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Global Standard for Responsible Supply of Marine Ingredients

Fishery Assessment Methodology and Template Report V2.0

Fishery Under Assessment	**Skipjack tuna *Katsuwonus pelamis* FAO 61, 71**
Date	**April 2019**
Assessor	**Jim Daly**

Application details and summary of the assessment outcome				
Name: Sarval				
Address:				
Country: Spain		**Zip:**		
Tel. No.:		**Fax. No.:**		
Email address:		**Applicant Code**		
Key Contact:		**Title:**		
Certification Body Details				
Name of Certification Body:		**SAI Global Ltd**		
Assessor Name	**Peer Reviewer**	**Assessment Days**	**Initial/Surveillance/Re-approval**	**Whole fish/ By-product**
Jim Daly	Vito Romito	0.5	Surveillance 1	By-product
Assessment Period	2018			

Scope Details	
Management Authority (Country/State)	North-western and Central Pacific Fisheries Commission (WCPFC, NPFC)
Main Species	Skipjack tuna *Katsuwonus pelamis*
Fishery Location	FAO 61, 71 Pacific, North-western, Central
Gear Type(s)	Longline, purse seine, pole and line
Outcome of Assessment	
Overall Outcome	Pass
Clauses Failed	None
Peer Review Evaluation	Approve
Recommendation	Pass

Assessment Determination

The North-Western and Central Pacific Ocean (WCP) stock of skipjack tuna are managed by the Western and Central Pacific Fisheries Commission (WCPFC) with scientific advice and management recommendations made by its Scientific Committee (SC) and stock assessments undertaken by the Oceanic Fisheries Programme of the Pacific Community (SPC). There are several management measures specific to skipjack tuna purse seine fisheries currently in place.

The Parties to the Nauru Agreement (PNA) Western and Central Pacific skipjack and yellowfin tuna purse seine fishery for selected gear types continues to be certified under the MSC Fisheries Standard (v 2.0).

Skipjack tuna are difficult to assess because of their high and variable productivity. Timely submissions and data accuracy from some member countries is a problem which mainly contributes to the significant uncertainties in the stock assessment results. The impact of fish aggregating device (FAD) purse seine fishing on ecologically important species, continues to be an issue. The WCPFC has yet to formally adopt management measures that require the use of non-entanglement FAD designs.

At the Fourteenth meeting of WCPFC's Scientific Committee (SC14 2018) it was noted that that no stock assessment had been conducted since SC12 (2016). Advice from SC12 should be maintained to achieve objectives set in the Management Plan pending new assessments or other new information. At the time (2016 assessment) it was noted that spawning biomass was around the adopted Target Reference Point (TRP). A recommendation was made that the Commission take action to keep spawning biomass near the TRP. The Scientific Committee (2016) also advocated the adoption of harvest control rules based on information provided at the time.

No evidence (SC14) was presented that harvest control rules have been introduced for this species in the assessment area. Research recommendations proposed (SC14) included a proposal for an alternative regional structure to be considered in the next skipjack stock assessment; SC 14 also supports an ongoing tagging program to ensure a reliable indicator of abundance for the next stock assessment.

The stock (WCP) is subject to a species-specific management regime and was assessed under clause C. As fishery removals of WCP skipjack tuna are included in the stock assessment process and the stock is considered, in its most recent assessment, to have a biomass above its limit reference point it passes clause C.

The comparative lack of scientific information on the status of the population in the assessment area (FAO 61) means that a risk-assessment style approach must be taken. The fishery was assessed using the risk-based Productivity, Susceptibility Analysis (PSA) as per IFFO-RS v 2.0 procedures for Category D species. The species has passed this risk-based assessment (**Table D1**).

Skipjack tuna is categorised as of least concern on IUCN's Red List of Threatened Species and is not listed on CITES appendices of endangered species (accessed 24.04.19).

Skipjack tuna in the WCPFC (FAO 71) and North Pacific (FAO 61) are recommended for approval as by-product under the IFFO RS Byproduct Standard v 2.0

Peer Review Comments

Two FAO Areas have been reviewed in this report.

Western, Central Pacific: (WCP FAO 71)

WCP skipjack tuna are managed by the Western and Central Pacific Fisheries Commission (WCPFC)

WCP skipjack stock assessment is undertaken by the Oceanic Fisheries Programme part of the Fisheries, Aquaculture and Marine Ecosystems (FAME) Division of the Pacific Community (SPC). The stock is assessed using a Multifan-CL model.

Catch data is included in the assessment. Clause C1.2 is met.

Biological reference points are defined for the stock. The latest stock assessment was undertaken in 2016. SC14 noted that under recent fishery conditions (2017 catch level for LL and other fisheries and effort level for purse seine), the skipjack stock was initially projected to decrease for a short period as recent relatively high recruitments move out of the stock. Median F2019/FMSY = 0.47; median SB2019/SBF=0 = 0.45; median SB2019/SBMSY = 1.67. In the longer term, assuming long term average recruitment, modest increases in the stock were projected.

The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy) and passes Clause C1.2.

North Pacific: FAO 61

Because of the comparative lack of scientific information on the status of the population in the assessment area (FAO 61) the fishery was assessed using the risk-based Productivity, Susceptibility Analysis (PSA) as per IFFO-RS v 2.0 procedures for Category D species. The species passed the Category D PSA.

The Peer Reviewer agrees that Skipjack tuna in the WCPFC (FAO 71) and North Pacific (FAO 61) should be recommended for approval as by-product under the IFFO RS Byproduct Standard v 2.0.

Notes for On-site Auditor

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A			A1	
			A2	
			A3	
			A4	
Category B				
Category C	Skipjack tuna *Katsuwonus pelamis*	N/A	**Pass**	
Category D	Skipjack tuna *Katsuwonus pelamis*	N/A	**Pass**	

[List all Category A and B species. List approximate total %age of landings which are Category C and D species; these do not need to be individually named here]

HOW TO COMPLETE THIS ASSESSMENT REPORT

This assessment template uses a modular approach to assessing fisheries against the IFFO RS standard.

Whole Fish

The process for completing the template for a **whole fish** assessment is as follows:

1. ALL ASSESSMENTS: Complete the Species Characterisation table, to determine which categories of species are present in the fishery.
2. ALL ASSESSMENTS: Complete clauses M1, M2, M3: Management.
3. IF THERE ARE CATEGORY A SPECIES IN THE FISHERY: Complete clauses A1, A2, A3, A4 for **each** Category A species.

4. IF THERE ARE CATEGORY B SPECIES IN THE FISHERY: Complete the Section B risk assessment for **each** Category B species.
5. IF THERE ARE CATEGORY C SPECIES IN THE FISHERY: Complete clause C1 for **each** Category C species.
6. IF THERE ARE CATEGORY D SPECIES IN THE FISHERY: Complete Section D.
7. ALL ASSESSMENTS: Complete clauses F1, F2, F3: Further Impacts.

A fishery must score a pass in **all applicable clauses** before approval may be recommended. To achieve a pass in a clause, the fishery/species must meet **all** of the minimum requirements.

By-products

The process for completing the template for **by-product raw material** is as follows:

1. ALL ASSESSMENTS: Complete the Species Characterisation table with the names of the by-product species and stocks under assessment. The '% landings' column can be left empty; all by-products are considered as Category C and D.
2. IF THERE ARE CATEGORY C BYPRODUCTS UNDER ASSESSMENT: Complete clause C1 for **each** Category C by-product.
3. IF THERE ARE CATEGORY D BYPRODUCTS UNDER ASSESSMENT: Complete Section D.
4. ALL OTHER SECTIONS CAN BE DELETED. Clauses M1 - M3, F1 - F3, and Sections A and B do not need to be completed for a by-product assessment.

By-product approval is awarded on a species-by-species basis. Each by-product species scoring a pass under the appropriate section may be approved against the IFFO RS Standard.

SPECIES CATEGORISATION

The following table should be completed as fully as the available information permits. Any species representing more than 0.1% of the annual catch should be listed, along with an estimate of the proportion of the catch each species represents. The species should then be divided into Type 1 and Type 2 as follows:

- **Type 1 Species** can be considered the 'target' or 'main' species in the fishery. They make up the bulk of annual landings and are subjected to a detailed assessment.
- **Type 2 Species** can be considered the 'bycatch' or 'minor' species in the fishery. They make up a small proportion of the annual landings and are subjected to relatively high-level assessment.

Type 1 Species must represent 95% of the total annual catch. Type 2 Species may represent a maximum of 5% of the annual catch (see Appendix B).

Species which make up less than 0.1% of landings do not need to be listed (NOTE: ETP species are considered separately). The table should be extended if more space is needed. Discarded species should be included when known.

The 'stock' column should be used to differentiate when there are multiple biological or management stocks of one species captured by the fishery. The 'management' column should be used to indicate whether there is an adequate management regime specifically aimed at the individual species/stock. In some cases it will be immediately clear whether there is a species-specific management regime in place (for example, if there is an annual TAC). In less clear circumstances, the rule of thumb should be that if the species meets the minimum requirements of clauses A1-A4, an adequate species-specific management regime is in place.

NOTE: If any species is categorised as Endangered or Critically Endangered on the IUCN Red List, or if it appears in the CITES appendices, it **cannot** be approved for use as an IFFO RS raw material. This applied to whole fish as well as by-products.

TYPE 1 SPECIES (Representing 95% of the catch or more)
Category A: Species-specific management regime in place.
Category B: No species-specific management regime in place.

TYPE 2 SPECIES (Representing 5% OF THE CATCH OR LESS)
Category C: Species-specific management regime in place.
Category D: No species-specific management regime in place.

Common name	Latin name	Stock	% of landings	Management	Category
Skipjack tuna	*Katsuwomus pelamis*	WCP	N/A	WCPFC, NPFC	C,D

CATEGORY C SPECIES

In a whole fish assessment, Category C species are those which make up less than 5% of landings, but which are subject to a species-specific management regime. In most cases this will be because they are a commercial target in a fishery other than the one under assessment. In a by-product assessment, Category C species are those which are subject to a species-specific management regime, and are usually targeted species in fisheries for human consumption.

Clause C1 should be completed for **each** Category C species. If there are no Category C species in the fishery under assessment, this section can be deleted. A Category C species does not meet the minimum requirements of clause C1 should be re-assessed as a Category D species.

Species Name		**Skipjack tuna *Katsuwomus pelamis***	
C1	**Category C Stock Status - Minimum Requirements**		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	Pass
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	Pass
		Clause outcome:	**Pass**

Evidence

C1.1

Western, Central Pacific: (WCP FAO 71)

WCP skipjack tuna are managed by the Western and Central Pacific Fisheries Commission (WCPFC) (**Figure 1**) established by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean.

The Commission supports three subsidiary bodies; the Scientific Committee, Technical and Compliance Committee, and the Northern Committee, that each meet once during each year. A framework for the participation of fishing entities in the Commission which legally binds fishing entities to the provisions of the Convention has been published.

WCP skipjack stock assessment is undertaken by the Oceanic Fisheries Programme part of the Fisheries, Aquaculture and Marine Ecosystems (FAME) Division of the Pacific Community (SPC). The stock is assessed using a Multifan-CL model. Catch data is included in the assessment. Biological reference points are defined for the stock. The latest stock assessment was undertaken in 2016.

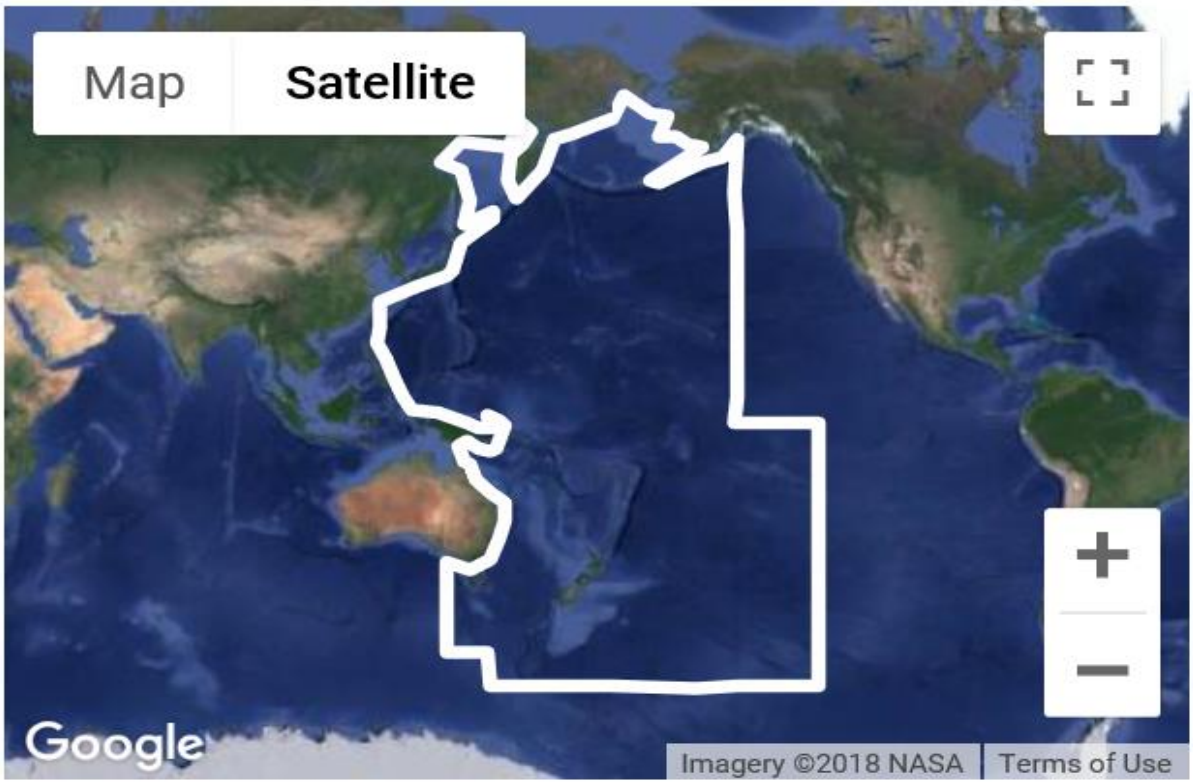

Figure 1: Western and Central Pacific Ocean (WCPF Convention Area) **R1**

Purse seine catch in 2017 (1,280,311t) was a 7% decrease from 2016 and a 12% decrease from the 2012-2016 average. Pole and line catch (123,132t) was a 21% decrease from 2016 and a 23% decrease from the average 2012-2016 catch. Catch by other gear (218,175t) was a 13% decrease from 2016 and 1% decrease from the average catch in 2012-2016. Data from the 2018 fishery has not yet been made available.

Fishery removals of WCP skipjack tuna are included in the stock assessment process. The species passes Clause C 1.1.

C 1.2:

SC14 noted that under recent fishery conditions (2017 catch level for LL and other fisheries and effort level for purse seine), the skipjack stock was initially projected to decrease for a short period as recent relatively high recruitments move out of the stock. Median F2019/FMSY = 0.47; median SB2019/SBF=0 = 0.45; median SB2019/SBMSY = 1.67. In the longer term, assuming long term average recruitment, modest increases in the stock were projected:

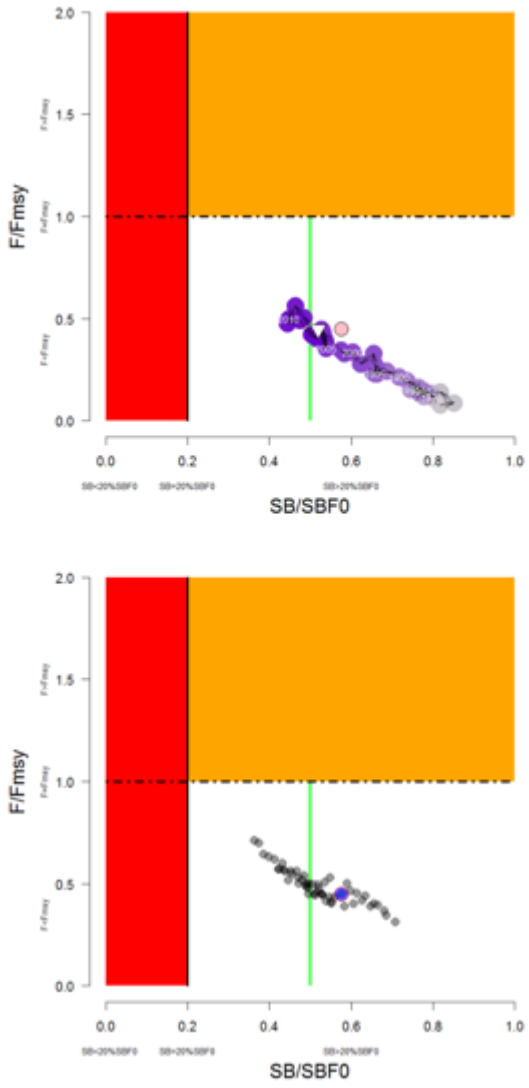

Figure 1: Temporal trend for the reference case model (top) and the structural uncertainty grid (bottom panel) in stock status relative to SBF=0 (x-axis) and FMSY (y-axis). The red zone represents spawning potential levels lower than the agreed LRP, which is marked with the solid black line (0.2SBF=0). The orange region is for fishing mortality greater than FMSY (F=FMSY; marked with the black dashed line). The green line indicates the interim target reference point 50%SBF=0. Source **R2**

The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy) and passes Clause C1.2.

C1.1, C1.2: North Pacific: FAO 61

In its first two years (Secretariat established in 2015) the North Pacific Fisheries Commission (NPFC) established a Scientific Committee and conducted two full sets of meetings of the Small Scientific Committees for: Vulnerable Marine Ecosystems, North Pacific Armorhead and Pacific saury.

In addition to two Scientific Committee Meetings a series of two preliminary stock assessment meetings (including Chub mackerel) have been undertaken.

In the North-Western Pacific Pacific saury (*Cololabis saira*) is harvested by China, Japan, Korea, Russia, and Chinese Taipei.While Japanese and Russian vessels operate mainly within their EEZs, Chinese, Korean,

and Chinese Taipei vessels operate mainly in the high seas of the North Pacific. Besides Pacific saury, Chub mackerel (*Scomber japonicus*), Spotted mackerel (*Scomber australasicus*), Japanese sardine (*Sardinops melanostictus*), neon flying squid (*Ommastrephes bartramii*), and Japanese flying squid (*Todarodes pacificus*) are important for fisheries within the Convention area and adjacent areas. Skipjack tuna in the Northern Pacific (FAO 61) are currently not targeted commercially. Skipjack tuna is currently not on the list of priority species assessed by the NPFC.

The comparative lack of scientific information on the status of the population in the assessment area (FAO 61) means that a risk-assessment style approach must be taken. The fishery was assessed using the risk-based Productivity, Susceptibility Analysis (PSA) as per IFFO-RS v 2.0 procedures for Category D species.

The species has passed this risk-based assessment (**Table D1**):

D1	**Species Name:**	**Skipjack tuna *Katsuwomus pelamis***	
	Productivity Attribute	**Value**	**Score**
	Average age at maturity (years)	1-2	1
	Average maximum age (years)	12	2
	Fecundity (eggs/spawning)	80,000 +	1
	Average maximum size (cm)	110	2
	Average size at maturity (cm)	40	1
	Reproductive strategy	Broadcast	1
	Mean trophic level	4.4	3
	Average Productivity Score		**1.57**
	Susceptibility Attribute	**Value**	**Score**
	Overlap of adult species range with fishery	No data	-
	Distribution	Global	1
	Habitat	No data	-
	Depth range	0-260m	1
	Selectivity	x 2 mesh size	3
	Post-capture mortality	Short tows	2
	Average Susceptibility Score		**1.75**
	PSA Risk Rating (From Table D3)		**PASS**
	Compliance rating		

References

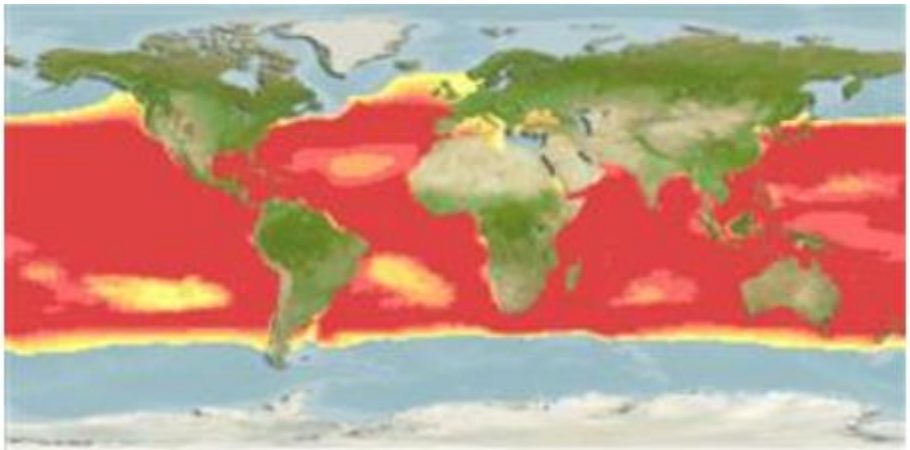

Figure 2 Skipjack tuna: Native range (Yellow) All suitable habitat (Red) Source **R7**

Standard clauses 1.3.2.2

Table D2 - Productivity / Susceptibility attributes and scores.

Productivity attributes	**Low productivity/ High risk**	**Medium productivity/ Medium risk**	**High productivity/ Low risk**
	Score 3	**Score 2**	**Score 1**
Average age at maturity (years)	>4	2 to 4	<2
Average maximum age (years)	>30	10 to 30	<10
Fecundity (eggs/spawning)	<1 000	1 000 to 10 000	>10 000
Average maximum size (cm)	>150	60 to 150	<60
Average size at maturity (cm)	>150	30 to 150	<30
Reproductive strategy	Live bearer, mouth brooder or significant parental investment	Demersal spawner "berried"	Broadcast spawner
Mean trophic level	>3.25	2.5–3.25	<2.5

Susceptibility attributes		**High susceptibility/ High risk**	**Medium susceptibility/ Medium risk**	**Low susceptibility/ Low risk**
		Score 3	**Score 2**	**Score 1**
Availability	1) Overlap of adult species range with fishery	>50% of stock occurs in the area fished	Between 25% and 50% of the stock occurs in the area fished	<25% of stock occurs in the area fished
	2) Distribution	Only in the country/ fishery	Limited range in the region	Throughout region/ global distribution
Encounterability	1) Habitat	Habitat preference of species make it highly likely to encounter trawl gear (e.g. demersal, muddy/sandy bottom)	Habitat preference of species make it moderately likely to encounter trawl gear (e.g. rocky bottom/reefs)	Depth or distribution of species make it unlikely to encounter trawl gear (e.g. epi-pelagic or meso-pelagic)
	2) Depth range	High overlap with trawl fishing gear (20 to 60 m depth)	Medium overlap with trawl fishing gear (10 to 20 m depth)	Low overlap with trawl fishing gear (0 to 10 m, >70 m depth)
Selectivity		Species >2 times mesh size or up to 4 m length	Species 1 to 2 times mesh size or 4 to 5 m length	Species <mesh size or >5 m length
Post capture mortality		Most dead or retained Trawl tow >3 hours	Alive after net hauled Trawl tow 0.5 to 3 hours	Released alive Trawl tow <0.5 hours

Note: Availability 2 is only used when there is no information for Availability 1; the most conservative score between Encounterability 1 and 2 is used.

D3		Average Susceptibility Score		
		1.00 – 1.75	1.76 – 2.24	2.25 – 3.00
Average Productivity Score	1.00 – 1.75	PASS	PASS	PASS
	1.76 – 2.24	PASS	PASS	TABLE D4
	2.25 – 3.00	PASS	TABLE D4	TABLE D4

References

R1 WCPFC, 2018 SC 14 Skipjack Tuna (*Katsuwonas pelamis*) Stock Status & Trends plus Management Advice and Implications: Fourteenth Regular Session of the Scientific Committee. https://www.wcpfc.int/doc/03/skipjack-tuna

R2 WCPFC 2016 SC12-SA-WP-04 Stock assessment of skipjack tuna in the western and central Pacific Ocean. https://www.wcpfc.int/node/27490

R3 SC14-SA-WP-02 A compendium of fisheries indicators for tuna stocks. https://www.wcpfc.int/node/30987

R4 McKechnie, S., Hampton, J., Pilling, G. & Davies, N. (2016). Presentation on: Stock assessment of skipjack tuna in the Western and Central Pacific Ocean. Ocean Fisheries Programme, SPC. https://www.wcpfc.int/system/files/Agenda%204.1.3.1.a.2%20SA-WP-04_SKJ_Assessment_2016.pdf

R5: Public Certification Report (Acoura Ltd) (March 2018) PNA Western and Central Pacific skipjack tuna fishery 443pp pdf

R6: North Pacific Fisheries Commission (NPFC) https://www.npfc.int/

R7: Fishbase Skipjack tuna:
https://www.fishbase.se/Summary/SpeciesSummary.php?ID=107&AT=SKIPJACK

Standard clauses 1.3.2.2