



RESPONSIBLE  
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**IFFO RS**  
Global Standard for Responsible Supply  
of Marine Ingredients

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



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|                                 |  |
|---------------------------------|--|
| <b>Fishery Under Assessment</b> | <b>Albacore tuna (<i>Thunnus alalunga</i>)<br/>Thailand FAO areas 41, 47</b> |
| <b>Date</b>                     | <b>July 2019</b>   |
| <b>Assessor</b>                 | <b>Jim Daly</b>  |

|   |                      |                        |   |                               |
|---|----------------------|------------------------|---|-------------------------------|
| <b>Application details and summary of the assessment outcome</b>      |                      |                        |   |                               |
| <b>Name: Southeast Asian Packaging and Canning (SEAPC) and others</b> |                      |                        |   |                               |
| <b>Address:</b>   |                      |                        |   |                               |
| <b>Country: Thailand</b>  |                      | <b>Zip:</b>            |   |                               |
| <b>Tel. No.:</b>  |                      | <b>Fax. No.:</b>       |   |                               |
| <b>Email address:</b>   |                      | <b>Applicant Code</b>  |   |                               |
| <b>Key Contact:</b>   |                      | <b>Title:</b>          |   |                               |
| <b>Certification Body Details</b>                                     |                      |                        |   |                               |
| <b>Name of Certification Body:</b>                                    |                      | SAI Global Ltd         |   |                               |
| <b>Assessor Name</b>  | <b>Peer Reviewer</b> | <b>Assessment Days</b> | <b>Initial/Surveillance/Re-approval</b> | <b>Whole fish/ By-product</b> |
| Jim Daly  | Virginia Polonio     | 0.5                    | SURV 1                                  | By-product                    |
| <b>Assessment Period</b>  | 2018                 |                        |   |                               |

|   |   |
|---|---|
| <b>Scope Details</b>                        |   |
| <b>Management Authority (Country/State)</b> | ICCAT   |
| <b>Main Species</b>                         | Albacore tuna ( <i>Thunnus alalunga</i> )   |
| <b>Fishery Location</b>                     | In the area under certification the species is evaluated as ALB-S stock, subcomponents AL33 and AL34 (FAO 41,47 Central Atlantic) |
| <b>Gear Type(s)</b>                         | Longline, pole and line, purse seine, troll.  |
| <b>Outcome of Assessment</b>                |   |
| <b>Overall Outcome</b>                      | PASS  |
| <b>Clauses Failed</b>                       | NONE  |
| <b>Peer Review Evaluation</b>               | APPROVE   |
| <b>Recommendation</b>                       | PASS  |

| Assessment Determination  |
|---|
| <p>On the basis of the biological information available for assessment purposes, the existence of three stocks is assumed: northern and southern Atlantic stocks (separated at 5°N) and a Mediterranean stock. Only the Atlantic stocks are considered in this assessment.</p> <p>The northern stock is exploited by surface fisheries targeting mainly immature and sub-adult fish (50 cm to 90 cm FL) and longline fisheries targeting immature and adult albacore (60 cm to 130 cm FL). The preliminary total reported catch in 2017 was 28,310 t (above the TAC of 28,000 t), and the catch in the last five years has remained about 27,000 t, above the historical minimum of around 15,000 t recorded in 2009. In 2016 a production model was used to assess stock status. A thorough revision of North Atlantic data was conducted; catch rate analyses were improved and updated with new information for the northern albacore fisheries. Fishery removals of the species in the fishery under assessment are included in the stock assessment process.</p> <p>The probability of the stock currently being in the green area of the Kobe plot (not overfished and not undergoing overfishing, <math>F &lt; F_{MSY}</math> and <math>B &gt; B_{MSY}</math>) is 96.8% while the probability of being in the yellow area (overfished, <math>B &lt; B_{MSY}</math>) is 3.2%. The probability of being in the red area (overfished and undergoing overfishing, <math>F &gt; F_{MSY}</math> and <math>B &lt; B_{MSY}</math>) is 0%. The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy).</p> <p>Recent total annual South Atlantic albacore landings were largely attributed to four fisheries, namely the surface baitboat fleets of South Africa and Namibia, and longline fleets of Brazil and Chinese Taipei. In 2016, a stock assessment of South Atlantic albacore was conducted including catch, effort and size data up until 2014, and considering similar methods as in previous assessments. Fishery removals of the species in the fishery under assessment are included in the stock assessment process.</p> <p>Stock status results varied significantly among scenarios. Two different production model forms were considered, each with four scenarios. One showed more optimistic results than the other. Six of eight scenarios indicated that the stock is not overfished and not undergoing overfishing, and two other scenarios indicated that the stock is overfished but not undergoing overfishing. Considering all scenarios, there is 3% probability for the stock to be both overfished and experiencing overfishing, 31% probability for the stock to be either overfished or experiencing overfishing but not both, and 66% probability that biomass is above and fishing mortality is below the Convention objectives. The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy).</p> <p>Albacore tuna has been listed (Global stock) as a species of least concern (IUCN website accessed 25.07.19). The species is not on the current list of CITES endangered species (CITES website accessed 25.07.19).</p> <p>Albacore tuna from the assessment area is approved by the assessment team for the production of fishmeal and fish oil under the IFFO-RS v 2.0 by-products standard.</p> |
| Peer Review Comments  |
|   |
| Notes for On-site Auditor   |
|   |

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

## Species-Specific Results

| Category   | Species                                   | % landings | Outcome (Pass/Fail) |  |
|------------|---|------------|---------------------|--|
| Category A |   |            | A1                  |  |
|            |   |            | A2                  |  |
|            |   |            | A3                  |  |
|            |   |            | A4                  |  |
| Category B |   |            |                     |  |
| Category C | Albacore tuna ( <i>Thunnus alalunga</i> ) | n/a        | PASS                |  |
| Category D |   |            |                     |  |

[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.

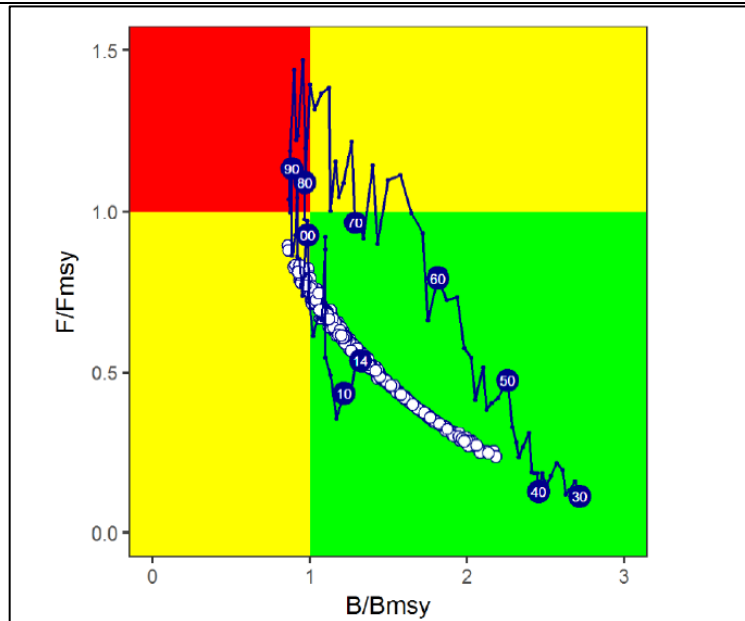
| Common name | Latin name              | Stock | % of landings | Management | Category |
|-------------|-------------------------|-------|---------------|------------|----------|
| Albacore    | <i>Thunnus alalunga</i> | ALB-S | n/a           | ICCAT      | C        |

### **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  |  | Albacore tuna <i>Thunnus alalunga</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.  | 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  |  |  |      |
| C 1.1: North Atlantic Stock:  |  |  |      |
| <p>The northern stock is exploited by surface fisheries targeting mainly immature and sub-adult fish (50 cm to 90 cm FL) and longline fisheries targeting immature and adult albacore (60 cm to 130 cm FL). The main surface fisheries are carried out by EU fleets (Ireland, France, Portugal and Spain) in the Bay of Biscay, in the adjacent waters of the northeast Atlantic and in the vicinity of the Canary and Azores Islands in Summer and autumn. The main longline fleet is the Chinese Taipei fleet which operates in the central and Western North Atlantic year round.</p> <p>Total reported landings, steadily increased since 1930 to peak above 60,000 t in the early 1960s, declining afterwards, largely due to a reduction of fishing effort by the traditional surface (troll and baitboat) and longline fisheries. Some stabilization was observed in the 1990s, mainly due to increased effort and catch by new surface fisheries (driftnet and mid-water pair pelagic trawl), with a maximum catch in 2006 of 36,989 t and, since then, a generally decreasing trend of catch is observed in the North Atlantic.</p> <p>The preliminary total reported catch in 2017 was 28,310 t (above the TAC of 28,000 t), and the catch in the last five years has remained about 27,000 t, above the historical minimum of around 15,000 t recorded in 2009.</p> <p>In the 2013 stock assessment, several model formulations (Multifan-CL, Stock Synthesis, VPA and ASPIC) with varying degrees of complexity were used. In 2016 a production model was used to assess stock status. A thorough revision of North Atlantic data was conducted; catch rate analyses were improved and updated with new information for the northern albacore fisheries.</p> <p>Fishery removals of the species in the fishery under assessment are included in the stock assessment process.</p> |  |  |      |
| C 1.2: North Atlantic Stock:  |  |  |      |
| <p>Relative to MSY benchmarks, the base case scenario estimates that the stock remained slightly overfished with B below BMSY during the 1980s and 1990s, but now has recovered to levels well above BMSY (Figure 1):</p>   |  |  |      |



**Figure 1:** North Atlantic albacore. Joint trajectories of  $B/B_{MSY}$  and  $F/F_{MSY}$  over time (1930-2014) and current stock status according to the Base Case biomass dynamic model. Dots represent the uncertainty on the estimated 2014 stock status. **R1**

The probability of the stock currently being in the green area of the Kobe plot (not overfished and not undergoing overfishing,  $F < F_{MSY}$  and  $B > B_{MSY}$ ) is 96.8% while the probability of being in the yellow area (overfished,  $B < B_{MSY}$ ) is 3.2%. The probability of being in the red area (overfished and undergoing overfishing,  $F > F_{MSY}$  and  $B < B_{MSY}$ ) is 0%. The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy).

In summary, the available information indicates that the stock has improved and is most likely in the green area of the Kobe plot, although the exact condition of the stock is not well determined.

### C 1.1: South Atlantic Stock:

Recent total annual South Atlantic albacore landings were largely attributed to four fisheries, namely the surface baitboat fleets of South Africa and Namibia, and longline fleets of Brazil and Chinese Taipei. Surface fisheries operate seasonally, from October to May, when albacore are available in coastal waters. Brazilian longliners target albacore during the first and fourth quarters of the year, when an important concentration of adult fish (>90 cm) is observed off the northeast coast of Brazil, between 5°S and 20°S.

Total reported landings for 2017 decreased to 13,806 t, among the lowest values in the time series. The Chinese Taipei catch in the last years has decreased due to a decrease in fishing effort targeting albacore. Albacore is normally caught as by-catch in Brazilian tropical tuna-directed longline and baitboat fisheries. The significantly higher average catch of about 4,287 t during the period 2000-2003 was obtained by the Brazilian longline fleet when albacore was targeted.

### C 1.2: South Atlantic Stock

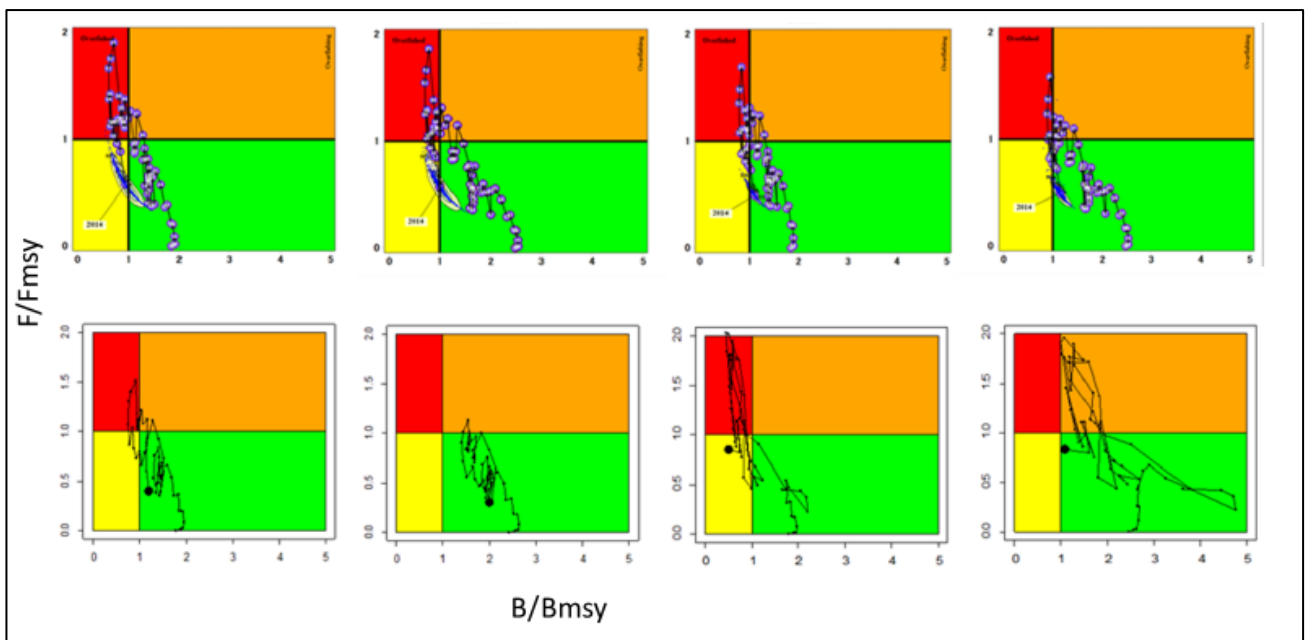
In 2016, a stock assessment of South Atlantic albacore was conducted including catch, effort and size data up until 2014, and considering similar methods as in previous assessments. In the 2016 assessment, the same eight scenarios as in 2013 were considered, but after screening during the assessment meeting, the early Japanese CPUE series was not used to fit the models. Stock status results varied significantly among scenarios. Two different production model forms were considered, each with four scenarios. One showed more optimistic



results than the other. Six of eight scenarios indicated that the stock is not overfished and not undergoing overfishing, and two other scenarios indicated that the stock is overfished but not undergoing overfishing.

Considering the whole range of scenarios, the median MSY value was 25,901 t (ranging between 15,270 t and 31,768 t), the median estimate of current B/BMSY was 1.10 (ranging between 0.51 and 1.80 t) and the median estimate of current F/FMSY was 0.54 (ranging between 0.31 and 0.87).

The wide confidence intervals reflect the large uncertainty around the estimates of stock status. Considering all scenarios, there is 3% probability for the stock to be both overfished and experiencing overfishing, 31% probability for the stock to be either overfished or experiencing overfishing but not both, and 66% probability that biomass is above and fishing mortality is below the Convention objectives **Figure 2**:



**Figure 2:** South Atlantic albacore. Stock status trajectories of B/BMSY and F/FMSY, as well as uncertainty around the current estimate (Kobe plots) for the base case ASPIC models (upper row) alongside those from the base case BSP runs (bottom row). From left to right, boxes indicate the following scenarios: Equal weight, Schaefer; Equal weight, Fox; Catch weight, Schaefer; Catch weight, Fox. **R1**

Albacore tuna has been listed (Global stock) as a species of least concern (IUCN website accessed 25.07.19). The species is not on the current list of CITES endangered species (CITES website accessed 25.07.19).

## References

**R1** ICCAT Report 2018-19: 450pp: [https://www.iccat.int/Documents/BienRep/REP\\_EN\\_18-19\\_I-2.pdf](https://www.iccat.int/Documents/BienRep/REP_EN_18-19_I-2.pdf)

**R2** IUCN Red List: <https://www.iucnredlist.org/>

**R3** CITES List: <http://checklist.cites.org/#/en>

**R4** Fishsource: Albacore Atlantic Stock: [https://www.fishsource.org/stock\\_page/638](https://www.fishsource.org/stock_page/638)

*Standard clauses 1.3.2.2*



## 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.

|                          |   |              |              |
|--------------------------|---|--------------|--------------|
| <b>D1</b>                | <b>Species Name:</b>                        |              |              |
|                          |   |              |              |
|                          | <b>Productivity Attribute</b>               | <b>Value</b> | <b>Score</b> |
|                          | Average age at maturity (years)             |              |              |
|                          | Average maximum age (years)                 |              |              |
|                          | Fecundity (eggs/spawning)                   |              |              |
|                          | Average maximum size (cm)                   |              |              |
|                          | Average size at maturity (cm)               |              |              |
|                          | Reproductive strategy                       |              |              |
|                          | Mean trophic level                          |              |              |
|                          | <b>Average Productivity Score</b>           |              |              |
|                          | <b>Susceptibility Attribute</b>             | <b>Value</b> | <b>Score</b> |
|                          | Overlap of adult species range with fishery |              |              |
|                          | Distribution                                |              |              |
|                          | Habitat                                     |              |              |
|                          | Depth range                                 |              |              |
|                          | Selectivity                                 |              |              |
|                          | Post-capture mortality                      |              |              |
|                          | <b>Average Susceptibility Score</b>         |              |              |
|                          | <b>PSA Risk Rating (From Table D3)</b>      |              |              |
| <b>Compliance rating</b> |   |              |              |
| <b>References</b>        |   |              |              |
| Standard clauses 1.3.2.2 |   |              |              |

Table D2 - Productivity / Susceptibility attributes and scores.

| Productivity attributes         | Low productivity/<br>High risk                                | Medium productivity/<br>Medium risk | High productivity/<br>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/<br>High risk   | Medium susceptibility/<br>Medium risk   | Low susceptibility/<br>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<br>Trawl tow >3 hours   | Alive after net hauled<br>Trawl tow 0.5 to 3 hours  | Released alive<br>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.

| <b>D3</b>                         |                    | <b>Average Susceptibility Score</b> |                    |                    |
|-----------------------------------|--------------------|-------------------------------------|--------------------|--------------------|
|                                   |                    | <b>1.00 – 1.75</b>                  | <b>1.76 – 2.24</b> | <b>2.25 – 3.00</b> |
| <b>Average Productivity Score</b> | <b>1.00 – 1.75</b> | PASS                                | PASS               | PASS               |
|                                   | <b>1.76 – 2.24</b> | PASS                                | PASS               | TABLE D4           |
|                                   | <b>2.25 – 3.00</b> | PASS                                | TABLE D4           | TABLE D4           |

| <b>D4</b>                      | <b>Species Name</b>   |   |                 |
|--------------------------------|---|---|-----------------|
|                                | <b>Impacts On Species Categorised as Vulnerable by D1-D3 - Minimum Requirements</b> |   |                 |
|                                | D4.1  | The potential impacts of the fishery on this species are considered during the management process, and reasonable measures are taken to minimise these impacts. |                 |
|                                | D4.2  | There is no substantial evidence that the fishery has a significant negative impact on the species.   |                 |
|                                |   |   | <b>Outcome:</b> |
| <b>Evidence</b>                |   |   |                 |
| <b>References</b>              |   |   |                 |
| <i>Standard clause 1.3.2.2</i> |   |   |                 |