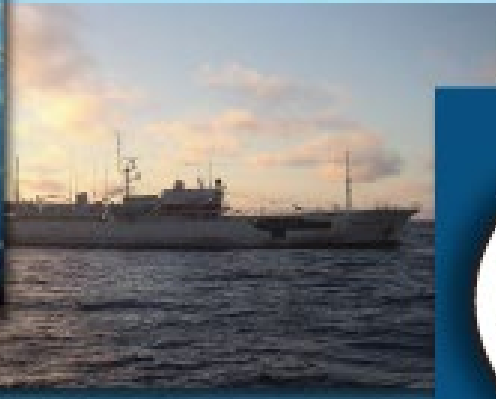


Comisión Interamericana del Atún Tropical
Inter-American Tropical Tuna Commission



WORKSHOP ON AGE AND GROWTH OF BIGEYE AND YELLOWFIN TUNAS IN THE PACIFIC OCEAN
San Diego, California (USA), 23-25 January 2019

Workshop objectives

1. Evaluate methodologies for counting daily and annual increments
2. Compare daily and annual increment counts from pairs of otoliths from both species
3. Compare growth rates from length-at-age data based on otolith increment counts with those from tagging data
4. Evaluate the growth models being used in stock assessments for bigeye and yellowfin tunas in the EPO and WCPO
5. Develop a work plan to resolve any scientific and technical issues

1) Evaluate methodologies for counting daily and annual increments

- A planned preliminary technical meeting to compare methodologies had to be postponed due to the US Federal Government shutdown.
- Some aspects were evaluated based on the presentations.
- This work will be continued as soon as possible.

2) Compare daily and annual increment counts from pairs of otoliths from both species

- Comparisons of EPO bigeye otoliths found differences between daily and annual increment counts for larger individuals.
- Further work on both species will be done at the postponed technical meeting.

3) Compare growth rates from length-at-age data based on otolith increment counts with those from tagging data

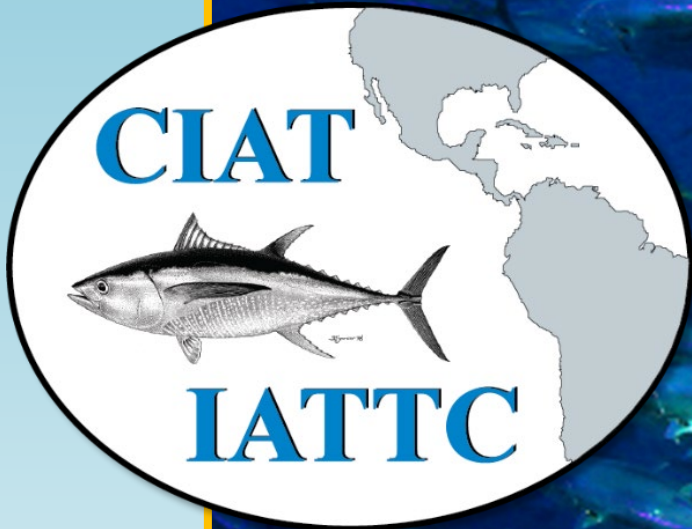
- There is no evidence of inconsistency, but the comparisons are based on limited data.
- EPO tagging data suggest that there is two-stage growth, but daily otolith data do not.
- The WCPO tagging data included larger fish than the annual otolith data, and therefore estimate a higher L_{∞} .
- Separation of EPO tag releases at 95°W and 140°W (also different release periods) showed different growth rates

4) Evaluate the growth models being used in stock assessments for bigeye and yellowfin tunas in the EPO and WCPO

- The growth models ignore spatial variation.
- There are some inconsistencies in the length-composition data used in the assessment models and the growth models.
- Stock assessment results and management recommendations are sensitive to L_{∞} .
- Differences in the L_{∞} used in the EPO and WCPO assessments of bigeye are representative of size composition in these stocks, as EPO fish grow to larger sizes.
- There is still uncertainty in the estimates of L_{∞} , and more data need to be collected.

5) Recommendations and workplan

- Hold a technical workshop to compare methodologies, and exchange additional otoliths from the EPO and WCPO, both as soon as possible.
- Include the following elements in the work plan:
 - Improve and document the protocols for daily and annual ageing.
 - Conduct spatial analyses based on otolith weight, using all available otoliths
 - Extend the validation of daily and annual otolith counts across the Pacific by incorporating some oxytetracycline (OTC) marking in tagging programs.
 - Extend the spatial/temporal/size distribution of EPO daily otolith data.
 - Develop Pacific-wide assessments that can accommodate spatial variation in growth rates and reflect stock structure and movement hypotheses.



Questions

