



SCIENTIFIC COMMITTEE
TWENTY-SECOND REGULAR SESSION
11-19 August 2026
Apia, Samoa (Hybrid)

**BIOLOGY OF SOUTH PACIFIC STRIPED MARLIN, BLUE MARLIN, BLACK MARLIN, SHORTBILL
SPEARFISH, AND SAIFISH IN THE WCPO FROM LONGLINE FISHERIES**

WCPFC-SC22-2026-SA-IP19

21 July 2026

Submitted by SPC-OFP

Recommendations

SC22 is advised of the following:

- Progress towards better knowledge on billfish biology has been made however its pace remains slow given the logistical challenges of sampling.
- The rate of progress may be improved by dedicated sampling at key ports where billfish are landed fresh and whole. This would need the assistance of key CCMs and hence the logistical implications for members should be considered.
- Billfish sampling is included in the training of observers in biological sampling protocols.
- The practicalities in achieving the desired sampling defined by SC20-SA-IP-13 for species such as billfish, which are often bycatch in many fisheries, should be recognised.
- Support for the ongoing activities of the Pacific Marine Specimen Bank is needed to maintain an accessible repository of biological samples.
- The PTPP currently provides a significant source of samples to support the billfish research plan.

Background

At SC19, heads of delegations were surveyed. SC19 survey respondents were asked to rank projects within the Billfish Research Plan (BRP). Work to improve understanding of the biology of WCPO billfish was given a high priority within the BRP. The project proposed to collect samples (fin spines and otoliths, maturity stages) and then undertake age growth and reproductive analyses to improve growth and maturity parameters to inform productivity rates of this species. Length-weight and length-length conversion factor data collection for billfish was also prioritised to improve conversion factor information across all five species.

Activity plan

1. Use the results from SC20-SA-IP-13 to plan the spatio-temporal data collection, ensuring that data collection is stratified across the WCPO and covers all sex and size classes for each species.
2. Observers, where feasible, are trained and deployed to collect this data in the relevant areas, noting the difficulty in the extraction of otoliths from billfish.
3. Collect fin spines, otoliths, and maturity stages information from billfish.
4. Collect length-weight and length-length conversion factor data for all billfish.
5. Undertake age and growth and reproductive analyses to inform productivity rates of this species.
6. Present annual updates to the SC in 2025, 2026, and 2027; and a final report in 2028.

Progress

- 2026 funding for Project 125 was not approved by WCPFC22. Activities in the first half of 2026 have therefore continued through a no-cost extension using limited remaining 2025 funds, and through wider activities undertaken by the SSP on other WCPFC projects and wider funding.
- Observer biological sampling and refresher trainings have been rolled out in 2025 and 2026 to support the PMSB and regional observer activities. One hundred and forty-four

staff undertook training in biological sample collection and biological sampling debriefing during this reporting period.

- Total billfish holdings in the PMSB are currently 2712 (1864 are available for analyses). Approximately 15% have been collected during transit periods of PTTP cruises. The PTTP is the largest contributor to marlin samples.
- WCPFC-SC22-2026-SA-IP20 provides SC22 with biological sampling plans for tuna, billfish & sharks consistent with the SC instruction for spatio-temporal data collection so that data are stratified across the WCPO and covers all sex and size classes for each species.
- WCPFC-SC22-2026-SA-WP11 provides SC22 with updated information on the validation of otolith and spine ageing for swordfish using bomb radiocarbon (BRC). The analyses conducted show there are a series of well-defined otolith sections from both the Atlantic and Pacific that appear to show growth zone structure that is reliable and supported by temporal alignment of the ^{14}C values. However, there are clear indications of ^{14}C uptake variability in the earliest otolith growth period due to oceanographic patterns and early life history diving behaviour, suggesting that BRC may not be ideal for validating longevity. Otolith growth zone structure, when well-defined however, can be used to establish a reliable epigenetic clock for SWO age determination.
- SC21-SA-WP-09 presented the results of a scoping study for the application of close-kin-mark-recapture for the south-west Pacific swordfish stock. The results recommend progress to a design study, albeit that several logistical issues associated with sampling would need to be overcome prior to implementation.
- WCPFC-SC22-2026-SA-WP11 provides for a desktop evaluation on the status of existing background information that is desirable to support application of close-kin-mark-recapture to tunas, billfishes and sharks. The results support the priorities identified in the billfish research plan for advancing information on growth, reproductive biology and population structure for most of the billfish species considered. South-west Pacific swordfish and south-west Pacific striped marlin were identified as candidates for progressing to design studies.
- WCPFC-SC22-2026-RP-P35b-03 reports on methylmercury and other pollutants in swordfish and marlins. Hg levels in some billfish species were above FAO/WHO guidelines for predatory fish. Spatial Hg patterns were primarily driven by foraging depth and regional marine biogeochemistry controlling MeHg availability. MeHg represented 70–100% of total Hg in tunas, swordfish, and striped marlin, but only ~15% in blue and black marlins, suggesting species-specific detoxification mechanisms. This highlights the need for tailored dietary advice and for further research into these species-specific mechanisms impacting levels.