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Western and Central Pacific Fisheries Commission

Pacific Community
Communauté du Pacifique

Progress report: Project 127
Review and reconciliation of size data collected in the WCPFC-CA for stock assessment purposes

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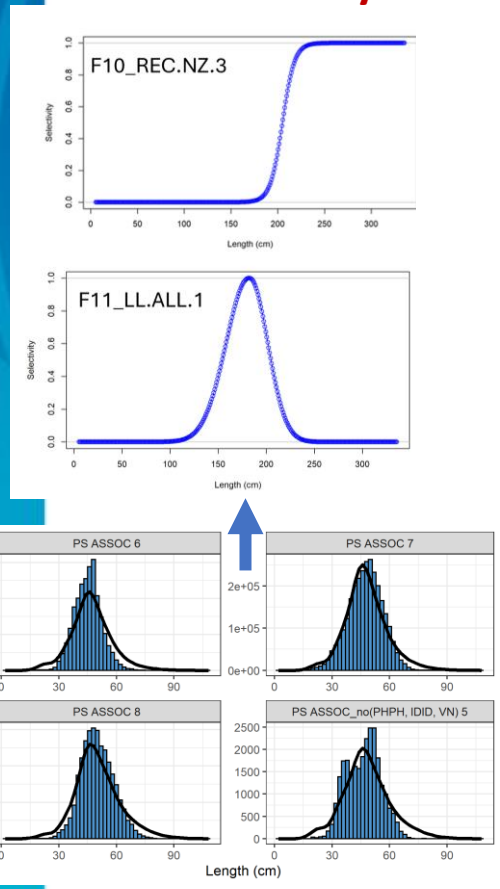
SCIENTIFIC COMMITTEE
TWENTY-FIRST REGULAR SESSION
Nuku'alofa, Tonga
13–21 August 2025

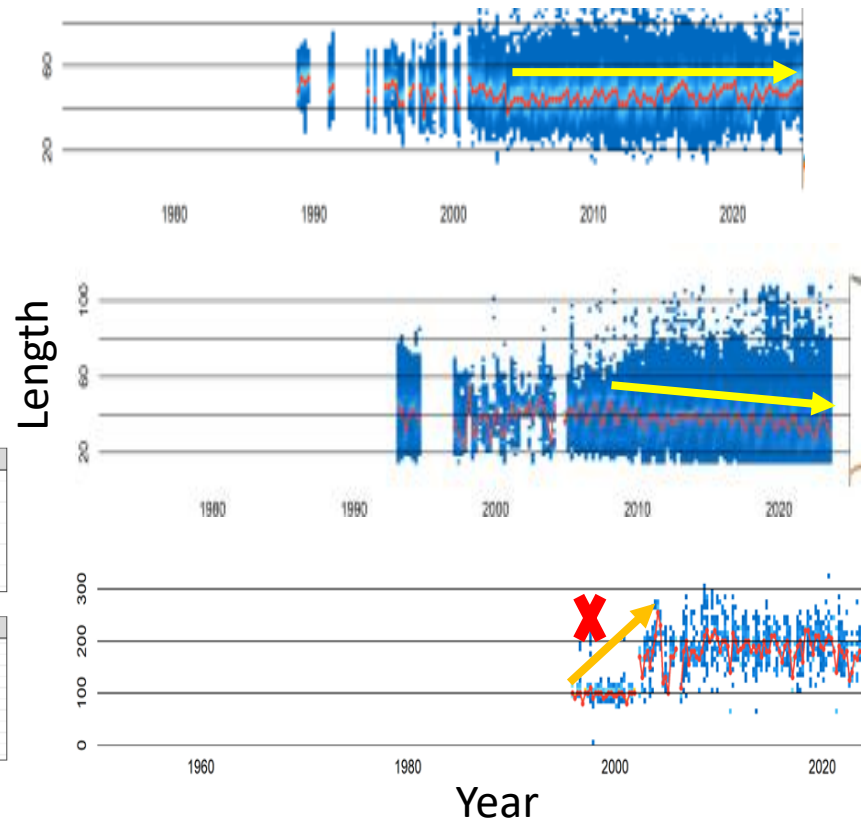
Background

Size composition data is an important data component for integrated stock assessments

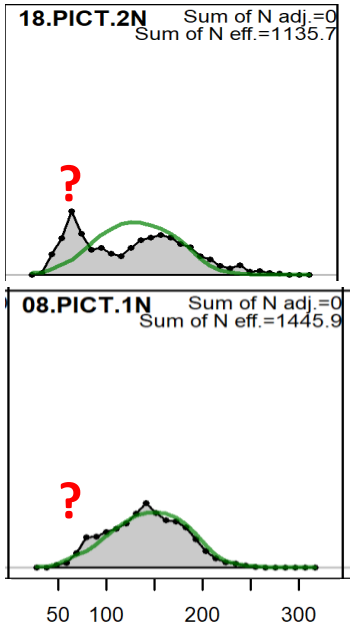
Selectivity



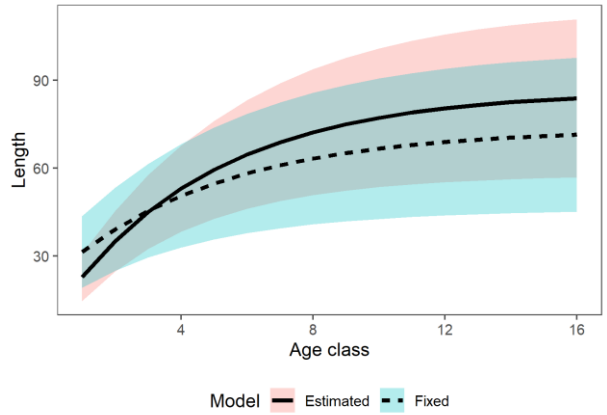
Population trends/fishing mortality



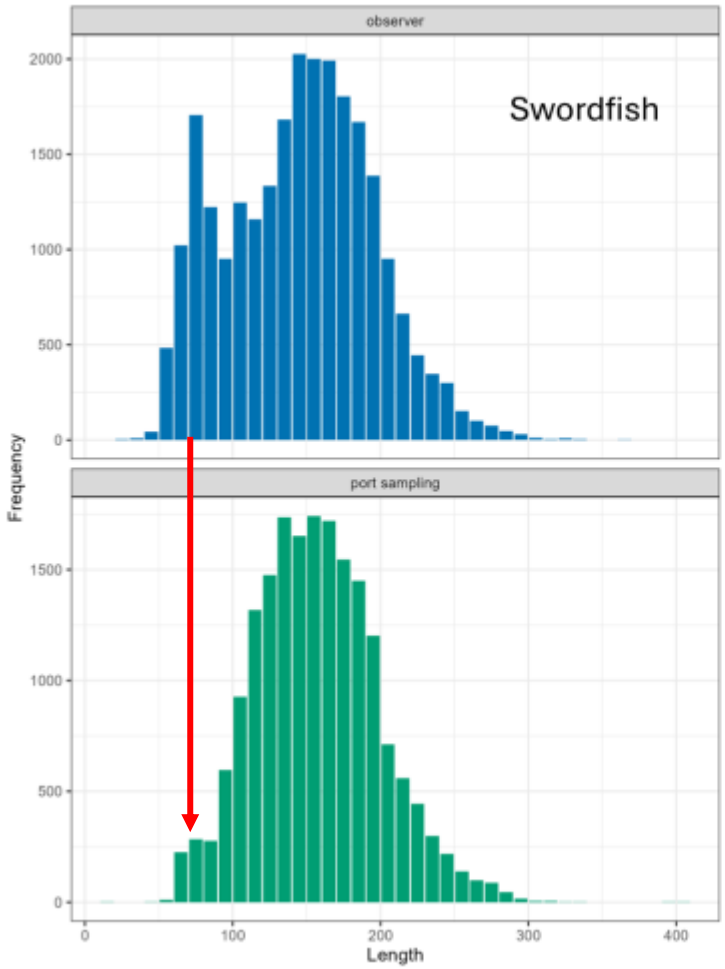
Recruitment

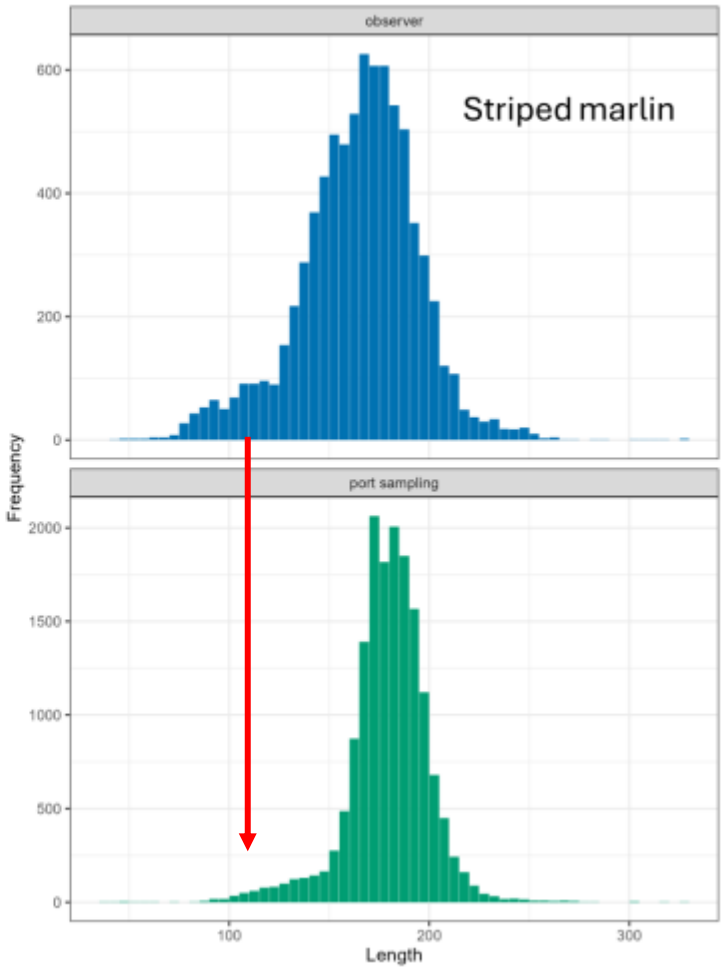


Growth



Sampling program biases





Observer Sampling

Port Sampling

- Using **low quality/non-representative size data, can contaminate the assessment** and potentially impact management advice.

- **Stock assessment scientists would benefit from centralised information on size data origins and sampling methods (historical and current)** to make informed judgements on data quality for inclusion in stock assessments.

- **Stock assessment scientists** are **time poor,** but they **do need to get closer to the size composition data.**

Project 127 - 2 years

OBJECTIVES (as per original TOR)

1. Review the procedures used to collect and process size data for use in WCPFC stock assessments **(phase 1)**

2. Review the historical approaches and changes in the collection of size composition data for tuna assessments and provide a summary guide on size data collection for stock assessment scientists **(phase 1 and 2)**

3. Identify any critical inadequacies in the current size data sampling or areas where oversampling might be occurring **(phase 2 work)**

4. Provide options for improving the provision and consistency of size composition data for application in stock assessments **(mostly phase 2)**

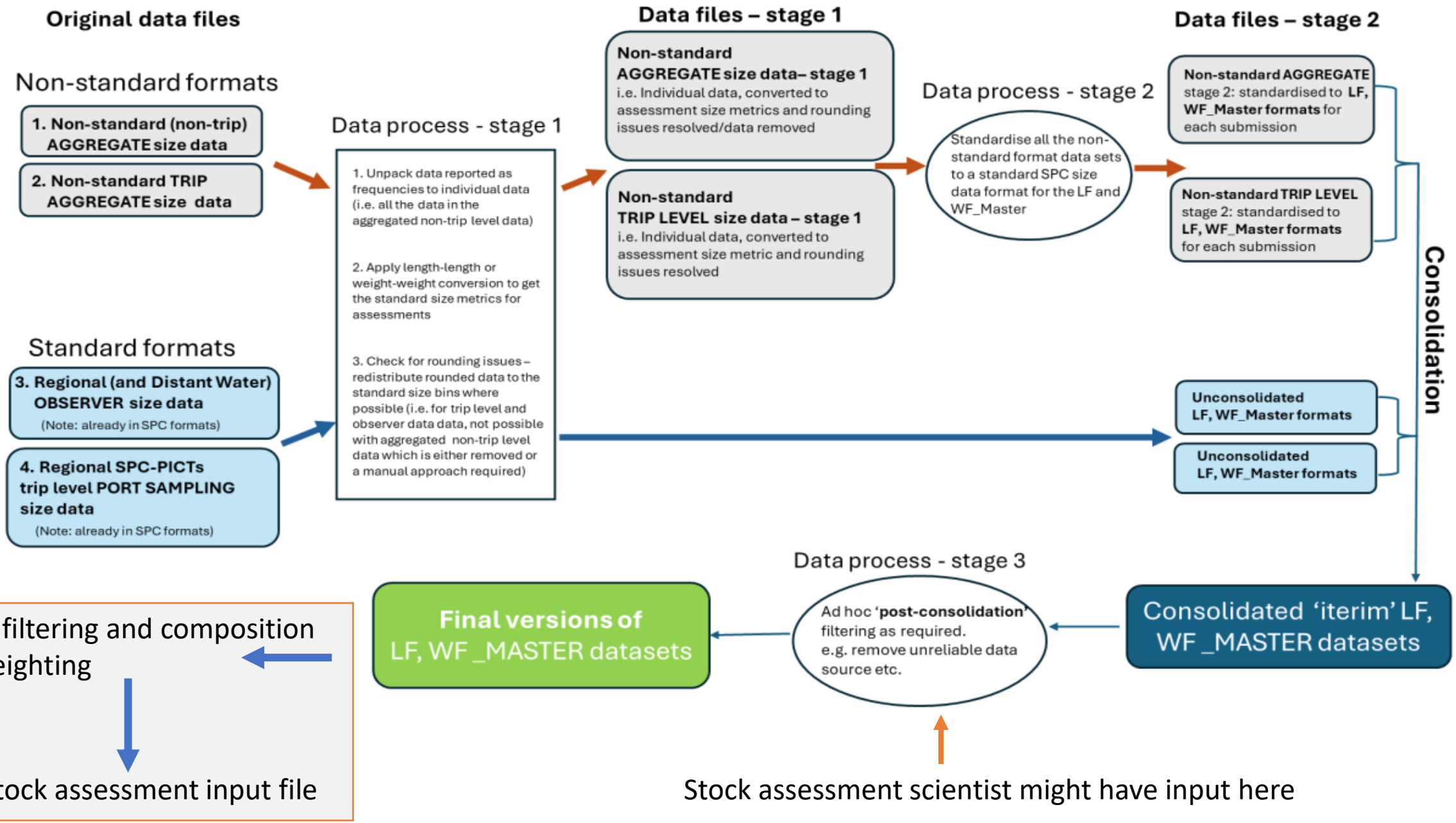
Raised as a need in the 'Tuna Assessment Research Plan'

Project 127: phase 1

Phase 1 work: January to August 2025

- **What - reconciliation phase:** document and describe all the size data sources, **tables 6-22 (tuna, billfish and shark) approx. 80 different data sources ! (table 2)**
- **How:** size measurement methods AND conversion factors review
- **How:** SPC process for generating the **LF_Master** and **WF_Master** databases
  - These databases consolidate all the size data sources into master data bases,
  - Size data inputs for stock assessment are extracted from these master data bases – **but recognised a disconnect between generation of the data sets (by SPC Data Team) and the stock assessment scientists.**
- **Improving information/documentation:** WCPFC scientific data requirements, **no consolidated documentation or standard reporting information provided with size data submissions** – can this be improved?

Figure 2 Schematic describing the process for generating the consolidated LF and WF_MASTER datasets. **See Appendix 1 and 2** for details on LF and WF_Master data structures and data fields.



Recommendations: phase 1

- **Stock assessment scientist need to be more aware of the sources of size data** and the LF/WF_Master data generation: SPC internal improvements/inductions required, **Project 127 can facilitate this.**
- **Size data provision to WCPFC/SPC (Sci Data requirements): develop a standard reporting template to accompany size data?**

> **'statistical and sampling methods that are used to derive the size composition data shall be reported to the Commission, including reference to whether sampling was at the level of fishing operation or during unloading, details of the protocol used, and the methods and reasons for any adjustments to the size data',** **Page 24 – suggestions made, potential small working group discussion**

- **Conversion factors:** need a longer-term strategy for data collection and review and consider how to reduce the need for 'length to weight' conversions in assessments,

Length is better, length to length conversion is better.

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SCIENTIFIC DATA TO BE PROVIDED TO THE COMMISSION[1]

Russell Dunham

Kai Mikihiko, Japan FRA,

Phase 2 recommendations (September 2025 – July 2026)

- **Work area 1** – Further information on historic data methods and quality, ie. LF, WF_MASTER post-consolidation stage, remove unreliable data in LF/WF_Master generation – **stock assessment scientists need to get more involved in this.**

- **Work area 2 –** Technical review/analysis of current-future size data collection, perhaps focus on tuna first, coverage, representativeness etc.
  - e.g. IOTC review work, statistical analysis, recommendations for refinement (noting weight data is collected for other purposes, this might focus mostly on length data), probably need to be bring in consideration of EM sources as well (length data, by flag/catches/areas).

- **Work area 3** – Post LF and WF_MASTER data preparation for stock assessment models, data weighting, spatio-temporal-flag modelling to moderate biases due to variation in sampling coverage across time, space, flags.

Could be considered in an informal small working group

Notes to SC21

- Need to improve provision of supporting information with size data submissions and development of a standard set of information to be provided (**SC21 could task SPC to work with countries and TCC to develop and implement this through the Sci Data Requirements**).

- **Phase 2 work areas** (as noted previous)

- **Consider whether a ISWG is required at SC21** to discuss phase 2 work priorities, and the suggested list of information to be provided with non-ROP/PICT port sampling size data submissions (page 24) and consider additional resourcing requirements.

- **Request delegations to review tables 6-22** and provide feedback, corrections or additional information to Paul Hamer: paulh@spc.int

Photos of your size data sampling procedures will be greatly appreciated – observers, ports/markets, processors.

Thank you

Acknowledgements – to all CCMs, observers, port samplers, processors, research programs who have provided millions of size data for SPC/WCPCF over 50+ years

Also, CCMs who responded to emails on their size data and provided images

This work is about improvements and refinement, making the best use of what we have, and optimising size data collection, documentation and processing in future – work in progress.



- EXTRAS

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5. Size composition data

Length and/or weight composition data that are **representative of catches by the fisheries** shall be provided to the Commission at the **finest possible resolution of time period and geographic area and at least as fine as periods of quarter and areas of 20° longitude and 10° latitude.**

The length size class intervals are defined as follows:

- Skipjack tuna – 1cm
- Albacore tuna – 1cm
- Yellowfin tuna – ideally 1cm, but not more than 2 cm
- Bigeye tuna – ideally 1cm, but not more than 2 cm
- Billfish – ideally 1cm, but not more than 5 cm

The weight size class intervals are defined as follows:

- Tuna and Billfish species - 1kg

CCMs shall indicate **whether lengths and/or weights are rounded up or rounded down** to the unit specified.

The **statistical and sampling methods that are used to derive the size composition data shall be reported to the Commission, including reference to whether sampling was at the level of fishing operation or during unloading, details of the protocol used, and the methods and reasons for any adjustments to the size data.** Where feasible, this shall also be applied to all historical data.

Information on operational changes in the fishery that are not an attribute in the data provided is to be listed and reported with the data provision.