

INTER-AMERICAN TROPICAL TUNA COMMISSION

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DOCUMENT IATTC-98 INF-B

AN INDIVIDUAL VESSEL LIMIT SCHEME FOR BIGEYE CATCH IN THE EASTERN PACIFIC OCEAN: STAFF'S CONSIDERATIONS ON IMPLEMENTATION

SUMMARY

The staff has concerns about the use of any individual vessel limit (IVL) scheme for bigeye tuna (BET) catch in the EPO, including CPC proposals C-1 (VEN) and C-3 (ECU). The staff is not recommending an IVL scheme for BET, and if one is adopted, the process of estimating each vessel's BET catch will be time-consuming and costly, and it will produce estimates with significant levels of uncertainty. Some of the staff's concerns about the accuracy could possibly be addressed in part by increasing port-sampling, but this would require that additional resources be made available (preliminary budget estimate of US\$ 770,548 per year).

OVERVIEW OF CPC PROPOSALS

The main characteristics of IVL proposals C-1 (VEN) and C-3 (ECU) are:

- 1) Applicable to the triennium 2022-2024.
- 2) A 1,250/1,200 mt (C-1 VEN/C-3 ECU) IVL on BET catch for Class-6 vessels fishing on floating objects.
- 3) BET catch data to be collected and monitored in real time by observers, with the possibility of increasing port or cannery sampling when: the cumulative catch of 500 mt is reached by a vessel; and/or, when requested by the vessel captain (at the vessel's own cost for the latter).
- 4) When the IVL is reached, the vessel must stop fishing on floating objects.

STAFF'S CONCERNS

Effectiveness for the conservation and management of BET

It is uncertain if the IVL scheme will provide sufficient protection for the BET stock in terms of keeping fishing mortality from exceeding the 2017-2019 *status quo* level.

Staff's proposed solution: To ensure that the *status quo* is not exceeded, one of the following actions should take place: 1) the annual best scientific estimate (BSE) of the total purse seine BET catch in each year covered by the new resolution should be compared with the average annual BSE of BET catch for 2017-2019 from Table A-7 of the IATTC Fishery Status Report (67 thousand t). If the yearly BET catch in 2022 or 2023 exceeds the 2017-2019 average, the management measure should be modified considering new recommendations by the staff and the SAC; **OR**, 2) the staff will conduct an updated BET stock assessment each year, starting in 2023, specifically to determine the level of the current fishing mortality relative to the *status quo* (see staff's proposal for the workplan for tropical tuna in [Document IATTC-98 INF-E](#)), and in case that the *status quo* has been exceeded, the management measure should be modified considering new recommendations by the staff and the SAC. The staff prefers the latter option (see [IATTC-98 INF-A](#)).

Other species

An IVL scheme on catch of BET only protects BET and does not protect other species, particularly skipjack tuna (SKJ). Because the interim Productivity and Susceptibility Analysis rationale between BET and SKJ would be broken under a BET-only scheme, the IATTC staff would no longer be able to provide a stock status determination for SKJ.

Staff's proposed solution: The staff has put forward a proposal for an interim SKJ stock assessment in case the SKJ-BET rationale is broken (see [Document IATTC-98 INF-F](#)).

Estimation of catch

IATTC staff will not be able to present definitive BET catch totals for each vessel following the conclusion of each trip. Instead, the staff will provide a scientific estimate based on the best available data (a best scientific estimate, BSE) and its accuracy and precision will depend upon the resources available to monitor the IVL scheme. Staff will help to determine how to best approximate a vessel's BET catch for a trip based on the suite of data available for that trip immediately following the completion of unloading. But then, it will be up to the flag State to make a formal determination of the BET catch to be attributed to a vessel for a given trip, to carry out the tracking of a vessel's total estimated catch relative to the IVL, and to determine when a vessel has reached or exceeded its IVL.

In addition, as regards estimation of the species composition of the catch for a trip or vessel, the staff has the following concerns:

- Species composition estimates made by observers, independent of any input from vessel personnel, may not be reliable enough to be used to monitor IVLs. Observers often confer with vessel personnel when making their estimates of catch composition for a set. Observers do not conduct onboard sampling, and if required to make catch estimates independent of the vessel personnel, would primarily be limited to estimating catch composition from a main-deck view of the catch brailing operation.
- Current port-sampling coverage is inadequate to accurately estimate BET catch for an individual trip or vessel. The port-sampling program would need to be modified if IVLs are to be monitored with port-sampling data to reduce bias and improve the precision of the estimates for individual vessels. This would require additional resources (see below). However, depending on CPCs' tolerance for regulating their vessels based on uncertain estimates, it may not be practical to achieve the desired precision.
- Sampling does not currently occur in all EPO ports where catch is unloaded, and IATTC staff are unable to sample catch that is unloaded outside the EPO or which is transhipped in port. Provisions to implement port-sampling in locations not currently monitored will require establishment of additional infrastructure, including cooperating networks with member and non-member countries, and even then it is likely that some landings will remain beyond the staff's reach.
- Using port-sampling or cannery data to monitor IVLs will mean that estimates of catch composition by trip will not be available in real time, which may increase the chances that a vessel exceeds its limit. Cannery data is currently shared with the staff on a voluntary basis and not all canneries participate in that sharing; and when they do, it is typically on an annual basis. Cannery data should be a data source to be used to help with BET catch estimations, but that information would need to be reported to IATTC from canneries on a near-real time basis in order to be useful in tracking a vessel's BET catch relative to the limit.
- The adoption of an IVL scheme for BET catch may compromise the quality of multiple data sources, including some of those used for tuna tracking, stock assessment and other research, by increasing pressure on observers and creating possible incentives for misreporting of observer, logbook and/or cannery data.

- Staffing levels are not adequate to implement IVLs, regardless of what data types are to be used for monitoring. In particular, if monitoring IVLs is to be through additional port-sampling, more staff will need to be hired/trained, including port-samplers, data entry personnel, a computer programmer, program coordinator, and program assistant (see Annex). Even without additional port-sampling, personnel would need to be hired to implement and oversee the scheme.
- Discard data cannot be verified with port-sampling or cannery information. Electronic Monitoring (EM) could help, but development and implementation of an Electronic Monitoring System for the EPO are still in the very early stages (see [EMS work plan](#)). Moreover, there is still concern about generating accurate species and size composition information using EM records, particularly for juvenile BET and yellowfin tuna, which are limitations identified by EM pilot [Project D.2.a](#).

Staff's proposed solution: Although the staff does not recommend an IVL scheme for BET, as noted above, the staff considers that if an IVL scheme is to be adopted, monitoring IVLs with additional port-sampling is preferable to monitoring IVLs with observer on board or through cannery data. However, the staff considers that it would not be feasible to implement port-sampling for all trips of all vessels by January 2022, nor would it be feasible for staff to sample every well of vessels selected for sampling. Therefore, if an IVL scheme for BET is to be implemented, the staff proposes the following replacements for (2) - (3) under "Overview of CPC proposals" above:

- The IVLs should apply to all Class-6 vessels, not just those "fishing on floating-objects."
- Observer and/or cannery data, and port-sampling data generated by the normal port-sampling program, can be used by CPCs to monitor the IVLs of their vessels covered under the measure.
- Additionally, for trips that are deemed likely to have caught a large amount of BET, increased port-sampling of the catch should be conducted. The trips for which extra port-sampling should be conducted will be: a) selected independent of how close a vessel is to its IVL at the time of unloading, according to observer/cannery data; and, b) determined by the staff at headquarters in La Jolla, based on each vessel's fishing behavior in the current and previous trips.
- Once vessels/wells have been selected for additional sampling, based on the relevant criteria, completion of the sampling should be compulsory. This means that the unloadings must be coordinated with IATTC, and that the unloading of selected wells cannot proceed until an IATTC sampling team is available. By contracting 6 additional teams of samplers who will have these efforts as their highest priority, IATTC staff hopes to minimize delays in this respect, but during times of heavy unloading traffic (*e.g.* right before closures) or where there are otherwise multiple vessels to be sampled in port at the same time, delays and their associated costs must be anticipated.

In the absence of detailed guidance from the Commission as to the goal of the additional sampling (*e.g.*, the minimum amount of exceedance to be detected with certainty for a given trip), the staff has prepared an example (Annex) of a level of additional sampling that the staff considers might be possible to implement by January 2022, assuming that by that date port-sampling will be possible in all the main ports of the EPO where BET is typically unloaded. The staff notes that even with this additional port-sampling, there will still be the need to evaluate whether the fleet catch of BET has exceeded the *status quo* level, as noted above.

The example in Annex is based on the following considerations:

- Although a proportionally small number of vessels generate a relatively large amount of the fleet BET catch, not all of those vessels are the same from year to year. Therefore, the most effective and practical way to increase the current level of port-sampling to monitor IVLs is to identify trips that are likely to have caught a significant amount of BET and increase the port-sampling of those trips.

- The increased level of coverage enabled by the allocation of the resources outlined in the Annex may make it possible for the staff to sample roughly half the wells of selected trips, although this statistic is extremely preliminary and will require further evaluation. This would imply that the estimate of catch for about half of the wells of a selected trip might need to be based on data from the sampled wells of the same trip and/or on estimation methods that include other data sources (e.g. port-sampling data for the specific vessel from previous trips; port-sampling data for other vessels operating in similar areas and months with the same set type(s)).
- The IATTC staff assumes that delays in obtaining trip-level estimates of BET catch from port-sampling data will not have a substantial impact on the total fleet BET catch.
- The additional port-sampling would include sampling of wells that would not be sampled under the current protocol, including wells with catch from different areas, months and/or set types, and wells from unloadings that happen outside normal working hours (e.g. at night).
- Additional sampling of wells of specific trips may result in delays in unloading of the catch of those trips, and/or possibly the catch of other vessels in port at the same time. The duration and cost of these delays to vessels and companies is unknown.
- Providing access for IATTC staff to conduct the additional well sampling should be made compulsory, and the relevant CPCs must be responsible for securing and ensuring access and other necessary cooperation from vessels, canneries, ports facilities, and with the personnel working there.
- The costs shown in Annex are preliminary, and as such, upon further detailed analysis and planning, it may be determined that the level of sampling that can be achieved with the resources specified will be lower than anticipated. Should this be the case, added reliance on other data sources to estimate the trip catch will be required, potentially reducing the reliability of the trip-specific catch estimates.
- The costs in Annex are based on the assumption that the fleet will not significantly change its current unloading patterns and that regular pre-COVID sampling practices will be possible in most of the unloading ports in the EPO. However, it is anticipated that most of the increased sampling would take place in the ports of Manta and Posorja, and thus, the vessels of some fleets would be sampled more than others.
- The formal determination of the BET catch to be attributed to a vessel for a given trip, the tracking of a vessel's total estimated catch relative to the IVL, and the determination of when a vessel has reached or exceeded its IVL will necessarily be the responsibility of the flag State.

Annex. Staff's preliminary budget estimate for an IVL scheme for BET catches. Values for staff's expenses include salaries and benefits calculated based at IATTC headquarters.

	Cost per year	Description
Logistics		
Additional port sampling operations	US\$ 300,000 (= US\$25K x 12 people)	Six new teams of port-samplers (two people per team; two teams based in Manta, two teams based in Posorja, two "floating" teams to sample ports in other countries)
Travel costs associated with additional port sampling	US\$ 82,720	Per diem, hotel, etc., associated with the two teams of floating port-samplers that will sample ports other than Manta and Posorja.
Coordination travel	US\$ 25,000	Per diem, hotel, etc., for coordinator to visit ports and field offices
Miscellaneous	US\$ 25,000	Computer needs, misc. supplies office space, etc.
Additional human resources		
Program coordinator	US \$101,015	A staff member responsible for coordinating all aspects of the additional port-sampling program.
Program assistant	US\$74,156	A staff member responsible for communication and data flow among CPCs, canneries, ports and vessels regarding trip-level estimates of BET catch for their vessels.
Data entry/editing	US\$60,257	Additional staff member required to keypunch and edit additional sample data.
Data processing and estimation	US\$ 102,400	Scientific programmer responsible for data processing, automation of trip selection and catch estimation, and automation of reporting.
Total	US\$770,548	