CPUE coordination priorities and working-paper plan

SPRFMO
South Pacific Regional Fisheries Management Organisation
Jack Mackerel Working Group

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Summary

This paper records the outcomes of the **CPUE indices coordination meeting held on 14 April 2026**. Its purpose is to define the scope of the Day 2 CPUE benchmark session, identify the main technical questions that need to be resolved at SCW16, and list the supporting working papers that members proposed to prepare before the workshop.

The main conclusion is that this material should remain separate from `SCW16-Doc03-CPUE_MetaAnalysis.qmd`. Doc03 is a backward-looking synthesis of CPUE documents submitted from SC10 to SC13, while the present paper is a forward-looking coordination note for SCW16. The two papers are complementary: Doc03 provides background and Doc02 defines the work plan and decision points for the benchmark session.

After the coordination meeting, Ana Alegre notified the organizers that work-related delays had affected delivery of several Peruvian delegation reports. She requested that the report *Standardization of catch-per-unit-effort (CPUE) for jack mackerel (2015-2025) in Peruvian*

national jurisdictional waters (Miran Geronimo and Gersson Roman) be included for presentation and discussion during the Day 2 CPUE session. She also identified related Peruvian reports for the benchmark workshop, including one length-frequency report requested for the Day 3 biological inputs session and two additional reports on length-weight relationships and acoustic-index use.

Meeting Details

- Date: 14 April 2026
- Meeting: CPUE indices coordination meeting
- Main aim: coordinate the preliminary CPUE agenda and supporting papers for SCW16
- Participants: Criscely Lujan, Miriam Geronimo, Erich Diaz, Ignacio Payá, José Zenteno, Sebastián Vásquez, and Niels Hintzen

Benchmark Rationale

The SC13 assessment model uses seven abundance indices spanning four fishery CPUE series and at least three survey series. Conditioning the operating model and tuning candidate management procedures depends critically on how these indices are standardized, interpreted, and selected.

The group therefore agreed that the benchmark CPUE session should not be limited to routine annual updates. It should instead examine whether the available fishery and survey indices are internally coherent, whether some recent index behavior is driven more by availability than by abundance, and whether different index products should be treated differently in the assessment, the operating model, and the candidate management procedures.

Proposed Scope for the CPUE Session

The coordination group proposed the following scope for the SCW16 CPUE session:

- inventory all SC13 abundance indices, including fishery and survey series;
- review acoustic survey indices from Chile, Peru, and international coordinated surveys where relevant to CPUE interpretation;
- compare CPUE standardization approaches across fleets, including fleet definitions, GLM or GLMM formulations, spatio-temporal structures, and effort-creep assumptions;
- examine the relationship between abundance indices and biomass, including proportionality assumptions and possible non-linear behavior;
- document spatial coverage gaps and temporal discontinuities across fleets and countries;

- review the role of environmental drivers, particularly ENSO-related effects on availability and catchability; and
- recommend which indices are most suitable for operating-model conditioning and which, if any, should be treated as management-procedure input series.

Proposed Day 2 Session Structure

The agreed thematic sequence for the CPUE session is summarized below. This structure is also reflected in `SCW16-Doc00.qmd`.

Order	Topic	Main purpose
1	Metadata by fleet and country	Establish a common description of fleets, areas, observation level, and index construction.
2	Methods by fleet and country	Compare GLM, spatio-temporal, and other standardization methods now in use.
3	Peruvian CPUE report	Present and discuss *Standardization of catch-per-unit-effort (CPUE) for jack mackerel (2015-2025) in Peruvian national jurisdictional waters* (Miran Geronimo and Gersson Roman).
4	Comparative analysis and parsimony	Decide how much model complexity is justified for benchmark index candidates.
5	Effort-creep review	Reassess current effort-creep assumptions and whether they should be retained or revised.
6	Catchability and availability blocks	Consider explicit `q` blocks or related structures where distribution shifts make constant catchability implausible.

Order	Topic	Main purpose
7	CPUE weighting in the stock assessment	Review how alternative weighting choices affect model fit and interpretation.
8	Separate versus combined indices for HCR use	Decide whether the benchmark should maintain separate series or define a combined product for OM and MP work.

Supporting Working Papers Proposed at the Meeting

The meeting identified the following candidate papers or updates for preparation before the benchmark. The deadline discussed in the coordination note was **1 May 2026**.

Proposed paper or update	Lead / contributors	Notes
Indices of abundance for jack mackerel: review and standardisation	Coordinated by Ignacio Payá	Core synthesis paper for the CPUE session; should complement rather than replace Doc03.
Update of the `sdmTMB` spatio-temporal CPUE index and related GLMM work	Ignacio Payá	Intended to update the Chilean spatial or spatio-temporal CPUE product.
Update of the INLA spatio-temporal CPUE model	Sebastián Vásquez	Intended to present the current INLA-based Chilean spatio-temporal series.
Comparison of alternative Fleet 2 CPUE indices	Ignacio Payá and Sebastián Vásquez	Compare competing methods and identify practical advantages, limitations, and benchmark relevance.
Update of the effort-creep analysis for Fleet 2 CPUE	José Zenteno and Ignacio Payá	Revisit the earlier sensitivity analysis and its biomass implications.

Proposed paper or update	Lead / contributors	Notes
Standardization of catch-per-unit-effort (CPUE) for jack mackerel (2015-2025) in Peruvian national jurisdictional waters	Miran Geronimo and Gersson Roman	Peruvian delegation report requested by Ana Alegre for presentation and discussion during the Day 2 CPUE session. Review national-jurisdiction CPUE standardization, industrial and artisanal data where available, and implications for benchmark index selection.

Subsequent Peruvian Report Update

On 14 May 2026, Ana Alegre notified the organizers that work-related delays had affected delivery of several Peruvian delegation reports planned for the benchmark workshop. The CPUE session should explicitly reserve time for the Peruvian CPUE standardization report listed above. This report is the CPUE-session item most directly linked to Doc02.

Ana also identified the following related Peruvian reports:

- *Technical report on the updated length-frequency data of the Peruvian jack mackerel (Trachurus murphyi) stock in national jurisdictional waters* (Criscely Luján and Gersson Roman). This report was requested for presentation and discussion during the Day 3 biological inputs session.
- *Length-weight relationship of jack mackerel (Trachurus murphyi) in Peru and its implications for biomass estimation* (Sandra Cahuin, Ana Alegre and Marilú Bouchon).
- *Considerations on the use of the jack mackerel acoustic index in Peruvian national jurisdictional waters* (Gersson Roman, Sandra Cahuin and Marilú Bouchon).

Although the latter three reports are not CPUE working papers, they affect the broader benchmark agenda and should be cross-referenced when the CPUE session discusses index interpretation, biological inputs, or consistency among abundance indices.

Main Technical Issues Identified

1. Comparison of modelling approaches

The group emphasized that traditional GLM products and newer spatio-temporal approaches should be compared directly rather than treated as unrelated alternatives. The benchmark

should evaluate whether extra complexity produces a materially better and more defensible index, or whether a simpler method remains preferable.

2. Need to avoid duplicated Chilean products where possible

Participants noted substantial overlap between the Chilean GLM and spatio-temporal work streams. One of the practical benchmark goals should therefore be to decide whether a single Chilean CPUE time series can be recommended for the main assessment, even if multiple alternative series are retained for sensitivity analyses.

3. Effort creep versus catchability or availability change

The meeting highlighted the difficulty of applying a single flat effort-creep rate across periods with changing fleet behavior, area usage, and technology. At the same time, several participants noted that introducing effort creep in recent model runs had little effect because existing catchability blocks may already be absorbing part of the same signal. This remains a key benchmark question rather than a settled issue.

4. Observation level and comparability across countries

Peruvian CPUE work continues to rely mainly on trip-level information, while some Chilean products operate at set level or use more explicit spatial structure. The benchmark should note these differences clearly because they affect both comparability and the feasible level of harmonisation across countries and fleets.

5. Availability shifts and recent index contradictions

The coordination discussion treated the recent sharp decline in offshore CPUE as a probable availability or catchability signal rather than decisive evidence of an abrupt stock collapse. This reinforces the need to review index-biomass relationships explicitly rather than assuming that all indices are directly proportional to total stock biomass at all times.

6. Combined index products for MSE

The group did not assume that a single combined CPUE index should be produced for the benchmark. Instead, the benchmark should review whether separate country or fleet series are more informative, or whether some form of combined product would be more useful for operating-model conditioning and for candidate management procedures.

Action Items

Action	Lead	Support	Timing
Circulate the preliminary CPUE agenda and proposed supporting papers to Jim	Ignacio Payá	CPUE subgroup	Immediate
Prepare updated Chilean CPUE products and comparison materials	Ignacio Payá and Sebastián Vásquez	Chilean CPUE subgroup	Before 1 May 2026
Update the Fleet 2 effort-creep analysis and summarize biomass impacts	José Zenteno and Ignacio Payá	Chilean CPUE subgroup	Before 1 May 2026
Prepare and schedule the Peruvian CPUE standardization report for the Day 2 CPUE session	Miran Geronimo and Gersson Roman	Ana Alegre and Peru subgroup	Before SCW16
Track related Peruvian length-frequency, length-weight, and acoustic-index reports in the benchmark agenda	Ana Alegre and Peru subgroup	Workshop organizers	Before SCW16
Coordinate workshop-session organization linked to the CPUE agenda	Criscely Lujan	Ana Alegre and workshop organizers	Before SCW16

Relationship to Doc03

`SCW16-Doc03-CPUE_MetaAnalysis.qmd` should remain focused on the historical synthesis of CPUE papers submitted from SC10 to SC13. If additional editing is needed there, the most natural change would be a short cross-reference in the introduction noting that the forward-looking SCW16 CPUE work plan is documented separately in SCW16-Doc02 rather than expanding Doc03 into a second, different document type.