211,231 m^3 by June, 213,008 m^3 by the end of 2011, and 214,422 m^3 by May 2012. Consequently, the duration of closures of the fishery cannot be reduced on the basis of a reduction in fleet capacity.

1. YELLOWFIN, SKIPJACK, AND BIGEYE TUNAS

The staff recommends maintaining Resolution C-12-01 for 2013 and extending it through 2014.

The staff recommends that the monthly reporting requirement for longline catches of bigeye in Resolution C-12-01 (paragraph 11) be extended to include longline catches of yellowfin. All CPCs with annual catches of yellowfin greater than 500 metric tons (t) should provide those reports to the Director.

[1] The ratio of the current fishing mortality ($F_{current}$, defined as the average fishing mortality for the three most recent years (2009-2011)) to the fishing mortality that will produce the maximum sustainable yield (F_{MSY}). An F multiplier of 1.0 means that $F_{current} = F_{MSY}$; if it is below 1.0, fishing mortality is excessive ($F_{current} > F_{MSY}$)
[2] Defined as the IATTC Convention Area, established in Article III of the Antigua Convention

2. PACIFIC BLUEFIN TUNA

A new assessment of Pacific bluefin tuna was completed during the last year. Projections in which Resolution C-12-09 was extended into the future, with appropriate levels of fishing mortality, indicate that would likely lead to increases in stock abundance. The staff therefore recommends that all the provisions of the resolution remain in force through 2013 and be extended through 2014, with catches in the latter year limited to 5,000 t, half the amount specified in Resolution C-12-09 for the 2012-2013 period.

3. NORTHERN ALBACORE TUNA

The staff recommends that Resolution C-05-02 be amended to require that the required six-monthly reports include information on effort as well as catch, and clarify that data provided should be for the EPO only. A new assessment of northern albacore tuna is planned for the first half of 2014.

B. REFERENCE POINTS

As an interim measure, the staff recommends that the Commission adopt the following target and limit reference points[3], approved by the Indian Ocean Tuna Commission (IOTC):

Stock	Target reference point	Limit reference point
Albacore tuna	B_{MSY}; F_{MSY}	40% of B_{MSY}; 40% above F_{MSY}
Bigeye tuna	B_{MSY}; F_{MSY}	50% of B_{MSY}; 30% above F_{MSY}
Skipjack tuna	B_{MSY}; F_{MSY}	40% of B_{MSY}; 50% above F_{MSY}
Yellowfin tuna	B_{MSY}; F_{MSY}	40% of B_{MSY}; 40% above F_{MSY}
Swordfish	B_{MSY}; F_{MSY}	40% of B_{MSY}; 40% above F_{MSY}

In addition, the staff recommends that the same reference points be used for Pacific bluefin tuna as for bigeye tuna in the table above.

C. HARVEST CONTROL RULE

The staff has consistently recommended the harvest control rule that, if fishing mortality exceeds the level corresponding to MSY, it be reduced to that level. The staff recommends that the Commission adopt this rule .

D. CONSERVATION OF SILKY SHARKS

Since 2009, IATTC staff, national observer program staff, scientists of member countries, non-governmental organizations, and industry collaborators have worked together to accumulate, process, and analyze data for the silky shark (*Carcarhinus falciformis*) in the EPO. This collaborative effort has produced a great deal of fishery data and information on stock structure and biological parameters. An assessment of the stock covering the 1993-2010 period was attempted, based on the information accumulated for this period. However, incomplete knowledge of the total catch in the EPO is a problem, particularly for the early period of the assessment (1990s and early 2000s).

Although a formal assessment of the silky shark could not be completed, there is sufficient information to form the basis for precautionary management recommendations. First, the fishing mortality of silky sharks has decreased substantially since 2004. This decrease coincided with three important events: IATTC tuna conservation measures, restrictions on shark finning[4] in Central America, and a reduction of effort in the high-seas tuna longline fishery due to increased fuel prices. Second, the stock is predicted to rebuild if the recent (2008-2010 average) levels of fishing mortality are maintained in the future. However, recent information about purse-seine catch rates and the distribution of catches in the EPO does not support a stock recovery in 2011 and 2012, as predicted by the stock assessment work (Figure 1).

[3] F_{MSY}: fishing mortality rate corresponding to the maximum sustainable yield; $B_{MSY:}$ spawning biomass corresponding to the maximum sustainable yield

[4] Defined as cutting off the fins and discarding the rest of the animal

The staff considers the above sufficient to warrant recommending the following precautionary measures for silky sharks in the EPO:

1. Extend Resolution C-11-10 on oceanic whitetip sharks to include silky sharks, but apply to purse-seine vessels only.
2. For vessels other than purse-seiners, require that all silky sharks captured in fisheries that do not target this species be released as soon as they are seen in the net, on the hook, or on deck, to improve their chances of survival.
3. Longline vessels that target sharks in the EPO, defined as those whose catches of sharks for a given trip exceed 50% of their total catch, should not increase their fleet's fishing effort above the level applied in 2008-2009.
4. Change Paragraph 12 of Resolution C-05-03 to read "Paragraphs 2-10 of this resolution apply only to sharks caught in association with fisheries managed by IATTC" so that reporting of shark catches by species and of fishing effort, required by paragraph 11 of the resolution, is mandatory for all vessels.
5. Conduct experiments on mitigating shark catches, especially in longline fisheries, and on the survival of sharks captured by all gear types, with priority given to those gears with significant captures. Survival experiments should include studies of the effects on survival of shorter sets and of the use of circle hooks.
6. Establish a fund to support research on mitigation of shark captures and data collection projects.

FIGURE 1. Average bycatch per set (BPS) of silky sharks, in numbers of sharks, by 1° area for floating-object sets by purse-seine vessels of IATTC capacity class 6 in 1996 and 2012. Blue: BPS = 0; green: 0 < BPS ≤ 1; yellow: 1 < BPS ≤ 2; red: BPS > 2.