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Global Standard for Responsible Supply of Marine Ingredients

Fishery Assessment Methodology and Template Report V2.0

Fishery Under Assessment	**Whiting *Merlangius merlangus* ICES divisions 4.a-c, 6.a, 7.a, b, d-h, j**
Date	**February 2018**
Assessor	**Conor Donnelly**

Application details and summary of the assessment outcome				
Name: Pelagia Killybegs, Grimsby, Aberdeen				
Address:				
Country: UK & Ireland		**Zip:**		
Tel. No.:		**Fax. No.:**		
Email address:		**Applicant Code**		
Key Contact:		**Title:**		
Certification Body Details				
Name of Certification Body:		**SAI Global**		
Assessor Name	**Peer Reviewer**	**Assessment Days**	**Initial/Surveillance/Re-approval**	**Whole fish/ By-product**
Conor Donnelly	Deirdre Hoare	1	Surveillance 1	By-product
Assessment Period	2017-2018			

Scope Details	
Management Authority (Country/State)	EU Common Fisheries Policy (CFP)
Main Species	Whiting (*Merlangius merlangus)*
Fishery Location	ICES divisions 4.a-c, 6.a, 7.a, b, d-h, j
Gear Type(s)	Demersal trawl, Nephrops trawl, purse seine
Outcome of Assessment	
Overall Outcome	3 stocks pass (Subarea 4 and div. 7.d; Div. 6.a; Div. 7.b-c, e-k) 1 stock fails (Division 7.a)
Clauses Failed	C (division 7.a stock)
Peer Review Evaluation	Approve as recommended
Recommendation	Approve 3 stocks, fail 1 stock

Assessment Determination
Whiting is managed under the EU Common Fisheries Policy (CFP) and management measures include an annual TAC. Scientific catch advice is provided by ICES. Within the scope of this by-product assessment there are the following TAC areas with 2018 quota allocations shown (EU, Council Regulation 2018/120): • Subarea 4, division 2.a (22,057 tonnes) • Division 7.a (80 tonnes) • Divisions 7.b-k (22,213 tonnes) ICES provide advice on the following stocks. There is a discrepancy between the management units and the scientific stock units. • Subarea 4 and division 7.d • Division 6.a • Division 7.a • Division 7.b-c, e-k There is a species-specific management regime in place for whiting so it is assessed under clause C. For 3 of the stocks, fishery removals are either negligible or are included in the stock assessment process and the stocks are considered in their most recent assessment, to have a biomass above their limit reference points. Consequently, these stocks pass clause C. The Irish Sea stock, in ICES division 7.a has an extremely low stock size. SSB has been declining since the start of the time-series and has been well below Blim since the mid-1990s. Consequently, it cannot be considered, in its most recent stock assessment, to have a biomass above the limit reference point and fails clause C. The IUCN has categorised *Merlangius merlangus* as a species of least concern, and it does not appear in the CITES appendices (http://www.iucnredlist.org/details/198585/0; assessed 2013; accessed 30 April 2018). **Whiting from stocks in subarea 4 and division 7.d; division 6.a and divisions 7.b-c, e-k are recommended for approval as by-product material against the IFFO RS standard. Whiting from division 7.a is not recommended for approval.**
Peer Review Comments
Notes for On-site Auditor
Whiting from division 7.a stock must be separated from approved whiting by-product material.

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A			A1	
			A2	
			A3	
			A4	
Category B				

Category C	Whiting *Merlangius merlangus*	NA	3 stocks pass (Subarea 4 and div. 7.d; Div. 6.a; Div. 7.b-c, e-k) 1 stock fails (Division 7.a)
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
Whiting	*Merlangius merlangus*	Div. 6.a; Subarea 4 and div. 7.d; div. 7.a; div. 7.b-c and e-k	NA	EU Common Fisheries Policy (CFP)	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		**Whiting *Merlangius merlangus***	
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/ Fail
		Clause outcome:	Pass/ Fail

Evidence

Division 6.a (West of Scotland)

Fishery removals of whiting are included in the stock assessment process. Input data include commercial landings, estimated discards, age composition of catches and five survey indices (ScoGFSWIBTS-Q1, ScoGFS-WIBTS-Q4, IGFS-WIBTS-Q4, UKS-WIBTS-Q1 and UKS-WIBTS-Q4) (ICES, 2016).

The spawning-stock biomass (SSB) has been increasing since 2006 but remains very low compared to the historical estimates and is well below Blim (figure 1). Fishing mortality (F) has declined continuously since around 2000 and is now very low. Zero catches have been advised by ICES since 2006. **Removals are considered to be negligible so this stock passes clause C**.

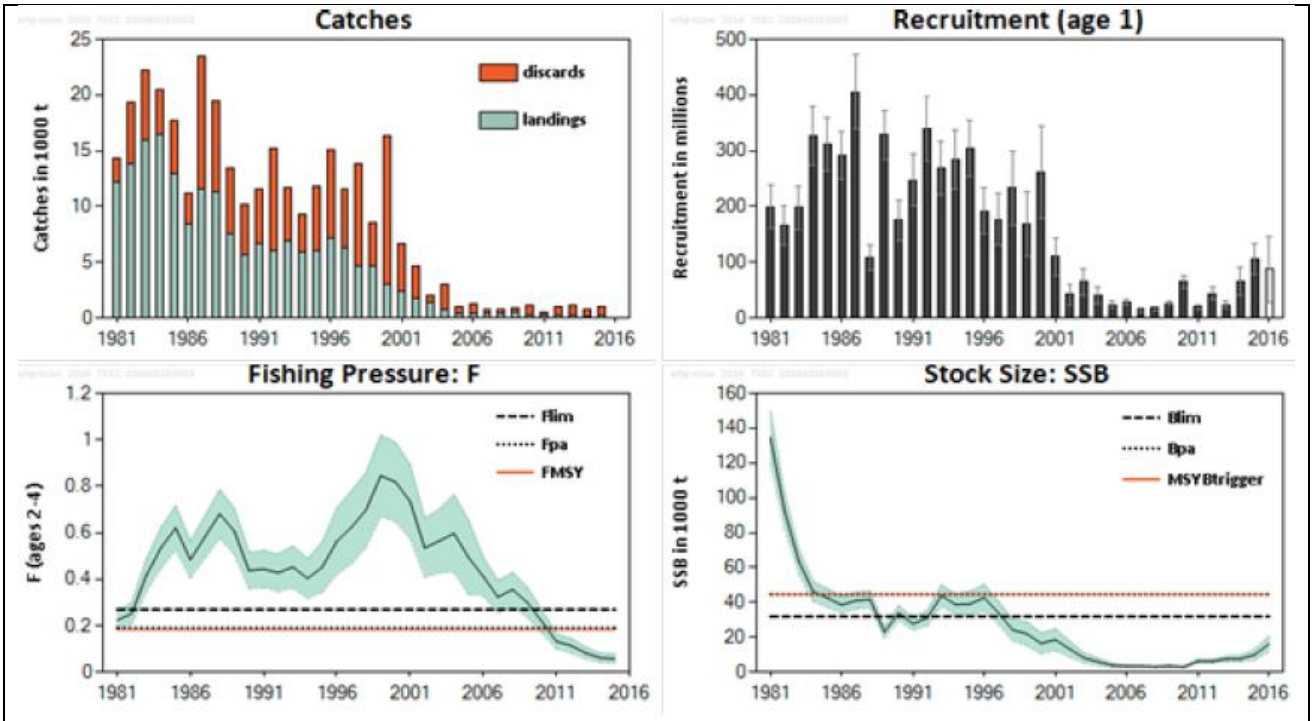

Figure 1. Whiting in Division 6.a. Observed catches and summary of stock assessment (weights in thousand tonnes). The shaded areas in the bottom panels correspond to two standard errors for estimates of mortality and SSB. Predicted values in the recruitment plot are not shaded. Source: ICES, 2016.

Subarea 4 and Division 7.d (North Sea and eastern English Channel)

Fishery removals of whiting are included in the stock assessment process. Input data include commercial catches (international landings, ages from catch sampling by métier) and two survey indices (IBTS Q1 & Q3 ages 1 to 5).

Spawning-stock biomass (SSB) has fluctuated around, and is now above MSY Btrigger (figure 2). Fishing mortality (F) has been above FMSY throughout the time-series but below Fpa since the early 2000s. Since 2003 recruitment (R) has been generally lower than in previous years.

Fishery removals of whiting in subarea 4 and division 7.d are included in the stock assessment process and the stock is considered in its most recent assessment, to have a biomass above the limit reference point. This stock passes clause C.

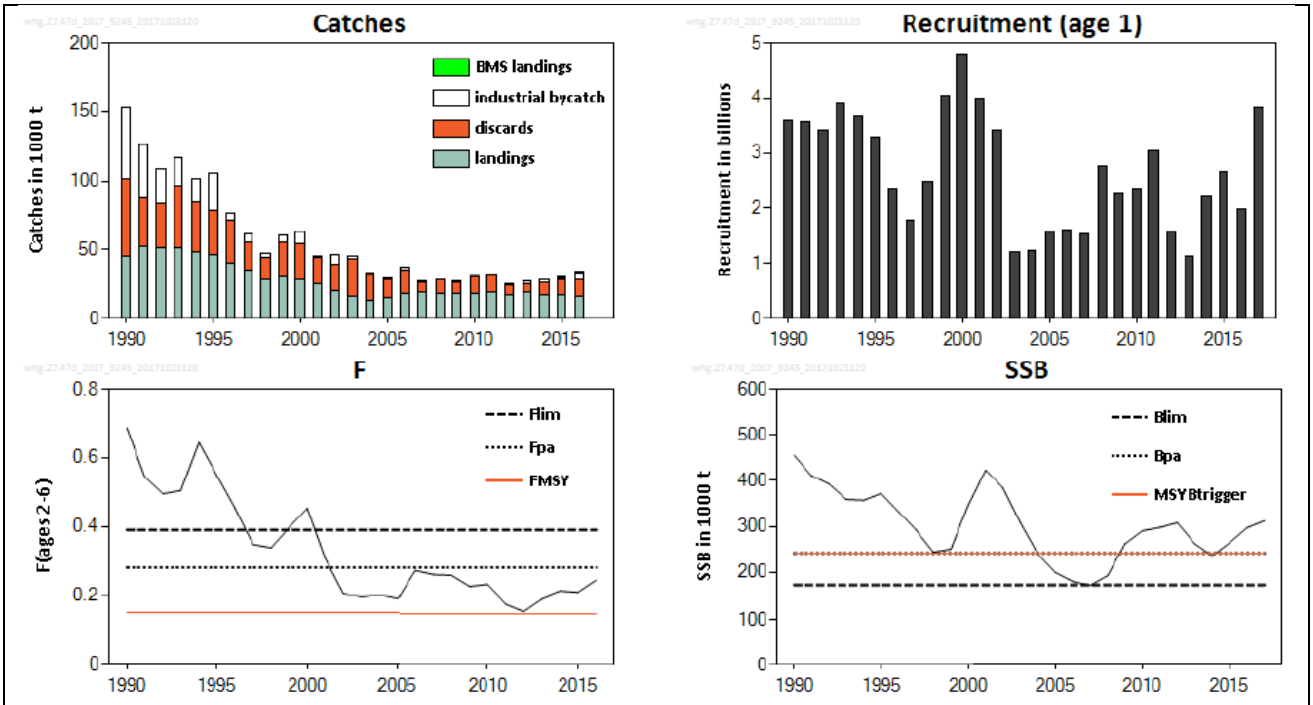

Figure 2. Whiting in Subarea 4 and Division 7.d. Summary of the stock assessment. Source: ICES, 2017a.

Division 7.a (Irish Sea)

Fishery removals of whiting are included in the stock assessment process. Input data include commercial catches (weights, ages and length frequencies from catch sampling) and Survey indices (NIGFSWIBTS-Q1, NIGFS-WIBTS-Q4, NI MIK).

The present stock size is extremely low. SSB has been declining since the start of the time-series and has been well below Blim since the mid-1990s (figure 3). Recruitment has been low since the early 1990s. Large variations in fishing pressure has been estimated in recent years and F has been above Flim for the entire time-series (ICES, 2017b).

Fishery removals of whiting in division 7.a are included in the stock assessment process and the stock is considered, in its most recent assessment, to have a biomass below the limit reference point. This stock fails clause C.

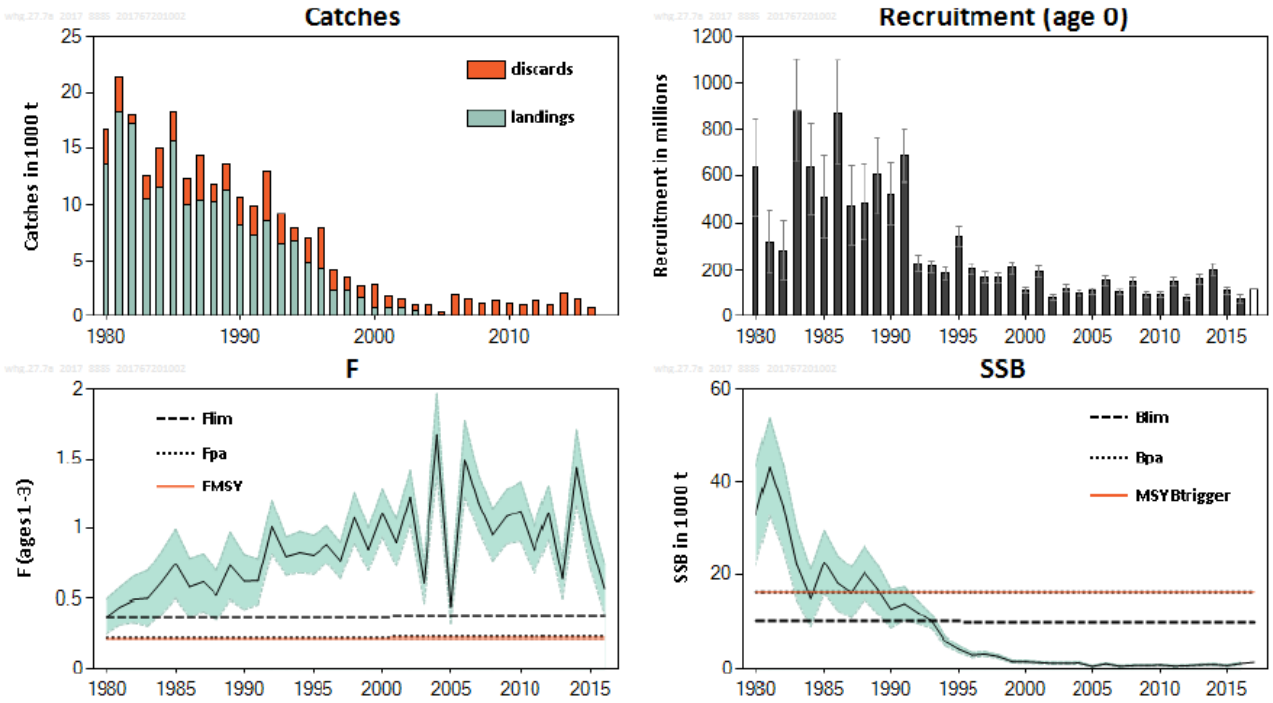

Figure 3. Whiting in Division 7.a. Summary of stock assessment (weights in tonnes), Recruitment, F, and SSB have uncertainty boundaries (1 × standard deviation) in the plot. The predicted recruitment value is not shaded. Source: ICES, 2017b.

Divisions 7.b–c and 7.e–k (southern Celtic Seas and western English Channel)

Fishery removals of whiting are included in the stock assessment process. Input data include commercial landings, estimated discards, age composition of catches and one survey index (EVHOE-WIBTSQ4 & IGFS-WIBTS-Q4 combined: IGFSEVHOE).

The spawning–stock biomass (SSB) has remained well above MSY Btrigger since 2009 (figure 4). Fishing mortality (F) has been below FMSY since 2008, and has increased in recent years. Recruitment has been below average since 2010 with the exception of the 2013 year class, which is estimated to be the second highest in the series (ICES, 2017c).

Fishery removals of whiting in subarea 4 and division 7.d are included in the stock assessment process and the stock is considered, in its most recent assessment, to have a biomass above the limit reference point. This stock passes clause C.

Figure 4. Whiting in divisions 7.b–c and 7.e–k. Summary of the stock assessment. The assumed recruitment values are not shaded. Source: ICES, 2017c.

References

ICES, 2016. ICES Advice on fishing opportunities, catch, and effort Celtic Seas Ecoregion. Whiting (*Merlangius merlangus*) in Division 6.a (West of Scotland). Published 30 June 2016. http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/whg-scow.pdf

ICES, 2017a. ICES Advice on fishing opportunities, catch, and effort Greater North Sea Ecoregion. Whiting (*Merlangius merlangus*) in Subarea 4 and Division 7.d (North Sea and eastern English Channel). Published 14 November 2017. DOI: 10.17895/ices.pub.3530. http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/whg.27.47d.pdf

ICES, 2017b. ICES Advice on fishing opportunities, catch, and effort Celtic Seas ecoregion. Whiting (*Merlangius merlangus*) in Division 7.a (Irish Sea). Published 30 June 2017 whg.27.7a DOI: 10.17895/ices.pub.3268. http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/whg.27.7a.pdf

ICES, 2017c. ICES Advice on fishing opportunities, catch, and effort Celtic Seas, Greater North Sea, and Oceanic Northeast Atlantic ecoregions. Whiting (*Merlangius merlangus*) in divisions 7.b–c and 7.e–k (southern Celtic Seas and western English Channel). Published 30 June 2017. Version 2: 07 July 2017 DOI: 10.17895/ices.pub.3269. http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/whg.27.7b-ce-k.pdf

Standard clauses 1.3.2.2

SOCIAL CRITERION

In addition to the scored criteria listed above, applicants must commit to ensuring that vessels operating in the fishery adhere to internationally recognised guidance on human rights. They must also commit to ensuring there is no use of enforced or unpaid labour in the fleet(s) operating upon the resource.

Appendix A - Determining Resilience Ratings

The assessment of Category B species described in this assessment report template utilises a resilience rating system suggested by the American Fisheries Society. This approach was chosen because it is also used by FishBase, and so the resilience ratings for many thousands of species are freely available online. As described by FishBase, the following is the process used to arrive at the resilience ratings:

"*The American Fisheries Society (AFS) has suggested values for several biological parameters that allow classification of a fish population or species into categories of high, medium, low and very low resilience or productivity (Musick 1999). If no reliable estimate of r_m (see below) is available, the assignment is to the lowest category for which any of the available parameters fits. For each of these categories, AFS has suggested thresholds for decline over the longer of 10 years or three generations. If an observed decline measured in biomass or numbers of mature individuals exceeds the indicated threshold value, the population or species is considered vulnerable to extinction unless explicitly shown otherwise. If one sex strongly limits the reproductive capacity of the species or population, then only the decline in the limiting sex should be considered. We decided to restrict the automatic assignment of resilience categories in the Key Facts page to values of K, t_m and t_{max} and those records of fecundity estimates that referred to minimum number of eggs or pups per female per year, assuming that these were equivalent to average fecundity at first maturity (Musick 1999). Note that many small fishes may spawn several times per year (we exclude these for the time being) and large live bearers such as the coelacanth may have gestation periods of more than one year (we corrected fecundity estimates for those cases reported in the literature). Also, we excluded resilience estimates based on r_m (see below) as we are not yet confident with the reliability of the current method for estimating rm. If users have independent r_m or fecundity estimates, they can refer to Table 1 for using this information*."

Parameter	**High**	**Medium**	**Low**	**Very low**
Threshold	0.99	0.95	0.85	0.70
r_{max} (1/year)	> 0.5	0.16 – 0.50	0.05 – 0.15	< 0.05
K (1/year)	> 0.3	0.16 – 0.30	0.05 – 0.15	< 0.05
Fecundity (1/year)	> 10,000	100 – 1000	10 – 100	< 10
t_m (years)	< 1	2 – 4	5 – 10	> 10
t_{max} (years)	1 - 3	4 – 10	11 – 30	> 30

Taken from the FishBase manual, "Estimation of Life-History Key Facts":
http://www.fishbase.us/manual/English/key%20facts.htm#resilience]

Appendix B – Background on the 5% catch rule

The proposed fishery assessment methodology uses a species categorisation approach to divide the catch in the assessment fishery into groups. These groups are:

- **Category A:** "Target" species with a species-specific management regime in place.
- **Category B:** "Target" species with no species-specific management regime in place.
- **Category C:** "Non-target" species with a species-specific management regime in place.
- **Category D:** "Non-target" species with no species-specific management regime in place

The distinction between 'target' and 'non-target' species is made to enable the assessment to consider the impact of the fishery on all the species caught regularly, without requiring a full assessment be conducted for each. Thus 'target' species are subjected to a more detailed assessment, while 'non-target' species are considered more briefly. For the purposes of the IFFO RS fishery assessment, 'target' and 'non-target' species are defined by their prevalence in the catch, by weight. Applicants must declare which species are considered 'target' species in the fishery, and the combined weight of these must be at least 95% of the annual catch. The remaining 5% can be made up of 'non-target' species. Note also that ETP species are considered separately, irrespective of their frequency of occurrence in the catch.

The proposed use of 5% as a limit for 'non-target' species is one area in which feedback is being sought via the public consultation. The decision to propose a value of 5% ensures consistency with other fishery assessment programmes, such as the MSC which uses 5% to distinguish between 'main' and 'minor' species (see MSC Standard, SA3.4 and GSA3.4.2); and Seafood Watch, which uses 5% when defining the 'main' species for the assessment (see Seafood Watch Standard, Criterion 2). The value is also consistent with the approached used in Version 1 of the IFFO RS Standard, in which up to 5% of the raw material could be comprised of 'unassessed' species.