



**SCIENTIFIC COMMITTEE
EIGHTEENTH REGULAR SESSION**

Online meeting
10-18 August 2022

**PROGRESS TOWARDS A CLOSE-KIN-MARK-RECAPTURE APPLICATION TO SOUTH PACIFIC
ALBACORE**

WCPFC-SC18-2022/SA-IP-10

SPC-OFP

Executive Summary

1. SC17 established a project to preparing western and central Pacific tuna fisheries for application of close-kin-mark-recapture methods to resolve key stock assessment uncertainties.
2. The project is co-funded between WCPFC and the European Union with additional support from SPC-OFP and CSIRO.
3. The financial contribution of the European Union is sourced through their European Maritime, Fisheries and Aquaculture Fund. The application to this fund is not expected to be approved until November 2022. As such all financial resources for this project are currently “on-hold” until the application is approved.
4. SPC-OFP and CSIRO have undertaken all necessary preparatory work for commencement of the project once all financial resources are approved.

Recommendations

5. SC18 is invited to:
 - note that the preparatory work that has been undertaken for the project.
 - note that all proposed project milestones are delayed 12 months. This is due to the SC17 using an early 2022 availability of financial resources from the European Union in its project planning. The EU Grant is now expected to be available in November 2022.
 - Thank the European Union for their continued support of this work and assistance with preparing the application to the European Maritime, Fisheries and Aquaculture Fund.

Background

6. SC17 established a project to preparing western and central Pacific tuna fisheries for application of close-kin-mark-recapture methods to resolve key stock assessment uncertainties. The project has the following Objectives:
 - i. Complete the base research needed for the application of close-kin-mark-recapture methods to WCPFC stocks to reduce the uncertainty in stock assessments.
 - ii. Complete close-kin-mark-recapture feasibility studies for South Pacific albacore, Pacific bigeye and South-west Pacific Swordfish.
 - iii. Develop and trial ‘Standard Operating Procedures’ for the cost effective and reliable collection of tissue samples necessary for close-kin-mark-recapture applications to WCPFC stocks.
 - iv. Use trial samples to investigate and validate connectivity hypotheses via non-close-kin methods
 - v. Develop capacity within WCPFC to implement and evaluate close-kin-mark-recapture applications to WCPFC stocks.
 - vi. Provide advice to the Scientific Committee on what data improvements are needed to enable best use of CKMR methods.
7. WCPFC allocated USD40,000 to support this project with the European Union supporting an opportunity through its European Maritime, Fisheries and Aquaculture Fund to further budget the project (approximately Euro 270,000). SPC-OFP and CSIRO are providing additional support.
8. The European Maritime, Fisheries and Aquaculture Fund support is currently in preparation with an expected commencement in November 2022. WCPFC’s contribution is tied to this EU grant and have subsequently been held at the WCPFC Secretariat until a final decision is received on the EU Grant. The Specific Objectives of the EU Grant are:
 - Complete the foundational research needed for the application of CKMR methods to WCPFC stocks to reduce the uncertainty in stock assessments. This will include:
 - i. epigenetic ageing for South Pacific albacore and Pacific bigeye using existing validated otolith age. At present there is no epigenetic age calibration or assay for South Pacific albacore.
 - ii. evaluation of radio-carbon otolith age validation of swordfish and epigenetic age calibration.
 - iii. genome resequencing of South Pacific albacore and Pacific bigeye for enhanced detection of kin-pairs.
 - Complete CKMR feasibility and design study for South Pacific albacore.
 - Complete CKMR scoping studies for Pacific bigeye and Southwest Pacific Swordfish.
 - Develop and trial Standard Operating Procedures for the cost effective and reliable collection of tissue samples necessary for CKMR applications to WCPFC stocks.
 - Use trial samples to investigate and validate connectivity hypotheses via non-close-kin methods for South Pacific albacore in preparation for the 2024 stock assessment.

- Develop capacity within WCPFC to implement and evaluate CKMR applications to WCPFC stocks.
- Provide advice to the Scientific Committee on what further research and data improvements are needed to enable best use of CKMR methods.

Progress to date

9. As the financial resources for this project are currently “on-hold” until the European Maritime, Fisheries and Aquaculture Fund application is approved SPC-OFP and CSIRO have undertaken the following preparatory works:
 - Scanned the PMSB for suitable muscle tissue from previously aged South Pacific albacore and Pacific bigeye. Samples have been identified and tagged for epigenetic age calibration. Additional new sampling needs have been identified (older individuals).
 - Collected samples for genome resequencing of South Pacific albacore and Pacific bigeye.
 - Collected samples to test for DNA degradation in albacore
 - Collected samples to assess “DNA contamination risk” at point of sampling (to assist development of SOP)
 - Draft training material for collection of samples as part of SOP trials
 - Established arrangements with observer and port sampling programmes for sample collection and trial of SOPs.

Recommendations

10. SC18 is invited to:
 - note that the preparatory work that has been undertaken for the project.
 - note that all proposed project milestones are delayed 12 months. This is due to the SC17 using an early 2022 availability of financial resources from the European Union in its project planning. The EU Grant is now expected to be available in November 2022.
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