SPRFMO
South Pacific Regional Fisheries Management Organisation

13th MEETING OF THE SCIENTIFIC COMMITTEE

8 to 13 September 2025, Wellington, New Zealand

SC13 - ECO 01
Report of the Species Distribution Metadata Task Team

SDMTT

SPRFMO
South Pacific Regional Fisheries Management Organisation

SPECIES DISTRIBUTION METADATA TASK TEAM REPORT TO THE SCIENTIFIC COMMITTEE

by

Criscely Luján (IMARPE) & the Species Distribution Metadata Task Team

2025

SUMMARY

The Species Distribution Metadata Task Team (SDMTT) was established to support future species distribution modelling initiatives within the Ecosystem Working Group and the Scientific Committee. The task team held a total of three meetings and implemented a data inventory. This document outlines the main findings of this work, as well as a work plan for related activities and tasks. Further steps are recommended to enhance the collection of species information, improve the spatial and temporal coverage of data, and increase the availability of information. Additionally, we suggest collaboration between the Data Working Group and the Ecosystem Working Group to develop protocols that facilitate access to existing data.

TABLE OF CONTENT

1. INTRODUCTION

This report provides information about the activities of the Species Distribution Metadata Task Team (SDMTT). This task team was established to support future species distribution modelling (SDM) initiatives within the Ecosystem Working Group (EWG) and the Scientific Committee (SC). In this context, SDMs are essential for climate change assessments, conservation planning and ecological analysis (Blair et al., 2022), as well as for being important inputs for the building of marine ecosystem models. Ecosystem models are key tools for informing ecosystem-based fisheries management (EBFM). However, in the context of the SPRFMO, despite the efforts to support ecosystem-based approaches, there is still insufficient data and further efforts are required (Second SPRFMO Performance Review). For this, the work of the SDMTT and the EWG could contribute significantly to addressing these gaps.

The SDMTT was created during the first intersectional session of the EWG. The task team‘s main objective was to compile and assess the availability of species distribution metadata to support SDMs. By identifying gaps and inconsistencies, the SDMTT will also aim to facilitate the standardisation and integration of species distribution data within the SC, as well as, informing the planning of future activities.

The terms of reference (ToR) of the SDMTT are as follows:

1. Assess existing species distribution metadata across SPRFMO Members, identifying variations in data storage, spatial resolution, data sources, and biological attributes (e.g., life stage, sex, size class).

2. Develop a metadata inventory cataloguing available species distribution data, with emphasis on key attributes and existing gaps.

3. Propose guidelines for metadata standardisation to enhance data accessibility and usability for habitat modelling and related analyses.

2. SDMTT MEETINGS

Three SDMTT meetings were held. These were part of the EWG meetings and all of them took place virtually. A brief explanation of the points reached at each meeting can be found below.

2.1 SDMTT first general meeting

This took place on 11 April 2025. The ecosystem group proposed the creation of the SDMTT. The ToR for the task team were proposed, and the EWG participants expressed their interest in joining the initiative. A nomination for the coordination of the SDMTT (by the Peruvian delegation) was also accepted. Further information on this meeting can be found in the SC letter (SPRFMO Letter G64-2025, Annex 2).

2.2 SDMTT second general meeting

This took place on 26 June 2025. The SDMTT presented a survey entitled "Survey about species distribution metadata in the South Pacific Ocean", created as part of the intersessional work of the task team. The survey aimed to collect information to facilitate the standardisation and integration of species distribution data within the work of the SC, with primary focus on jack mackerel (*Trachurus murphyi*) and jumbo squid (*Dosidicus gigas*), and considering the area under the scope of the SPRFMO convention area and water under national jurisdiction in the case of coastal states. The content of the survey, which mainly collects information on the access to and coverage (in terms of time and space) of data, as well as biological and fisheries attributes, was explained at this meeting. The survey was created in English (see Annex 1) but also in Spanish (see Annex 2), to facilitate information exchange among non-English-speaking contributors.

2.3. SDMTT third general meeting

This took place on 31 July 2025. The SDMTT presented the progress made in compiling the metadata inventory on species distribution, based on the preliminary survey findings. This will be further explained in the next section.

3. SURVEY OUTCOMES

The SDMTT survey was distributed to the SPRFMO community and others involved in data collection who were familiar with the survey's purpose. Participants were required to complete the survey for each species and dataset. Responding to the survey did not imply any future commitment to sharing data.

A total of 20 responses to the requested survey were received, which included input from six SPRFMO delegations: Chile, China, Chinese Taipei, Ecuador, the European Union, and Peru. While most responses focused on two primary species (jack mackerel and jumbo squid), answers were also provided regarding other species, such as toothfish, chub

mackerel and mesopelagics. The main findings of the SDMTT survey are summarized below (Table 1).

Table 1. Main findings of the SDMTT survey

Item	Jack mackerel (JM)	Jumbo squid (JS)	Other species
Species	50% of the survey's answers were related to JM.	35% of the survey's answers were related to JS.	15% of the survey's answers were related to other species such as toothfish, chub mackerel and mesopelagics.
Data source	Fishing operations, fishing and scientific monitoring.	Mainly fishing monitoring, but scientific monitoring and fishing operations are also included.	The source is diverse and includes vessel monitoring system (VMS), fishing operations and scientific monitoring.
Access to information	Most reported data across species is private (55%), while public data accounts for 30%. The remaining 15% did not specify whether the data was public or private.		
Temporal coverage	The earliest time series began in 1980, with data recorded until 2025. Data collection continues for all reported time series.	The earliest time series began in 1990, with data recorded until 2025. Only four time series still have ongoing data collection.	Toothfish information is available for 2024–2025, while chub mackerel has a time series from 2007 to 2025 with ongoing updates.
Temporal resolution	Diverse temporal resolutions: daily, monthly, weekly and annual.	Diverse temporal resolutions: daily, monthly, and annual.	Not specified.

Location	Data for JM, JS and toothfish were reported in various locations, including: national jurisdictional waters, the exclusive economic zone, and the area under the scope of the SPRFMO convention. Data on chub mackerel were reported in the national jurisdictional waters and in areas under the scope of the SPRFMO convention.		
Spatial coverage	Figure 1 (below this table) shows the area covered by the reported datasets.	The spatial coverage was not defined for all datasets. See Figure 2 (below this table) which illustrates the spatial coverage of the reported datasets.	Not specified.
Spatial resolution	All data sets use exact geolocation (including latitude and longitude variables).	The majority of data sets use exact geolocation, but two of them use approximate geolocation instead.	The same as for JM.
Biological attributes in the data	Most datasets include information on at least sex, size, and weight. The collection of otoliths, gonads, and stomach contents is also common. Three datasets include information about life stages. Half of the data is recorded in total length, and the other half in fork length. In addition	Most datasets include information on at least sex, size and weight. The collection of otoliths, gonads and stomach contents, as well as the life stages, is only reported in two datasets. All datasets report mantle length. Regarding weight, total weight is reported in all cases. Gutted	For toothfish, information on weight and size is reported. For chub mackerel, information such as size (in total length) is reported.

	to total weight, the datasets also include eviscerated weight and weight with gonads.	weight and weight including gonads are only reported in two datasets.	
Reference methods for collection	In a few cases, institutional manuals and protocols for data collection are reported.		Not specified.
Additional metadata	Variables such as catches, landings, fishing gear, fleet type, port of landing, and haul data are common to all datasets. In a few cases, the species composition, bycatch and interactions with predators are also reported.	The catch, fishing gear and fleet type are reported in all datasets. The port of landing and haul data are reported in some datasets only.	Information on toothfish and chub mackerel catches, landings, fishing gear, fleet type and port of landing is reported.
Environmental conditions	Only three of the datasets contain records of on-site environmental information.	Only two of the datasets contain records of on-site environmental information.	Not specified.
Availability to be contact	Nearly all (95%) of the survey participants agreed to be contacted for further details on the reported data sets.		

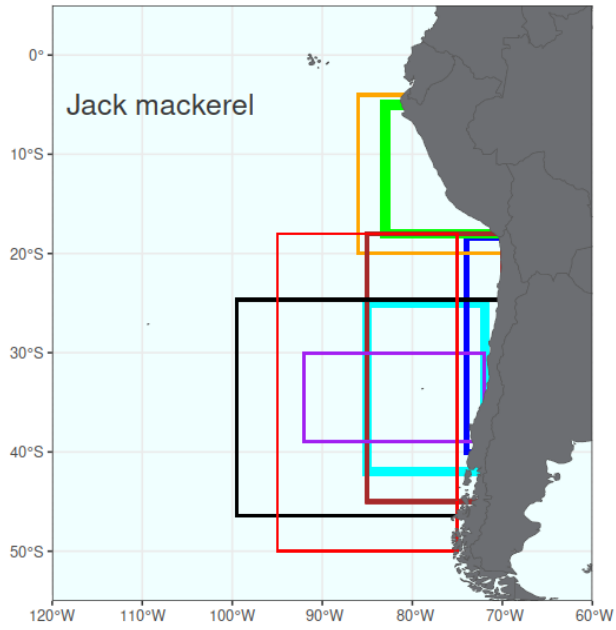

Figure 1. Spatial coverage of jack mackerel datasets. The boundary of the geographical area of each dataset is represented by coloured grids.

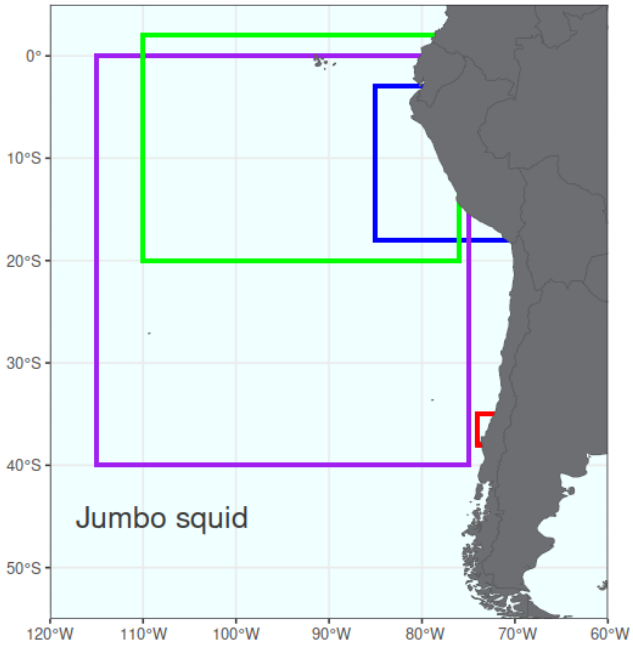

Figure 2. Spatial coverage of jumbo squid datasets. The boundary of the geographical area of each dataset is represented by coloured grids.

4. SDMTT WORKPLAN

Table 2. Proposed SDMTT workplan

Suggested leader	Deadline	Activity	Task
SDMTT	2025	Coordinate the participation of SPRFMO delegations and key agents who wish to support the initiative and contribute to the data inventory.	Ensure that all new information is included in the SDMTT data inventory.
SDMTT in collaboration with EWG and DWG	2025+	Coordinate the organisation of an online workshop to discuss the main findings of the SDMTT data inventory.	Propose the terms of reference and a tentative agenda for the proposed workshop.
EWG and DWG	2025+	Identify ways to improve the availability of data for constructing SDMs and support the development of ecosystem models.	Develop protocols for sharing data in the SPRFMO context. Prioritise research to improve species distribution modelling according to available data. Foster synergies with the activities of the Climate Change Task Team (CCTT) (see SC13-CC01).

5. RECOMMENDATIONS

- We recommend collaborating in order to enhance the collection of species information, improve the spatial and temporal coverage of data, and increase the availability of data. Our findings indicate that most data is currently private rather than public.

- We recommend collaboration between the Data Working Group (DWG) and the Ecosystem Working Group (EWG) to develop protocols that facilitate the availability of existing data. This collaboration would not only provide access to important information but also promote transparency and openness in data sharing within the framework of the SPRFMO Scientific Committee, as well as among the DWG and EWG.

6. REFERENCES

1. Blair, M., Mihn, L., M. Xu. 2022. Species distribution modelling to inform transboundary species conservation and management under climate change: promise and pitfalls. Frontiers of Biogeography 2022, 14.1, e54662.

2. Report of the Climate Change Task Team, SC13-CC 01. 2025. Jorge Tam and the Climate Change Task Team. Wellington, New Zealand. https://www.sprfmo.int/assets/Meetings/02-SC/13th-SC-2025/Climate-Change/SC13-CC01-Report-of-the-Climate-Change-Task-Team.pdf

3. Second SPRFMO Performance Review: Panel Report and Recommendation. 2025. Kerrie Robertson, Karin Mundnich, Stan Crothers, Josh Mitchell. https://www.sprfmo.int/assets/Meetings/01-COMM/13th-Commission-2025/Reports/SPRFMO-Second-Performance-Review-1.-Main-Report.pdf

4. SPRFMO Letter G64-2025. SPRFMO SC Invitation to the Ecosystems Working Group Session 2. Wellington, New Zealand.

7. ANNEXES

Annex 1: SDM survey in English

Annex 2: SDM survey in Spanish

8. ACKNOWLEDGEMENTS

I appreciate the contributions and feedback of Sebastián Vásquez and Ricardo Oliveros on this task team's work.