UPDATED INDICATORS OF STOCK STATUS FOR SKIPJACK TUNA IN THE EASTERN PACIFIC OCEAN

Mark N. Maunder

10th Meeting of the Scientific Advisory Committee San Diego, California USA, 13-17 May 2019
Indicators

- Based on data (catch, effort, CPUE, and mean weight)
- Based on a simple population dynamics model (biomass, recruitment, and exploitation rate)
- Reference levels based on the 5th and 95th percentiles
Indicators
Indicators

- Average weight (kg) vs. year (1970-2020)
- Relative biomass vs. year (1970-2020)
- Relative recruitment vs. year (1970-2020)
- Relative exploitation rate vs. year (1970-2020)
Average length

- North of 10°S west of 110°W (black line)
- North of 10°S east of 110°W (red line)
- South of 10°S west of 110°W (green line)
- South of 10°S east of 110°W (blue line)

Average length (cm) - Talla promedio (cm)


Range: 30 to 65 cm
Number of sets

- \( \leq 363 \text{ t} \)
- \( > 363 \text{ t} \)
- Total

Catch per set

Number of sets: 
- \( \leq 363 \text{ t} \)
- \( > 363 \text{ t} \)
- Total

Catch per set: 
- None specified

Years: 2000 to 2020

Legend:
- Red line: \( \leq 363 \text{ t} \)
- Black dashed line: \( > 363 \text{ t} \)
- Black solid line: Total

Units:
- Number of sets: Number de lances
- Catch per set: Captura por lance
Conclusions

• Indicators not detected any adverse impacts of the fishery
• Model-based indicators are probably biased
• Average weight was below its lower reference level in 2015 - 2017
• Could be a consequence of
  • Overexploitation
  • High recent recruitments
  • Expansion of the fishery into areas of smaller skipjack
• The average length is less in the western part of the EPO, but it has been declining in all areas
• The long-term pattern in reduced average weight is probably due to increasing fishing mortality resulting from the increasing number of sets.
Conclusions

• Skipjack is assumed to be more productive, but have similar susceptibility as bigeye
• Assumed to be managed appropriately under bigeye and yellowfin measures
• Current bigeye and yellowfin assessments problematic