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Global Standard for Responsible Supply
of Marine Ingredients

IFFO RS Limited

T: +44 (0) 2030 539 195
E: Standards@iffors.com
W: www.iffors.com

Unit C, Printworks | 22 Amelia Street
London, SE17 3BZ | United Kingdom



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Global Standard for Responsible Supply of Marine Ingredients Fishery Assessment Methodology and Template Report V2.0



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Fishery Under Assessment	Bigeye Tuna (<i>Thunnus obesus</i>) FAO 34
Date	January 2019
Assessor	V. Polonio

Application details and summary of the assessment outcome				
Name: T.C.Union Agrotech Co. Ltd. IFO151; Golden Prize Canning Co LTD				
Address:				
Country: Thailand		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
V. Polonio	J. Daly	0.5	Surveillance 2	By-product
Assessment Period	2017-2018			

Scope Details	
Management Authority (Country/State)	Thailand
Main Species	Bigeye tuna (<i>Thunnus Obesus</i>)
Fishery Location	FAO Area 34 Atlantic, Eastern Central
Gear Type(s)	Longline, pole and line, purse seine, troll
Outcome of Assessment	
Overall Outcome	PASS (Category D)
Clauses Failed	Category C C1.1 and C1.2
Peer Review Evaluation	PASS Category D
Recommendation	APPROVE

Assessment Determination
<p>A single Atlantic-wide population of bigeye tuna is assumed, based on a lack of identified genetic heterogeneity and the time/area distribution of fish and movement patterns of tagged fish. Many different fleets operate on the same stock. There are legal, administrative and research frameworks in place at the national and international levels, and there is evidence that these are applied specifically to bigeye tuna. However not all Countries fishing bigeye tuna are included in these regulations. There is a multi-year conservation and management program in place through the International Commission for the Conservation of Atlantic Tuna (ICCAT).</p> <p>Tuna agreements allow EU vessels to pursue migrating tuna stocks as they move along the shores of Africa and through the Indian Ocean. The EU currently has tuna agreements with a number of Atlantic Coastal African Countries in the assessment area. In 2018 an EU Quota of 17,668t was allocated to Union vessels fishing for bigeye tuna in the Atlantic Ocean out of a total quota of 57,850t. There is a time/area closure in place for the purse seine fishery in the Atlantic to protect juvenile bigeye tuna.</p> <p>An Atlantic Ocean Tropical Tuna Fishery Improvement Project (FIP) for three global tuna stocks (including bigeye tuna) is in place and incorporates 13 units of certification in the assessment area. Current update on FIP progress is rated as good (B rating). The target end date for the FIP is September 2021. One of the goals of the FIP is to promote the adoption by each Regional Fishery Management Organisation (RFMO) of Harvest Control Rules (HCR's) for stocks of tropical tuna species, including support to the process of Management Strategy Evaluation (MSE) based on best science available. Future assessments should monitor FIP progress in this regard.</p> <p>Bigeye tuna in the Atlantic are overfished and undergoing overfishing. Due to unreported and mis-identified bigeye tuna, there is a large degree of uncertainty surrounding current assessment results. There is no harvest control rule in place and no target or limit reference points. There is a need to monitor individual countries not included in the total allowable catch (TAC) allocation to ensure that catches do not exceed TAC levels. Mandated observer coverage (5%) is low and there are incidental interactions in both the longline and purse seine fisheries with protected, endangered and threatened (ETP) species and sharks.</p> <p>Future stock assessments need to either calculate all removals from the fishery or include estimates of illegal, un-recorded and un-reported (IUU) fishing in stock assessments.</p> <p>The comparative lack of scientific information on the status of the population in the assessment area 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.</p> <p>The species is not categorised as threatened or endangered by the IUCN (Red List); Bigeye tuna is currently not listed on CITES endangered species list (websites accessed 21.01.19).</p>

Peer Review Comments
Agree
Notes for On-site Auditor

Note: This table should be completed for whole fish assessments only.

General Results

General Clause	Outcome (Pass/Fail)
M1 - Management Framework	N/A
M2 - Surveillance, Control and Enforcement	N/A
F1 - Impacts on ETP Species	N/A
F2 - Impacts on Habitats	N/A
F3 - Ecosystem Impacts	N/A

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)
Category A			A1
			A2
			A3
			A4
Category B			
Category C	Bigeeye tuna (<i>T. obesus</i>)	N/A	FAIL C1.1; C1.2
Category D	Bigeeye tuna (<i>T. obesus</i>)	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
Big tuna	<i>Thunnus obesus</i>	FAO 34	N/A	ICCAT	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	Bigeye Tuna (<i>Thunnus obesus</i>)		
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.	No
	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.	No
Clause outcome:			FAIL

Evidence

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.

Fisheries removals are supposed to be included in the stock assessment of the species, however, due to unreported and mis-identified bigeye tuna, there was a large degree of uncertainty surrounding the assessment results. Many countries fish on the same stock and there is a need to monitor individual countries not included in the total allowable catch (TAC) allocation to ensure that catches do not exceed TAC levels. However, that was exceeded in 2016 even though with no consideration of all the catches of the countries fishing Big eye tuna. Mandated observer coverage (5%) is low and therefore it is difficult to monitor all catches.

There is a total allowable catch (TAC) in place, a limit on the number of longline vessels and a time area closure for surface gears in the assessment area. The TAC was lowered to levels (85,000 t) suggested by the scientific committee in 2009 and 2015 (65,000 t, 57,850t in 2018). Total catches have been below TAC levels since 2005. There is a time/area closure in place for the purse seine fishery to protect juvenile bigeye tuna. There is also a multi-year conservation and management program in place managed by ICCAT.

Bigeye tuna in the Atlantic are overfished and are undergoing overfishing. Due to unreported and mis-identified bigeye tuna, there was a large degree of uncertainty surrounding assessment results. It is not possible to determine that removals of the species in the fishery under assessment are included in the stock assessment process. **This clause is therefore failed.**

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.

There is no harvest control rule in place and no target or limit reference point. Therefore it is not possible to determine if the species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), as no target or limit reference points have been defined.

The Atlantic bigeye tuna stock was estimated to be overfished and that overfishing was occurring in the last stock assessment in 2014. The update published by ICCAT in 2017 has shown that projections indicated that

maintaining catch levels at the current TAC of 65,000t was expected to recover the stock status to Convention objectives with 49% probability by 2028.

However, 2016 catches (72,375 t) exceeded the agreed TAC of 65,000 t by 11%. Therefore, if future catches are maintained at the level of 2016, the probability of achieving Convention objectives by 2028 ($B > B_{MSY}$, $F < F_{MSY}$) is expected to decrease to around 38%. Uncertainties in the results have been confirmed due to the lack of information of the whole stock removals as some countries fishing the species do not report catches. Therefore, the situation could be worse than shown in the last assessment. It is not possible to determine if the species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy). **This clause is therefore failed.**

The comparative lack of scientific information on the status of the population in the assessment area means that a risk-assessment style approach must be taken (**Table D1**). **The species passes this assessment.**

References

R1 Atlantic Ocean Tuna FIP <https://fisheryprogress.org/fip-profile/atlantic-ocean-tropical-tuna-purse-seine-opagac>

R2 Fishsource Bigeye tuna Atlantic https://www.fishsource.org/stock_page/708

R3 ICCAT Executive summary of 2017 of the report of the 2015 ICCAT Bigeye tuna stock assessment - https://www.iccat.int/Documents/SCRS/ExecSum/BET_ENG.pdf

R4 Bigeye tuna (Atlantic) https://www.fishsource.org/stock_page/708

R5 IUCN Red List <http://www.iucnredlist.org/details/21859/0>

R6 Fishbase: Bigeye tuna (Atlantic)

<http://www.fishbase.org/Summary/SpeciesSummary.php?ID=146&AT=bigeye+tuna>

Standard clauses 1.3.2

CATEGORY D SPECIES

In a whole fish assessment, Category D species are those which make up less than 5% of landings and are not subject to a species-specific management regime. In the case of mixed trawl fisheries, Category D species may make up the majority of landings. In a by-product assessment, Category D species are those which are not subject to a species-specific management regime. In both cases, the comparative lack of scientific information on the status of the population of the species means that a risk-assessment style approach must be taken.

The process for assessing Category D species involves the use of a Productivity-Susceptibility Analysis (PSA) to further subdivide the species into ‘Critical Risk’, ‘Major Risk’ and ‘Minor Risk’ groups. If there are no Category D species in the fishery under assessment, this section can be deleted.

Productivity and susceptibility ratings are calculated using a process derived from the APFIC document “Regional Guidelines for the Management of Tropical Trawl Fisheries, which in turn was derived from papers by Patrick *et al* (2009) and Hobday *et al* (2007). Table D1 should be completed for each Category D species as follows:

- Firstly, the best available information should be used to fill in values for each productivity and susceptibility attribute.
- Table D2 should be used to convert each attribute value into a score between 1 and 3.
- The average score for productivity attributes and the average for susceptibility attributes should be calculated.
- Table D3 should be used to determine whether the species is required to meet the requirements of Table D4. A species which does not need to meet the requirements of D4 is automatically awarded a pass.
- Table D4 should be used to assess those species indicated by Table D3 to determine a pass/fail rating.
- Any Category D species which has been categorised by the IUCN Red List as Endangered or Critically Endangered, or which appears in the CITES appendices, automatically results in a fail.

D1	Species Name:	Bigeye tuna <i>Thunnus obesus</i>	
	Productivity Attribute	Value	Score
	Average age at maturity (years)	3	2
	Average maximum age (years)	11	2
	Fecundity (eggs/spawning)	2.6 X 10 ⁶ (min)	1
	Average maximum size (cm)	250	3
	Average size at maturity (cm)	100-125	2
	Reproductive strategy	Broadcast	1
	Mean trophic level	4.5	3
	Average Productivity Score		2
	Susceptibility Attribute	Value	Score
	Overlap of adult species range with fishery	No data	
	Distribution	Global	1
	Habitat	Not used	
	Depth range	0-1500m	1
	Selectivity	>2 times mesh	2
	Post-capture mortality	Short tows	2
	Average Susceptibility Score		1.5
	PSA Risk Rating (From Table D3)		PASS
	Compliance rating		
References			
R6 Fishbase: Bigeye tuna (Atlantic) http://www.fishbase.org/Summary/SpeciesSummary.php?ID=146&AT=bigeye+tuna			
<i>Standard clauses 1.3.2.2</i>			

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