

Wild Capture Ratings Methodology

First published: June 2018



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1 Introduction

This document provides in depth discussion of how MCS assesses the sustainability of wild capture fisheries. It is aimed at internal assessors and staff, consultants, seafood businesses and other professionals requiring a thorough understanding of MCS wild capture methodology and ratings.

To see an introduction to MCS Seafood Ratings and the MCS Farmed Seafood Ratings Methodology, please click here: <https://www.mcsuk.org/ocean-emergency/sustainable-seafood/about-the-good-fish-guide/how-our-good-fish-guide-ratings-work/>

If you have any questions or specific queries about MCS seafood ratings or you would like to comment on or contribute to information in the Good Fish Guide please contact MCS at:

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2 Overview of ratings process

2.1 Unit of assessment

The Unit of Assessment (UoA) for MCS wild capture assessments is the fishery which is typically a specific species (the focus of the assessment), from a specific geographic stock, being fished with a capture method and being managed in the same way. Where there is a justification, such as the availability of credible information and MCS capacity, finer scale assessments can be undertaken.

An overview of the ratings process for each fishery or combination of species and specific area and method of capture we rate is presented in Figure 1 below.

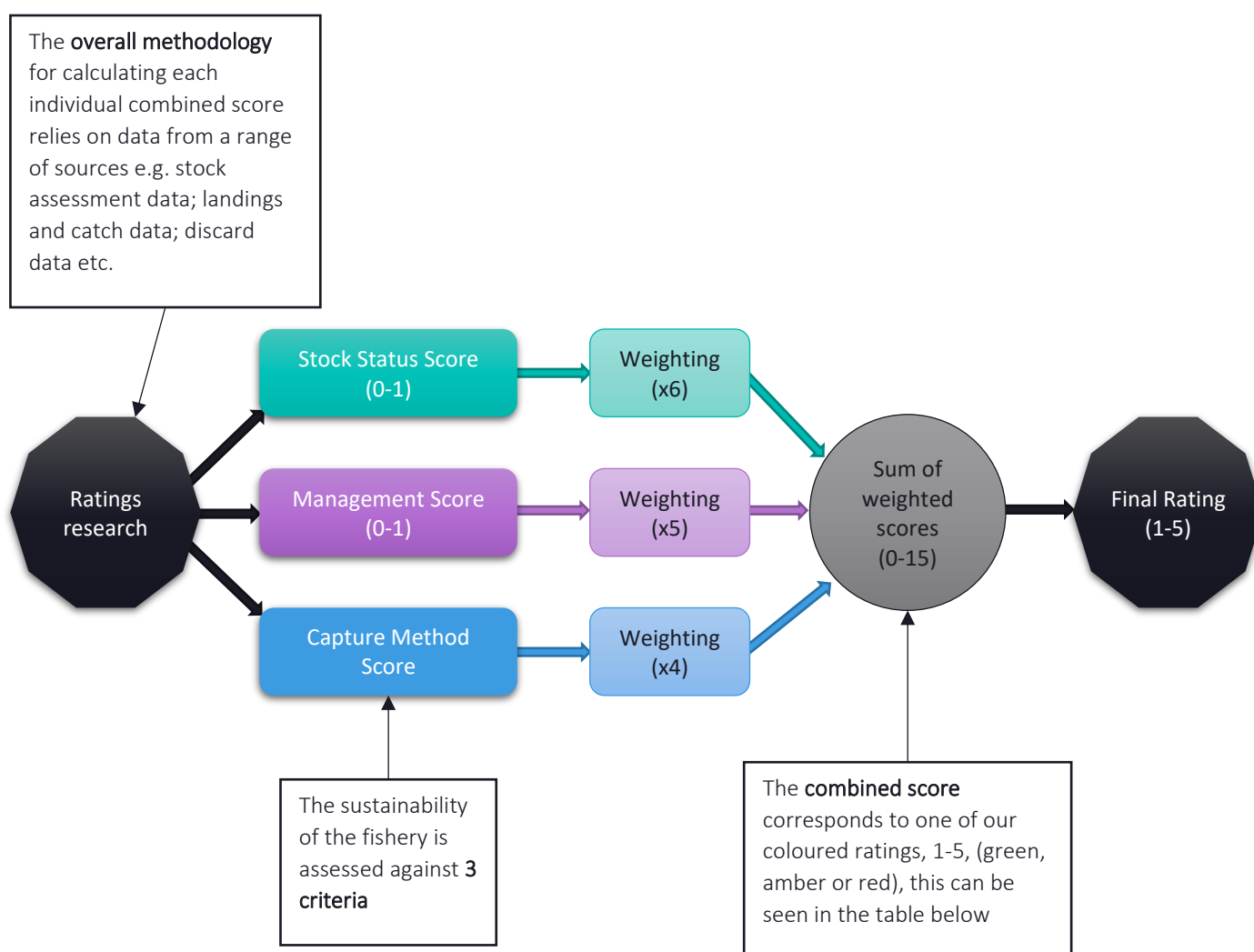


Figure 1 Overview of wild capture ratings process

The criteria against which we measure sustainability are:

- **Stock or Species status** – the state of the stock i.e. stock size (the total weight of mature or breeding adults) and fishing pressure measured against recommended safe levels or reference points.

- **Management** – an assessment of the measures, monitoring, surveillance and enforcement in place to ensure the stock is well maintained and the impacts of the fishery mitigated appropriately. Our assessment of management also includes consideration of whether the fishery is already certified as being sustainable by other bodies (such as the Marine Stewardship Council) and whether the fishery is in a Fisheries Improvement Project (FIP).
- **Capture method and ecological effects** – an assessment of the impacts of the capture method on non-target species (bycatch), and wider ecosystem, and measures implemented to mitigate them. This includes whether the fishery is operating within a marine protected area (MPA), and is compatible or not with the Conservation Objectives, and legal requirements of the site (See Appendix VI for a map of UK Marine Protected Areas).

The relationship between the combined criteria score and the overall rating is presented in Table 1 below.

Table 1 Relationship between combined score and overall rating

Combined criteria score	Rating	Overall Rating	
0 - 2.4	1	Dark Green (Best Choice)	Best Choice
2.5 – 4.9	2	Light Green (Good Choice)	
5 - 7.5	3	Yellow (OK)	OK – Needs Improvement
7.6 - 9.9	4	Orange (Fishery requires improvement)	
10 - 15	5	Red (Avoid)	Fish to Avoid

In addition, each criterion is ‘weighted’ (see Table 2) in a ranking system, placing more emphasis (and therefore numerical value) on the criterion that are in our opinion has the most significance for sustainability. We consider that stock status is the strongest current measure of sustainability and therefore this criterion has the heaviest weighting. The weighting multipliers are also designed to ensure a minimum total or combined criterion score of 0, and a maximum of 15.

Table 2 Weighting of sustainability criteria

Sustainability Criterion	Weighting multiplier
Stock or species status	X value by 6
Management	X value by 5
Capture method and ecological effects	X value by 4

The complexity of the methodology lies in the allocation of a score to each category within each sustainability criterion.

A score of either 0, 0.25, 0.5, 0.75 or 1 is allocated for each category description. This score is then multiplied by the weighting (see page 8) given to each criterion to obtain the criterion score, the higher the score, up to a maximum of 15, the less-sustainable the fishery.

To allow for precise allocation of scores within each criterion, and to help the assessor determine the most appropriate score for the fishery under assessment, each category description is supported by detailed descriptors. This is an essential component of the methodology in order that each rating is robust and transparent. It also helps to reduce individual interpretation and therefore ambiguity.

2.2 Summary of default or critical fail ratings

We also use default or critical fail ratings, summarised in Table 3 below, for the three criteria in the following situations.

Table 3 Summary of default ratings

Criterion	Situation	Default rating
Stock or species status	<ul style="list-style-type: none"> ICES or equivalent scientific advice is for zero catch or no direct i.e. targeted fishery and this advice is not followed Biomass (B) is at or below Blim (see Glossary) and no precautionary Recovery Plan is in place for the stock A species is listed as Endangered or Critically Endangered by IUCN or equivalent for the sea area e.g. FAO 27 North East Atlantic in which the fishery is taking place, and the assessment report is still considered relevant (i.e. current and best assessment of species status available) With respect to Low Trophic Level (LTL) species if there is evidence that the status of it is significantly reducing the state of other species (through links in the food chain) 	5
Management	<ul style="list-style-type: none"> There is no appropriate or relevant management system or regulatory framework in place including No measures to address critical issues e.g. intrinsic and widespread IUU fishing, for example 	5
Capture method and ecological effects	<p>The fishing method is:</p> <ul style="list-style-type: none"> Causing substantial or long-lasting damage e.g. unmanaged deep-sea trawling Damaging protected features of MPAs Illegal e.g. dynamite fishing Bottom trawling below 600m (deep sea fishing) without robust regulation in place 	5

3 Criterion 1: Stock or species status

Stock is the term given to a group of individuals in a species occupying a well-defined spatial range independent of other stocks of the same species. A stock will form the basis of a distinct fishery defined in terms of season and area. It is the population from which catches are taken in a fishery. Fisheries directly affect fish stocks through catches. In order that the stock or population is maintained at a sustainable level i.e. at a level where fishing can continue indefinitely, fishing must be controlled. This is achieved by identifying target or limit reference values for biomass and fishing pressure, below or above which, respectively, levels must not fall or rise.

Biomass (B) is the total weight of a resource or stock, usually the weight of mature breeding fish in a stock. The fishing mortality (F) is a measure for fishing pressure, and is the proportion of fish in a specific year class[es] or cohort[s] (i.e. all fish born in the same year), that is taken by a fishery each year. Regular scientific assessment of a stock is required to determine stock status in terms of biomass and fishing pressure and to provide advice to fisheries managers on sustainable fishing levels.

Depending on available information and the type¹ of stock assessment for the target species in question either Route 1 or 2 is followed.

Route 1 is typically used for stocks for which an analytical or survey-based assessment relative to BOTH indicators, Biomass (B) and Fishing Pressure (F), is available.

Route 2 is used for stocks where data is limited or unknown for Biomass and/or Fishing Pressure i.e. reference points are not defined for one or both indicators. Also used in situations where an assessment, if available, is no longer considered relevant i.e. out of date.

In situations where: ICES or equivalent scientific advice is for zero catch or for no direct fishery i.e. where the species is being targeted by the fishery, and it should be closed, and this advice is not followed, or biomass (B) is at or below the biomass limit (Blim) or where the target species is listed as Endangered or Critically Endangered by IUCN or equivalent, the fishery is rated a 5 by default (see Table 3).

3.1 Route 1: Stock status

The criterion score for stock status using Route 1 is obtained by completing the matrix table (

Table 7) with the scores obtained separately from the tables for biomass (Table 5) and fishing pressure (Table 6), this value or score is then multiplied by the weighting multiplier to obtain the criterion score. Category description and weighting for Route 1 for each of the scores is summarised in Table 4 below and supported by more detailed descriptors as outlined in Table 5 and Table 6.

¹ Please see Appendix VI for definitions for types of ICES stock assessments.

Table 4 Category descriptors and weighting for Stock Status Route 1 (biomass and fishing mortality)

Category description	Score	Weighting Multiplier	Criterion Score	Sustainability levels
Stock under fished and harvested within sustainable limits	0	X 6	0	 <p>High</p> <p>Low</p>
Stock fully fished and harvested within sustainable limits	0.25	X 6	1.5	
Stock level below BMSY (see Glossary) but harvested within sustainable limits	0.5	X 6	3	
Concern for stock and fishing level or stock at increased risk	0.75	X 6	4.5	
Stock outside biological and/or safe fishing limits, has reduced reproductive capacity or is depleted and/or harvested unsustainably	1	X 6	6	

3.1.1 Stock status detailed descriptors for Route 1

The descriptors for stock status – biomass and fishing mortality – are detailed further in the below Table 5 and Table 6 to allow for more precise allocation of a score to the situation for biomass and fishing pressure for the stock being assessed.

Table 5 Category descriptor detail for Stock Status – Biomass (B)

Category description	Score	Associated descriptors
Sustainably fished		<ul style="list-style-type: none"> Biomass is above B_{MSY} or other appropriate reference point or surrogate with similar intent. This corresponds to approximately 1.4 MSY $B_{Trigger}$ (= B high) or above Includes ICES assessed stocks for which a full assessment and catch options are provided, i.e., data-rich stocks, where Biomass is at or fluctuating around or above B_{MSY} (not trigger) reference point Includes outcomes from stock assessments which indicate with high probability that the stock is not in an overfished state

Category description	Score	Associated descriptors
		<ul style="list-style-type: none"> • Biomass is at or below B_{MSY} but above $MSY B_{Trigger}$ or other appropriate reference point or surrogate with similar intent • Includes ICES assessed stocks for which a full assessment and catch options are provided, i.e., data-rich stocks, where Biomass is at or fluctuating around or above $MSY B_{Trigger}$ reference point • Biomass is fluctuating around B_{MSY} or above B_{MSY} but trending downwards/approaching B_{MSY} and no precautionary reference point or $MSY B_{Trigger}$ in place. • Includes anadromous species such as salmon from rivers assessed as <i>Not at Risk</i> • Includes outcomes from stock assessments which suggest stock is not in an overfished state, but there is considerable uncertainty
<p>Stock Level below B_{MSY} or full assessment not available</p>		<ul style="list-style-type: none"> • Biomass is below $MSY B_{Trigger}$ but within precautionary limits or other appropriate reference point or surrogate with similar intent. This corresponds to: <ul style="list-style-type: none"> $0.5(MSY B_{Trigger} + B_{lim}) < B \leq MSY B_{trigger}$ (Where $B_{trigger}$ or precautionary limits aren't defined, B_{MSY} is used as the trigger value) • Includes ICES assessed stocks for which a full assessment and catch options are provided, i.e., data-rich stocks where Biomass is below $MSY B_{Trigger}$ but above or at Precautionary Limits (B_{PA}) (i.e. full reproductive capacity) • Includes anadromous species such as salmon from rivers assessed as <i>Probably not at risk</i>
<p>Concern for Stock Level Or At increased risk</p>		<ul style="list-style-type: none"> • Biomass is considerably below $MSY B_{Trigger}$ but above B_{lim} or other appropriate reference point or surrogate with similar intent. This corresponds to: <ul style="list-style-type: none"> $B_{lim} < B \leq 0.5(MSY B_{Trigger} + B_{lim})$ (Where $B_{trigger}$ or precautionary limits aren't defined, B_{MSY} is used as the trigger value) • Includes ICES assessed stocks for which a full assessment and catch options are provided, i.e., data-rich stocks where Biomass is below B_{MSY} and B_{PA} but above B_{lim} i.e. the stock is At increased risk of suffering reduced reproductive capacity. • Includes anadromous species such as salmon from rivers assessed as <i>Probably at risk</i>

Category description	Score	Associated descriptors
Stock Outside Safe Biological Limits Or Reduced Reproductive Capacity Or Depleted		<ul style="list-style-type: none"> Biomass is likely below B_{lim} or surrogate with similar intent and recruitment may be impaired, or B is equal to 20% of unfished state, or $0.5 B_{MSY}$ Includes ICES assessed stocks i.e. those for which a full assessment and catch options are provided i.e. Data-rich stocks where Biomass is likely at or below (in vicinity of) B_{lim} i.e. the stock has or is suffering Reduced Reproductive Capacity Includes anadromous species such as salmon from rivers assessed as <i>At risk</i>

Table 6 Category descriptor detail for Stock Status – Fishing mortality (pressure) (F)

Category description	Score	Associated descriptors
		<ul style="list-style-type: none"> Fishing mortality is below F_{MSY} or other appropriate reference point or surrogate with similar intent, i.e. $F < F_{MSY}$ Includes ICES assessed stocks for which a full assessment and catch options are provided, i.e., data-rich stocks where fishing mortality is below or at or fluctuating around F_{MSY} reference point
Harvested sustainably		<ul style="list-style-type: none"> Fishing mortality is around or equal to F_{MSY} or other appropriate reference point or surrogate with similar intent, i.e. $F_{MSY} \leq F < 1.1 F_{MSY}$ Includes outcomes from assessments or evaluations which indicate that overfishing is not believed to be occurring, but there is considerable uncertainty Includes outcomes where F is fluctuating around F_{MSY}, or if F has been consistently below F_{MSY} and has just recently (in the latest assessment) increased above F_{MSY} (potentially due to management error or a new stock assessment and the consequence of adjustment to reference points or estimates)
Fishing above MSY		<ul style="list-style-type: none"> Fishing mortality is somewhat above F_{MSY} but within precautionary limits or other appropriate reference point or surrogate with similar intent i.e. $1.1 F_{MSY} \leq F < 1.25 F_{MSY}$ Includes ICES assessed stocks for which a full assessment and catch options are provided, i.e., data-rich stocks where Fishing mortality is above F_{MSY} but below or at Precautionary Limits (F_{PA}) i.e. Harvested sustainably

Category description	Score	Associated descriptors
Concern for fishing level Or At increased risk		<ul style="list-style-type: none"> Fishing mortality is considerably above F_{MSY} but below F_{lim} or other appropriate reference point or surrogate with similar intent, i.e. $1.25 F_{MSY} \leq F < 1.40 F_{MSY}$ Includes ICES assessed stocks for which a full assessment and catch options are provided, i.e., data-rich stocks where Fishing mortality is above F_{MSY} and F_{PA} but below F_{lim} i.e. At increased risk of being harvested unsustainably
Outside Safe Fishing Limits Or Harvested unsustainably		<ul style="list-style-type: none"> Includes stocks that are likely being heavily overfished and where F is above or at F_{lim} or other appropriate reference point or surrogate with similar intent, i.e. $F \geq 1.40 F_{MSY}$ Includes ICES assessed stocks for which a full assessment and catch options are provided, i.e., data-rich stocks where Fishing mortality is above or at or in the vicinity of F_{lim} i.e. Harvested unsustainably

The matrix

Table 7) is then used with values obtained separately for biomass and fishing pressure from Table 5 and Table 6 to determine the final score which is then multiplied by the weighting multiplier (Table 2) to obtain the criterion score using Route 1.

Table 7 Matrix for determining Stock Status score using values for Biomass (B) and Fishing Mortality (F)

		Under-fished	Fully fished	Stock level below B_{MSY}	Concern for stock level	Stock depleted
Biomass						
Mortality						
Harvested sustainably		0	0	0.25	0.5	0.75
Harvested sustainably		0	0.25	0.5	0.75	0.75
Fishing level above F_{MSY}		0.25	0.5	0.75	0.75	1
Concern for fishing level		0.5	0.75	1	1	1
Outside safe fishing limits		0.75	1	1	1	1

3.2 Route 2: Data limited stock status

The criterion score for stock status using Route 2 is obtained by completing the matrix below (Table 8). This value or score is then multiplied by the weighting multiplier to obtain the criterion score.

Table 8 Data limited descriptors, resilience and scoring matrix

Species resilience	High	Medium	Low	Very low
Species vulnerability	0 - 0.24	0.25 - 0.49	0.50 - 0.74	0.75 - 1.0
No concern for F, No concern for B	0.25	0.25	0.5	0.5
No concern for F, Concern for B	0.5	0.5	0.75	1
Concern for F, No Concern for B	0.5	0.75	0.75	1
Concern for F, Concern for B	0.75	1	1	1

No concern for F: Fishing mortality is unknown in relation to reference points but catch index is below long-term average or stable or increasing but at a low level or fishing level is not believed to be of concern.

Concern for F: Fishing mortality is unknown in relation to reference points but catch index is stable or increasing but at a high level or increasing above long-term average or there is concern for the fishing level or information is conflicting or no information available.²

No concern for B: Biomass is unknown in relation to reference points, declining but at high level, or stable at or above long-term average or biomass level is not believed to be of concern.

Concern for B: Biomass is unknown in relation to reference points, is stable at low levels or is declining below long-term average or there is concern for the biomass level or information is conflicting or no information available.²

In Table 8 above, 'Species resilience' (or vulnerability, if resilience is not available) is obtained from Fishbase³, Sealifebase⁴ for invertebrates, or Cephbase⁵ for cephalopods. In the absence of information from these resources, simple species life-history characteristics are used. Species are considered to have **very low resilience** if two or more of the following apply or if no resilience information is available:

- Age at first maturity is 6 or more years
- Longevity is 20 years or greater

² In this context, "no information" refers to situations where there is no assessment and where information on exploitation or abundance is lacking and where there is no scientific advice or interpretation of available data in relation to fishing mortality or biomass.

³ www.fishbase.org

⁴ www.sealifebase.org

⁵ <http://cephbase.eol.org/>

- Growth rate or parameter, k is ≤ 0.15

If less than two of the criteria apply, the species is considered to have **medium resilience**.

3.3 References

Caveen A.J., Lart, W., Duggan, H., Pickerell, T., 2017. The risk assessment for sourcing seafood (RASS): Empowering businesses to buy responsibly. Marine Policy 75: 1-10. Available at: https://www.researchgate.net/publication/309291881_The_Risk_Assessment_for_Sourcing_Seafood_RASS_Empowering_businesses_to_buy_responsibly [Accessed on 1/06/2017].

ICES, 2015. General context of ICES Advice. Available at: https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2015/2015/General_context_of_ICES_advice_2015.pdf [Accessed on 1/10/2016].

MSC, 2010. Fisheries assessment methodology and guidance to certification bodies including default assessment tree and risk-based framework. 105pp. Available at: https://www.msc.org/documents/scheme-documents/msc-scheme-requirements/methodologies/Fisheries_Assessment_Methodology.pdf [Accessed on 1/10/2016].

Seafood Watch, 2016. Seafood Watch standard for fisheries. Version F3.1. Available at: http://www.seafoodwatch.org/-/m/sfw/pdf/criteria/mba_seafood%20watch_fisheries%20standard_version%20f3.1.pdf?la=en [Accessed on 1/4/17].

4 Criterion 2: Management

This criterion considers the management framework and objectives for the fishery. If there is no appropriate and proportionate management system in place including measures to address critical issues e.g. intrinsic and widespread IUU fishing, the fishery is rated a 5 by default (see Table 3).

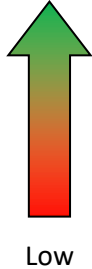
Although assessment of management is typically made for the stock area, this area, and thus the management measures appropriate to the management of the fishery will vary considerably. For example, the regulatory framework for the management of a crab fishery in Orkney compared to the regulatory framework for the management of Indian Ocean yellowfin tuna will differ enormously. However, the basis or the minimum requirements for management of any fishery are:

- Proportionate measures to assess and protect the stock;
- Adequate monitoring, surveillance or control and enforcement and;
- Compliance with scientific advice, including adaptation of management measures depending on the outcome of the advice, to ensure the long-term sustainability of the stock.

Measures MCS considers appropriate to achieve these objectives and for well managed fisheries are outlined in Table 11.

The criterion score for management is obtained by consideration of the measures in place for the management of the fishery under assessment. A score associated with the relevant category description is multiplied by the weighting multiplier to obtain the criterion score. Category description and weighting for management is summarised in Table 9 below and supported by more detailed descriptors as outlined in Table 10.

Table 9 Category Descriptors and weighting for Management

Category description	Score	Weighting Multiplier	Criterion Score	Sustainability Levels
Well-managed with all relevant measures in place or the fishery is certified ⁶	0	X 5	0	
Management requires some improvement as some relevant measures are not in place or fishery is certified but with conditions	0.25	X 5	1.25	
Partly effective management or there is a precautionary recovery plan in place	0.5	X 5	2.5	
Poorly managed and requires considerable improvement or specific management measures implemented	0.75	X 5	3.75	
No relevant or effective management measures in place	1	X 5	5	

Fisheries management and issues relating to traceability are generally improved with certification (See Appendix III for a list of wild-capture certification programmes recognised by MCS) and/or through participation in a Fishery Improvement Project (FIP).

⁶ See Appendix III for a list of certified programmes recognised by MCS.

4.1 Fisheries Improvement Project (FIP) recognition

According to the US Conservation Alliance for Sustainable Seafood (CASS) a ‘fishery improvement project is a multi-stakeholder effort to improve a fishery. These projects are unique because they utilise the power of the private sector to incentivise positive changes toward sustainability in the fishery. Participants may vary depending on the nature of the fishery and the improvement project, and may include stakeholders such as producers, non-governmental organisations, fishery managers, government and members of the fishery’s supply chain’.⁷ The Sustainable Fisheries Partnership (SFP) note that whilst each FIP is unique, the common thread is that the supply chain plays a critical role in helping a fishery in the journey towards sustainability.⁸

There are a range of ways to improve fisheries towards sustainability and MCS is very supportive of FIPs, particularly for high risk fisheries, such as those that are red or amber rated by MCS.

For a FIP to be considered as ‘credible’ the following general criteria should apply:

- An independent observer/facilitator (e.g. NGO)
- Relevant stakeholder participation
- Identification and addressing of key environmental issues in fishery
- Adherence to SMART objectives
- Public accountability

In addition to the above, for a FIP to be considered by MCS in its ratings assessments, it should be at a stage where it is making progress according to the indicators and timelines in its work plan and achieving improvements in the way the fishery is managed or operated so as to address the key issues of environmental concern. This would correspond to Stage 4 or more of the Conservation Alliance for Seafood Solutions (CASS) Fisheries Improvement Guidelines⁹ or equivalent.

In cases where a FIP has been publicly launched and a programme of work agreed, but is not yet at the stage of achieving improvements in management or practices (i.e. CASS Stage 3), MCS may recognise the initiative through an alternative sourcing recommendation provided the FIP remains within its agreed schedule.

This will be depicted (see Figure 2) by the addition of a left facing arrow over the normal 5 rating, indicating that although participation in the FIP would not be sufficient to influence the rating assessment, it would serve to recognise that credible improvement work is underway. In such instances, MCS would not advise against sourcing from the fishery, thus providing, we hope, an incentive for businesses to support credible improvement projects.



Figure 2 Example of rating graphic for red rated fisheries in a recognised FIP

⁷ CASS. FIP Guidelines, available at:

<http://cmsdevelopment.sustainablefish.org.s3.amazonaws.com/2013/08/01/Conservation%20Alliance%20FIP%20Guidelines-b75860fc.pdf> [Accessed 1/09/16].

⁸ SFP. Seafood industry guide to FIPs, available at:

<http://cmsdevelopment.sustainablefish.org.s3.amazonaws.com/2014/04/28/SFP%20FIPS%20Guide%202014-46b3eb10.pdf> [Accessed 5/05/17].

⁹ CASS FIP Guidelines version 3.7.15, available at: <http://solutionsforseafood.org/wp-content/uploads/2015/03/Alliance-FIP-Guidelines-3.7.15.pdf>.

4.2 Management detailed descriptors

The category descriptors for management are detailed further in Table 10 below to allow for more precise allocation of a score to the situation for management for the stock under assessment.

Table 10 Category descriptor detail for Management

Category Description	Score	Associated Descriptors
<p>Adequate or well-managed or the fishery is Certified</p> <p>Management plan and/or measures in place, enforced and having a measurable effect</p>	0	<p>All appropriate management measures are in place, enforced and fully effective.</p> <p>And, if applicable</p> <ul style="list-style-type: none"> Management Plan agreed and in place and evaluated by ICES as precautionary, or: No formal management plan in place, practice is precautionary or consistent with MSY approach. If applicable, Fmp and Bmp are below and above targets respectively. <p>Or</p> <ul style="list-style-type: none"> Fishery is certified to a recognised standard (See Error! Reference source not found.)¹⁰
<p>Management requires some improvement</p> <p>Some measures and/or Plan in place, enforced and having a measurable effect</p>	0.25	<p>Some appropriate management measures are in place, enforced and largely effective.</p> <p>And, if applicable</p> <ul style="list-style-type: none"> Where Management Plan in place Fmp and Bmp are below and above targets respectively <p>Or</p> <ul style="list-style-type: none"> If Recovery Plan in place, stock is recovering as expected and within agreed timeframe
<p>Partly effective management</p> <p>Some measures and/or Plan in place, enforced but having little effect</p>	0.5	<p>Some but not all appropriate relevant management measures are in place, enforced but appear to be having little effect or are insufficient or inadequate or have not been in place long enough for their effect to have been assessed.</p> <p>And, if applicable</p> <ul style="list-style-type: none"> If Management Plan in place, Fmp and/or Bmp at or within target or defined range or if plan not in place a Management Plan is under development <p>Or</p> <ul style="list-style-type: none"> If Recovery Plan in place stock is recovering as expected but not necessarily within agreed timeframe

¹⁰ In the majority of cases where a fishery is certified, a score of 0 will apply, however in situations where, for example, certain conditions are attached to the certification, a lower score may be allocated.

Category Description	Score	Associated Descriptors
<p>Poorly managed and requires considerable improvement or specific management measures implemented</p> <p>Few measures in place, enforced but having no effect</p>	0.75	<p>Few appropriate management measures are in place, enforced but appear to have no effect or enforcement is poor e.g. high IUU fishing taking place.</p> <p>And, if applicable</p> <ul style="list-style-type: none"> • No specific management objectives known or if • Management Plan in place, but F and B are respectively above and below Fmp and Bmp targets <p>Or</p> <ul style="list-style-type: none"> • Stock considered overfished and insufficient measures in place to recover stock <p>Or</p> <ul style="list-style-type: none"> • Scientific advice is not being followed
<p>No appropriate or effective management measures in place</p>	1	<p>No appropriate management measures in place.</p> <p>And, if applicable</p> <ul style="list-style-type: none"> • No Management Plan <p>Or</p> <ul style="list-style-type: none"> • Stock depleted, i.e. stock at or below or in the vicinity of Blim and no Recovery Plan in place.

Table 11 User guidance on management measures appropriate to a well-managed fishery

Measure	Description
Management measures to protect the species or stock under assessment	
Catch or harvest control rule	Agreed management response to various stock status
Catch controls or limits	TACs, quotas, harvest limits, Maximum breakage rates etc.
Effort or access limitations or controls	Effective effort control e.g. days at sea; spatial and time closures; limited entry e.g. restrictive licensing or permit; transferable access rights etc.
Regular & robust stock assessment or appropriate assessment of data-limited stocks	<p>Appropriate reference points, precautionary management to mitigate uncertainty where the stock is data limited.</p> <p>Regular monitoring e.g. CPUE, size and age structure etc., good knowledge of species biology.</p> <p>Reliable stock assessment conducted on a regular basis (should reflect needs of the fishery and not be more than 5 years old).</p>

Measure	Description
Measures in place to address discarding	Landing obligation or other measures in place specifically to reduce discarding and waste, e.g. selectivity and avoidance measures; limit on discard rates.
Adequate measures to protect juveniles and spawning fish	E.g. byelaws to protect spawning sites or berried crustaceans i.e. illegal to land berried lobsters; target spawning adults; seasonal or spatial and time closures
Adequate measures in place to protect vulnerable species	e.g. Closed areas to reduce susceptibility to fishing
Research and Development monitoring	Fisheries-Science partnership; data collection; observers at sea
Voluntary Code of Conduct or Practice	Code or practice available publically
Adequate monitoring, surveillance or control and enforcement	
Monitoring, control and surveillance	Regular patrols and enforcement, fisheries inspectorate, port controls, fines, VMS. Observer &/or CCTV coverage. Ban on discarding target species.
Enforcement	Measures to avoid or reduce IUU fishing. Logbooks; observers at sea; fines; fully documented fishery, Registration of buyers and sellers or equivalent.
Illegal, unreported, or unregulated activity	Prevalence of IUU, penalties regime, awareness of the consequences of non-compliance, patrols (on shore and at sea). If IUU suspected to be significant, intrinsic and widespread, default 1 for the fishery.
Compliance with scientific advice and management or recovery plan in place where applicable	
Compliance with best available scientific advice	TAC or quota in line with recommendations from latest stock assessment
Compliance with International Management Plans or Agreements	TAC or quota in line with any binding agreement e.g. UNCLOS or CFP
Compliance with management	Landings or catches adhere to management or recovery plans
Precautionary Recovery plan	Assessed as precautionary
Fishery Improvement Project	Credible FIP and achieving improvements to management or fishing practices according to its work plan
Industry led initiatives	e.g. pot limitation or seasonal closures

4.3 References

Fishery Progress, 2017. Fishery improvement project progress tracking database and tools. Available at: <https://fisheryprogress.org/> [Accessed 11/6/17].

Melnychuk, M. C., Peterson, E., Elliot, M. Hilborn, R., 2016. Available at: <https://mikemelnychuk.files.wordpress.com/2016/12/melnychuk-2016-pnas-fisheries-management-and-stock-status-with-si.pdf> [Accessed on 1/04/17].

SFP, 2017. FIP toolkit and resources. Available at <https://www.sustainablefish.org/Programs/Professional-Guidance/FIP-Toolkit-Resources> [Accessed 25/7/17].

5 Criterion 3: Capture method and ecological effects

The criterion for capture method and ecological effects considers the impacts associated with the capture or fishing method on habitat (including vulnerable marine ecosystems (VMEs) such as seamounts or cold-water corals and biogenic reefs or seagrass; target and non-target species in terms of the amount of discards (unwanted catch) and bycatch (wanted or unwanted catch) including vulnerable and Endangered, Threatened or Protected (ETP) species; and fishing in Marine Protected Areas (MPA).

Depending on the fishing gear in use there can be varying impacts to the marine environment. Active gear types, such as trawls, in general have more direct environmental impacts than passive gear types, but these impacts are heavily dependent on fishing intensity, site vulnerability and target species. Towed gears including beam trawls, otter trawls, dredges and seine and purse seine methods can also generate significant levels of by-catch from a number of different species including other commercial fish species, non-commercial species including ETP species and cetaceans and many species of invertebrate. However, for many of these gear types, modifications can be put in place to reduce discards and bycatch. Dive caught, pole and line, hand-line, pot or creel, trap and set (gill) net fishing methods tend to have a low impact on the marine environment, as they are not towed along the sea bed and so have a limited range of impact. Similarly, while long-lining may have significant shark or bird by-catch, it has little or no contact with the sea bed and accordingly does not have a significant benthic impact.

Where the fishing method is associated with significant species or habitat impacts or illegal or fishing is damaging or degrading designated features of an MPA¹¹ (see Appendix VI) or bottom trawling below 600m (deep sea fishing) is taking place without robust mitigation measures in place, the fishery is rated a 5 by default (see Table 3).

Category description and weighting for capture method and ecological effect is summarised Table 12 below. Impacts generally associated with the various fishing gears are presented in Table 13.

Any measures deployed to reduce gear impacts for the capture method and fishery in question is taken into consideration when determining the individual impact scores. These measures are outlined in Table 14.

The criterion score for capture method and ecological effects is obtained by consideration of the impacts of the fishing method (gear type) in use on:

- Habitat (Table 15);
- Non-target species (bycatch), retained or discarded, and their removal (Table 16); and
- Vulnerable and Endangered, Threatened and Protected species, retained or discarded, and their removal (Table 17).

The highest score obtained from the evaluation of these three impacts is the one used. This score is multiplied by the weighting multiplier to obtain the criterion score.

¹¹ Many bottom trawling gears will need to be assessed for potential damage to seabed features where Special Areas of Conservation, Scottish nature conservation MPAs and English Marine Conservation Zones are designated to protect the integrity of seabed features.

Table 12 Fishing method impacts, associated descriptors and scores

Impact	Associated descriptors	Score	Weighting Multiplier	Criterion Score
Very low impact	Fishing method associated with negligible bycatch (includes juveniles, overfished and/or vulnerable or ETP species); and habitat impacts	0	X 4	0
Low impact	Bycatch is low or unlikely and unlikely causing their populations to decline; and/or method is unlikely to cause habitat impacts	0.25	X 4	1
Some or moderate impact	Bycatch is moderate, and likely causing their populations to decline; and/or method is likely to cause some or moderate habitat impacts	0.5	X 4	2
High impact	Bycatch is high, causing their populations to decline; and/or method is causing moderate or likely causing high or significant damage.	0.75	X 4	3
Very high impact or illegal or unknown	Bycatch is significant, causing their populations to fall to critical status; and/or method is causing significant damage; or bycatch rates and/or habitat impacts are largely unknown	1	X 4	4

Table 13 Examples of fishing gears associated with the impact descriptors

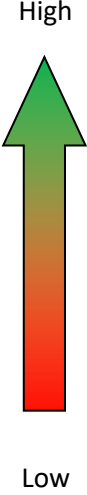
Category description	Score	Weighting Multiplier	Criterion Score	Sustainability Levels
Very low impact, e.g. hand-gathered, pole and line, handline, inkwell-pot	0	X 4	0	
Low impact, e.g. Danish seine, pelagic trawl	0.25	X 4	1	
Moderate impact e.g. demersal or otter trawl, longline, gill or fixed net	0.5	X 4	2	
High impact e.g. beam trawl >24m, tickler chains, chain mats, small-scale scallop dredging, large-scale longlining with known impact on top predators	0.75	X 4	3	
Very high impact e.g. explosives, cyanide, deep-sea bottom trawling, high-seas drift nets, high discard rate, gear towed over reefs, large-scale scallop dredging, electrical fishing or method illegal or where detailed impacts are unknown (particularly in MPAs)	1	X 4	4	

Table 14 Examples of measures to reduce gear impacts

Fishing method	Mitigation measures or selective devices
Protect target species, juveniles and reduce discards (Table 16, Table 17)	
Demersal (single, pair or multi rig) trawl; beam trawl	Square Mesh Panels (SMPs); Sorting grids; Coverless trawls; Cod-end configuration e.g. Square mesh in codend; Separator panel; Larger meshes; Mesh shape
Mechanical dredge	Limit on number of dredges per side of vessel
Dredge (Hydraulic or suction)	Gear restrictions – solids pump dredge; spacing of grid bars, no. and width of dredges; rigid or flexible delivery pipe
Any applicable	Monitoring of catches -- Camera documentation or Fully Documented Fisheries (FDFs) or observers at sea?
Any applicable	Minimum Conservation Reference Size (MCRS). See https://www.gov.uk/government/publications/minimum-conservation-reference-sizes-mcrs/minimum-conservation-reference-sizes-mcrs-in-uk-waters for a guide to minimum landing sizes. Also http://www.anglingtrust.net/page.asp?section=163 as a guide for actual size-at-maturity and corresponding legal minimum landing sizes for UK species.
Any applicable	Maximum Landing or Marketing or Conservation Reference Size where appropriate e.g. lobster
Reduce bycatch and protect non-target species (Table 16, Table 17)	
Any applicable	Use and monitoring of bycatch reduction devices: BRDs are regulated for and effectively monitored, including use of observers where necessary and feasible. Use of reference fleets and electronic remote monitoring to assist.
Any applicable	Bycatch quotas: Full catch recording for both target and non-target species. Fisheries implement best practice avoidance and ETP handling measures as recommended or directed by the RFMO.
Any applicable	Restrictions or ban in place on damaging practices? Closures or avoidance of bycatch hotspots?
Demersal trawl	Turtle Excluding Devices (TEDs); BRD;
Mid-water or pelagic trawl (single and pair)	Sorting grids e.g. Nordmøre grid; TED (Turtle Excluder Devices)
Seine net	Selective panels
Troll	Visible hooks; Set lines below reach of seabirds

Fishing method	Mitigation measures or selective devices
Purse seine	Dolphin-friendly methods applied where applicable, e.g. Medina panel and backdown principle or manoeuvre, restrictions for setting around whale sharks or cetaceans
Purse seine (FAD)	Control number and density of FADS; Restrictions on setting on FADS, logs or debris, GPS, sorting grids, non-tangling design, restrictions for setting around whale sharks or cetaceans
Longline (pelagic); longline (demersal or bottom)	Measures to reduce incidental catch or by-catch & impact on non-target and ETP species: bird streamers/scarers; replacement of hooks with O-hooks; bait change for turtles; Fishing at night only; Increasing weight on branch lines – ensures they sink quickly and baited hooks out of reach of seabirds; Set lines underwater; Offal management e.g. disposal away from lines; Dyed bait so it is less visible to seabirds; Streamers used as a scaring device; Magnets to reduce shark bycatch; Restrictions on: number of hooks; length of line; soak time; type of bait etc.
Fixed or gill or drift net (trammel; wreck; tangle)	Attachment of acoustic deterrent devices; Dyes to make nets more visible; Restrictions on number and length of nets; Exit panels; Scaring devices e.g. pyrotechnics; Coloured e.g. white – mesh visible to seabirds; Mesh size restrictions; Soak time restrictions
Pot or creel or trap	Restrictions on type of pot or trap in use; Escape gaps
Protect habitat (Table 15)	
Demersal (single, pair or multi rig) trawl	Lighter ground gear – rollers instead of hoppers, suspended and semi-suspended trawl doors
Beam trawl	Replacement of skids with wheels; sumwing
Dredge (Mechanical)	Gear restrictions or design, limit on number of dredges etc.
Any applicable	Spatial management: Area/Time closures; MPAs; MCZs, protection of Vulnerable Marine Ecosystems (VMEs) e.g. deep sea
Any applicable	Precautionary approach applied to fishing activity in vulnerable habitats

5.1 Capture method and ecological effects detailed descriptors

5.1.1 Habitat impacts

Table 15 considers the collateral impact of the fishing gear on the seabed and/or other habitat such as coral, rich sandbanks, seamounts etc.

The fishing gears listed below, although not an exhaustive list, are indicative of the main gear types prevalent in commercial UK and European fisheries. Specific gear types not listed are assessed on their own merit.

Table 15 Gear vs Habitat

Gear \ Habitat	Fine mobile sand	Mud and/or gravel	Bedrock, boulder and/or cobble ¹²	Biogenic reef, seagrass, maerl, or corals	MPAs designated for benthic features ¹³	Deep sea, sea-mounts
Manual						
Dive caught						N/A
Hand gathering or rake						N/A
Pole & line, jig, troll						N/A
Hook and line, handline (if fished on sea floor, otherwise NA)						N/A
Spear or harpoon						N/A
Static						
Bottom longline						
Pelagic longline						N/A
Coastal drift net						N/A
Fixed or gill net						Restricted below 600m in EU
Pot, creel or trap						N/A
Suction dredge						N/A
Towed Pelagic						
Mid water or pelagic trawl						N/A
Pair trawl						N/A
Towed Bottom						
Beam trawl					Footnote 11	N/A
Demersal otter trawl					Footnote 11	
Dredge					Footnote 11	N/A
Encircling						
Purse seine						N/A
Benthic seine net					Footnote 11	N/A
Explosives, chemical or illegal e.g. high seas drift net and electrical fishing						
Score		1	0.75	0.5	0.25	0

¹² See Glossary (Appendix IV) for definitions of boulder and cobble particle sizes.

¹³ Where MPA features are present that are both vulnerable to bottom towed fishing gears and dredgers, and where there is the opportunity within the MPA for biological features to recover on the seabed were bottom trawling to be restricted i.e. in areas of the MPA where benthic recovery could occur. Conversely, if the feature is ephemeral (such as mussel beds), and is proven (e.g. through a Habitat Risk Assessment) not to support other biodiversity in high current areas, it can be harvested to an extent that doesn't compromise other natural predators (e.g. seabirds).

For guidance on habitat impact, we refer to the risk ratings of how likely different fisheries gear types and activities are to damage protected features of European Marine Sites (initially Special Areas of Conservation) produced by the Marine Management Organisation (MMO) in June 2014.¹⁴

This table is also currently being utilised by English regulators to actively manage different fishing impacts within Marine Conservation Zones and Special Areas of Conservation.

To determine the sediment type found in various waters, habitat maps can be used, or preferred substrate types for difference species at different stages of life-history.¹⁵

5.1.1.1 *Impact on Marine Protected Areas (MPAs)*

MPAs have been designated for various reasons, but primarily because of their importance and role in restoring marine biodiversity and maintaining seafloor integrity (basically to improve the health of our seas!). Management is needed to ensure that damaging activities and activities that continue to modify and simplify the seabed are no longer permitted to occur within them, which in many cases continue to operate unabated contrary to existing regulations.

The scale of most assessments is based on the wider stock area and is therefore normally an extensive or large geographical area. At such a scale, it is difficult to identify if fleets/fisheries are occurring in an MPA or not and if they are, to what extent. Where available information clearly indicates a high likelihood that a fishery/fleet at the scale of the assessment is occurring in an MPA, the MPA tab in the above matrix is applied to score habitat impacts. In other cases, MCS encourages the supply chain to identify if their specific sources are being caught in MPAs.

As a result, MCS will be recognising such components of fisheries operating within MPAs that have not demonstrated that their operation does not have a detrimental effect on the site as red rated, and therefore Fish to Avoid. This does not mean that ratings profiles for these fisheries components will be developed, but it does mean that MCS will be advising commercial buyers to look more closely at exactly where their fish has been caught, and whether or not it has come from a high impact fishery¹⁶ operating within an MPA, and to request evidence (such as an Environmental Impact Assessment (EIA) or appropriate risk assessment e.g. the risk based approach adopted for European Marine Sites¹⁷) from the fishery to demonstrate that it is not damaging designated features within the MPA. On a broad scale, we are particularly aware of the current lack of management and closures of fisheries using bottom towed fishing gears within offshore UK MPAs in the North Sea and western English Channel.

MCS is aware that because the relevant information required is not routinely made available to the buyer it is difficult for them to currently know precisely where fish have been caught. As monitoring

¹⁴ This guidance is summarised and available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/310811/matrix.xls [Last accessed on 01/03/2017].

¹⁵ E.g. Seitz, R.D., Wennhage, H., Bergström, U., Lipcius, R.N., Ysebaert, T., 2014. Ecological value of coastal habitats for commercially and ecologically important species. *ICES Journal of Marine Science*, Volume 71, Issue 3, 1 April 2014, Pages 648–665. Available at <https://academic.oup.com/icesjms/article/71/3/648/634683> [Accessed on 1/06/2017].

¹⁶ 'High Impact' fishing activities are those that have a significant impact over and above natural range state of habitats and species commonly associated with the MPA. Impact can also be measured in terms of impact to the favourable population status of sites' habitat or species, and the ability of entire site to function naturally.

¹⁷ DEFRA, 2013. Revised approach to the management of commercial fisheries in European marine sites - overarching policy and delivery document. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/345970/REVISED_APPROACH_Policy_and_Delivery.pdf [Accessed on 1/06/2017]. For more information on MPAs globally, visit <http://www.mpatlas.org/map/mpas/>.

practices and technologies continue to improve, and as supply chain information and traceability systems become more electronic, we anticipate that it will become easier to integrate such information into seafood buying decisions. Likewise, as MPA management and monitoring improves, it will become easier for the industry to demonstrate to buyers that the fish they are buying has not been caught using fishing methods damaging to the features of an MPA.

5.1.1.2 *Impact on deep sea*

The ICES definition of a deep-sea species requires that “deep-sea fish species occur in deep-sea waters and are characterised by one or a combination of the following factors: slow growth, low natural mortality, high longevity, no annual continuous recruitment or spawning season”.¹⁸

ICES do not specify a depth definition for deep sea fisheries due to the lack of an agreed world-wide definition of deep water or of deep-water species. They consider the setting of a "depth limit above and under which species would be considered demersal or deep-water dwellers" arbitrary. However, due to the geography of Atlantic EU waters and the existence of the shelf break occurring at around 200m, ICES considers deep-sea waters as all waters below 200 m depth.

MCS defines deep sea fishing as targeting species classed as ‘deep sea’ species by ICES and/or where fishing primarily occurs below 600m, to encompass the global nature of deep sea fishing. Clarke et al (2015) identified an increase in biodiversity between 400m-1000m depth and indicated concerns that the deeper the trawl fisheries occur, the greater the potential impact on this biodiversity. Their study suggested that collateral ecological impacts increase significantly between the depths of 600 to 800m. As a result, MCS suggests that due to these wider ecological impacts, bottom trawling below 600m should be considered deep sea fishing.

The uncertainty and risks around deep-sea fishing has resulted in MCS considering trawling below 600m and/or for deep sea species (as detailed above) to be automatically rated red (i.e. Fish to Avoid). However, where robust regulation, such as the EU Deep Sea Access Regime (DSAR) or other appropriate mitigation measures or precautionary regulations to protect the deep-sea species and/or habitats exist (e.g. protection for vulnerable marine ecosystems (VME’s), stock assessments and quotas for deep sea species and specific protections for vulnerable deep-sea habitats) case by case assessments will be made to rate these fisheries.

5.1.2 *Bycatch impacts*

This impact considers the impact of the fishing gear on non-target species – often referred to as bycatch – which may be retained or discarded. These species may be other fish species or non-fish species such sponges, etc. The extent of the impact on them depends on several factors such as the target fish species and the area in which and time at which the fishing activity is taking place.

When assessing the likelihood of impacts on non-target species the status of the most vulnerable and most commonly associated non-target species will be considered. If a bycatch species is commonly discarded, the discard rates of the fishery¹⁹ will also be considered.

¹⁸ ICES, 2015. EU request to ICES on the assessment of the deep-sea status of certain fish species. Published 29 September 2015. Available at: [https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2015/Special Requests/EU deep waters stock.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2015/Special%20Requests/EU%20deep%20waters%20stock.pdf) [Accessed on 1/06/2017].

¹⁹ Rates for low, medium and high discarding are defined in: EC, 2011. Impact Assessment of discard reducing policies: EU discard annex. Available at: https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/annex_en.pdf [Accessed 1/06/2017].

Note: If the species that is being assessed is generally recognised as a bycatch species itself (e.g. yellow or tub gurnard) and has scored yellow (0.5) or better under 'Stock status' criteria, Table 16 is not completed.

If the species under assessment is retained as part of a mixed fishery (see Glossary, Appendix IV), all tables are completed with the impact of the fishery on a minimum of 6 key species (e.g. cod, haddock, whiting, coley, hake and plaice) also considered.

Table 16 Impact on non-target (bycatch) species (retained or non-retained)

Score	0	0.25	0.5	0.75	1
Descriptor	Fishery associated with low or negligible impact	Fishery unlikely over-exploiting other species	Fishery has the potential or is possibly over-exploiting other species	It's likely the fishery is over-exploiting other species and causing them to decline	The fishery is causing other species to fall to critical levels (e.g. stock biomass below Blim)

5.1.3 Vulnerable or ETP species impacts

The fishery may also impact on vulnerable and/or Endangered, Threatened or Protected (ETP) species.²⁰ ETP species are species that are generally in danger of extinction throughout all or a significant portion of their range or likely to become an endangered species within the foreseeable future throughout all or a significant portion of their range.

Table 17 Impact on vulnerable or ETP species (retained or non-retained)

Score	0	0.25	0.5	0.75	1
Descriptor	Fishery associated with negligible bycatch of vulnerable and / or ETP species	Bycatch levels unlikely causing populations to decline	Bycatch level is possibly contributing to population decline and / or preventing their recovery and / or fishing method is causing significant by catch issues	Bycatch level is likely causing populations to decline and / or is preventing their recovery	Bycatch level is very likely causing populations to decline and/or is preventing their recovery

²⁰ MCS recognises that it is often difficult to prove that accidental catch is impacting populations and that in some fisheries where there is a significant bycatch issue, it may not necessarily be having population effects. MCS believes however that continuing efforts are needed to reduce incidental capture of ETP species, especially where there is an attendant welfare issue, to as close to zero as possible.

5.2 References

- Clarke, J., Milligan, R.J., Bailey, D.M., Neat, F.C., 2015. A scientific basis for regulating deep-sea fishing by depth. *Current Biology*, Volume 25, Issue 18, 2425 – 2429. Available at: <http://www.sciencedirect.com/science/article/pii/S0960982215009380> [Accessed 1/06/17].
- DEFRA, 2014. Benthic habitats. Available at: <http://webarchive.nationalarchives.gov.uk/20141203181034/http://chartingprogress.defra.gov.uk/benthic-habitats> [Accessed 1/06/17].
- EC, 2011. Impact Assessment of discard reducing policies: EU discard annex. Available at: https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/annex_en.pdf [Accessed 1/06/2017].
- Ellis, J.R., McCully Phillips, S.R., Poisson, F., 2017. A review of capture and post-release mortality of elasmobranchs: capture mortality of elasmobranchs. *J. Fish Biol.* 90, 653–722. <https://doi.org/10.1111/jfb.13197>.
- Enever, R., Catchpole, T. L., Ellis, J. R. & Grant, A., 2009. The survival of skates (Rajidae) caught by demersal trawlers fishing in UK waters. *Fisheries Research* 97, 72–76.
- Enever, R., Revill, A. S., Caslake, R. & Grant, A. (2010). Discard mitigation increases skate survival in the Bristol Channel. *Fisheries Research* 102, 9–15.
- Global Fishing Watch, 2016. Global fishing watch interactive website. Available at: <https://www.skytruth.org/> [Accessed 1/06/17].
- ICES, 2015. EU request to ICES on the assessment of the deep-sea status of certain fish species. Available at: https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2015/Special_Requests/EU_deep_waters_stock.pdf [Accessed 1/06/17].
- Marine Conservation Institute, 2017. Atlas of marine protection. Available at: <http://www.mpatlas.org/> [Accessed 1/06/17].
- MCS, 2012. How fish are caught (downloadable pdf). Available at: <http://www.goodfishguide.org/information/How+fish+are+caught> [Accessed 1/07/17].
- MCS, 2013. Fishing methods league table (downloadable pdf). Available at: <http://www.mcsuk.org/downloads/fisheries/Most%20sustainable%20fishing%20methods.pdf> [Accessed 1/07/17].
- MCS, 2017. Marine protected areas webpages. Available at: <https://www.mcsuk.org/mpa/> [Accessed 1/07/17].
- Seafish, 2015. Seafish gear database. Available at <http://www.seafish.org/geardb/> [Accessed 1/06/17].
- Seafish, MSC, FCI, SAGB, 2013. Project inshore MSC pre-assessment database. Available at: <http://msc.solidproject.co.uk/msc-project-inshore.aspx> [Accessed 1/06/17].
- Seitz, R.D., Wennhage, H., Bergström, U., Lipcius, R.N., Ysebaert, T., 2014. Ecological value of coastal habitats for commercially and ecologically important species. *ICES Journal of Marine Science*, Volume 71, Issue 3, 1 April 2014, Pages 648–665. Available at: <https://academic.oup.com/icesjms/article/71/3/648/634683/Ecological-value-of-coastal-habitats-for> [Accessed 1/06/2017].

Thurstan, R. H., Brockington, S., Roberts, C. M., 2010. The effects of 118 years of industrial fishing on UK bottom trawl fisheries. *Nat. Commun.* 1:15 doi: 10.1038 / ncomms1013.

Appendices

Appendix I: External review process

Following the release of the latest scientific advice and as part of MCS scheduled ratings updates in the Summer and Winter each year (see Appendix II), MCS consults externally on proposed changes to seafood ratings.

Interested parties with technical insight, relevant industry or scientific expertise or those with information that could contribute to the comprehensiveness and quality of the assessments, are particularly invited to input.

To receive notifications about ratings updates and consultations, please email us (ratings@mcsuk.org) and request to be added to our interested parties email distribution list, and follow the Good Fish Guide on Twitter @GoodFishGuideUK.

Details of ratings consultations will also be made available online at: <https://www.mcsuk.org/ocean-emergency/sustainable-seafood/about-the-good-fish-guide/how-our-good-fish-guide-ratings-work/ratings-consultations/>

Appendix II: Good Fish Guide update schedule

Timing	Action
Jan	<i>Ratings research</i>
Feb	Winter Consultation
Mar	<i>Ratings finalisation</i>
Apr	Launch
May	<i>Ratings research</i>
Jun	
Jul	
Aug	Summer Consultation
Sep	<i>Ratings finalisation</i>
Oct	Launch
Nov	<i>Ratings research</i>
Dev	

Appendix III: Wild capture certification programmes recognised by MCS

The Global Seafood Sustainability Initiative (GSSI)²¹ is used to inform consideration of certification standards for recognition within the wild capture methodology. Presently MCS recognises the following standards:

- [Alaskan Responsible Fisheries Management \(RFM\) Program](#) - Alaska Seafood Marketing Institute (ASMI)
- [Icelandic Responsible Fisheries Management \(RFM\) Program](#)
- [Marine Stewardship Council \(MSC\)](#)

²¹ Global Seafood Sustainability Initiative. Available at <http://www.ourgssi.org/benchmarking/recognized-schemes/> [Accessed on 1/07/2017]. See <http://www.ourgssi.org/> for information on GSSI benchmarking of certification programmes.

Appendix IV: Glossary

Term	Description
<i>Artisanal</i>	Small-scale, traditional fisheries.
<i>Benthic</i>	On or near the seabed.
<i>Biodiversity</i>	The variability amongst living organisms.
<i>Biogenic reef</i>	Reefs made up of animals. In the UK these include coral reefs, made by cold-water corals such as <i>Lophelia pertusa</i> and <i>Madrepora oculata</i> . Mussels such as the edible mussel <i>Mytilus edulis</i> and the horse mussel <i>Modiolus modiolus</i> can also create biogenic reef structures.
<i>Biomass</i>	The total weight of living organisms or total weight of a resource or stock.
B_{lim}	Limit reference point for spawning stock biomass (SSB). A stock with biomass below B_{lim} is at greater risk of suffering impaired recruitment.
B_{MSY}	SSB that results from fishing at F_{MSY} for a long time. B_{MSY} is the biomass that enables a fish stock to deliver the maximum sustainable yield. In theory, B_{MSY} is the population size at the point of maximum growth rate. The surplus biomass that is produced by the population at B_{MSY} is the maximum sustainable yield that can be harvested without reducing the population.
<i>Boulder</i>	Seafloor rock particles greater than 256mm across
B_{pa}	Precautionary reference point for spawning stock biomass (SSB).
$B_{Trigger}$	Value of biomass (normally SSB), below which, a specific management action is triggered (e.g. reduction in fishing pressure) in order to recover the biomass above $B_{Trigger}$.
<i>Bycatch</i>	Incidentally caught species which generally have little or no commercial value and often thrown back. This can include finfish, invertebrates such as starfish and sponges, , other species not regularly consumed, and/or Endangered, Threatened or Protected (ETP) species such as sharks, marine turtles, birds or mammals.
<i>CFP</i>	EU Common Fisheries Policy
<i>Cobble</i>	Seafloor rock particles between 64 and 256mm across
<i>Cohort</i>	A group of fish born in the same year within a population or stock.
<i>Data deficient / Data limited</i>	Fisheries for which data are insufficient to evaluate reference points in order to assess stock status.
<i>Deep sea fishing</i>	MCS defines this as targeting species classed as 'deep sea' species by ICES and/or where fishing primarily occurs below 600m.
<i>Deep sea species</i>	Species that occur in deep-sea waters and are characterised by one or a combination of the following factors: slow growth, low natural mortality, high longevity, no annual continuous recruitment or spawning season.
<i>Discard ban</i>	See Landing obligation.
<i>Discards</i>	Components of catches thrown back after capture e.g. because they are below the Minimum Landing Size (MLS) or because quota have been exhausted for that species. Most of the discarded fish will not survive.

<i>Endangered, Threatened or Protected (ETP)</i>	The US Endangered Species Act defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range." A threatened species is "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Protected species are those identified as Endangered or Threatened.
<i>Fishery</i>	The sum of all fishing activities on a given resource, defined in terms of species, area of capture, stock or sub area and capture method, e.g. shrimp fishery, North Sea cod fishery. It may also refer to a single type or style of fishing e.g. trawl fishery.
<i>Fishing effort</i>	The amount of a specific type of fishing over a given unit of time e.g. hours trawled per day; the overall amount of fishing expressed in units of time e.g. number of hauls per boat per day.
<i>Fishing mortality (F)</i>	Death or removal of fish from a population due to fishing. Usually expressed as the proportion of fish dying from fishing in one year, or an instantaneous rate. It can range from 0 for no fishing to very high values such as 1.5 or 2, meaning that 1.5 or 2 times as many fish have been caught as were present at the beginning of the fishing season (this is possible with short-lived, fast growing species such as anchovies).
F_{lim}	The limit (upper) reference point for fishing mortality.
F_{MSY}	The maximum rate of fishing mortality (the proportion of a fish stock caught and removed by fishing) resulting eventually, usually in a very long-time frame, in a population size of BMSY.
F_{pa}	The precautionary reference point for fishing mortality (F).
<i>Fully fished</i>	Fishery where catches are close to or at MSY.
<i>Landing obligation or 'discard ban'</i>	Introduced 1 January 2015 for pelagic species; for certain demersal species from 1 January 2016, starting with key species such as haddock, sole and plaice, depending on which sea area a vessel is fishing in and what type of fishing gear is used. By 2019 the obligation to land all catches of quota species is due to be fully implemented. The general rule is that species that are subject to catch limits cannot be returned to the sea once caught, although several exemptions apply. For further guidance see https://www.gov.uk/government/collections/fisheries-management-landing-obligation .
<i>Mixed fishery</i>	Where several species of commercial importance are caught at the same time in the same fishing gear. Most fisheries around the UK are mixed fisheries eg. see DEFRA consultation on establishing a mixed fishery multiannual management plan in the North Sea (NSMAP) https://consult.defra.gov.uk/fisheries/north-sea-map .
<i>Maximum Sustainable Yield (MSY)</i>	The largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological and environmental conditions.
<i>Overfished</i>	The state of a fish stock when its biomass is below its capacity to produce MSY on a continuing basis.

<i>Overfishing</i>	When a stock is subjected to a level of fishing mortality that jeopardises its ability to produce MSY on a continuing basis.
<i>Productivity</i>	The inherent biological characteristics of a species that determine its rate of population generation.
<i>Reef</i>	A rocky marine habitat or biological concretions that rises from the seabed. They are generally subtidal but may extend as an unbroken transition into the intertidal zone, where they are exposed to the air at low tide. They are very variable in form and in the communities that they support. Two main types of reef can be recognised: those where animal and plant communities develop on rock or stable boulders and cobbles, and those where structure is created by the animals themselves (biogenic reefs).
<i>Resilience</i>	See Productivity.
<i>Seamount</i>	An undersea mountain, with a crest that rises more than 1,000m above the surrounding sea floor. They are volcanic in origin, and are often associated with seafloor 'hot-spots' (thinner areas of the earth's crust where magma can escape). The enhanced currents that occur around them provide ideal conditions for suspension feeders. Concentrations of commercially important fish species, such as orange roughy, aggregate around seamounts and live in close association with the benthic communities. Seamounts are a distinct and different environment from much of the deep sea.
<i>Spawning Stock Biomass (SSB)</i>	Total weight of all sexually mature fish in the stock.
<i>Stock status</i>	State or condition of the stock e.g. whether it is overfished or being subject to overfishing.
<i>Stock</i>	Term given to a group of individuals in a species occupying a well-defined spatial range independent of other stocks of the same species. A stock will form the basis of a distinct fishery defined in terms of season and area.
<i>Total Allowable Catch (TAC)</i>	An annual maximum tonnage that may be taken of a fish species within an area.
<i>Underfished</i>	A stock which has a biomass above (normally considerably) the B_{MSY} level.
<i>Underutilised</i>	Species with a quota allocation that is not fully taken up as a consequence of either market demand or having landing restrictions in place in a mixed fishery or species for which a substantial part of their catch is not landed (i.e. it is discarded). Species for which resources are available but not yet exploited, i.e. species that potentially offer new fisheries.
<i>Vulnerable Marine Ecosystems (VMEs)</i>	Assemblages of marine benthic organisms which are susceptible to anthropogenic disturbance, especially that arising from the impact of fishing gear used in bottom fishing, e.g. seamounts, cold-water corals
<i>Vulnerability</i>	A combination of a species biological, physical and behavioural characteristics (productivity and susceptibility) which influence its risk of being caught and overfished.

Appendix V: ICES stocks category definitions

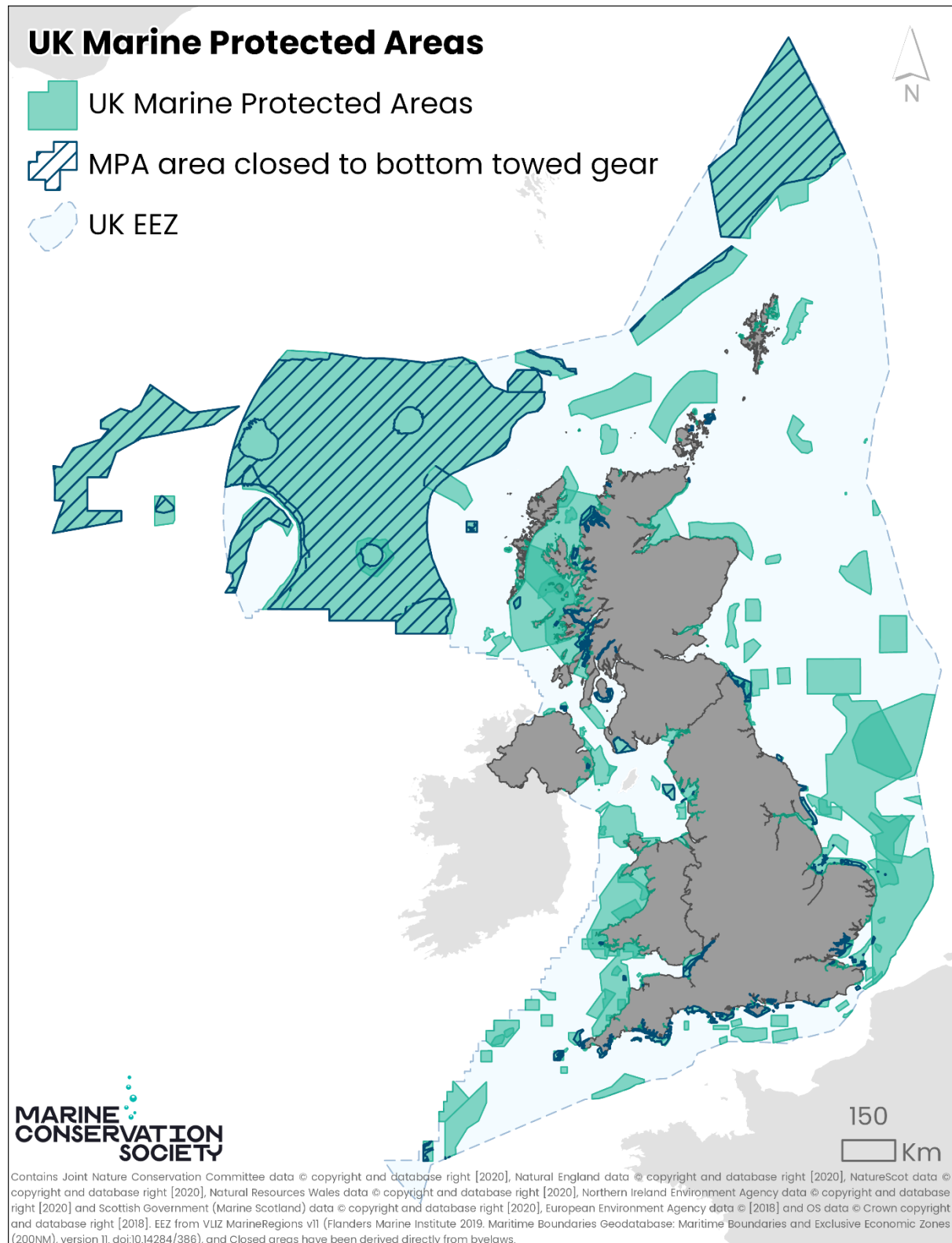
ICES Category	Definitions ²²
1	For data-rich stocks (quantitative assessments) with forecasts and are based on production models. Stocks are not considered to be data-limited and have full analytical assessments.
2	Stocks with analytical assessments and forecasts that are treated qualitatively. Quantitative assessments and forecasts exist but only indicate trends in fishing mortality, recruitment, and biomass rather than as an analytical assessment with a forecast.
3	Survey-based assessments from reliable indices e.g. CPUE are available and indicate reliable trends in stock metrics such as mortality, recruitment, and biomass. However, no quantitative, analytic assessment is available.
4	Where only catch or landings data are available but may not be consistent. Reliable time-series of catch data are available and used to approximate MSY.
5	Data-poor stocks where only landings data are available and no relevant fishery information is available from similar stocks or stocks in the ecoregion.
6	Landings data are negligible. Usually used for stocks that are caught in minor amounts as bycatch or where landings are negligible compared to discards, or where abundance is low are therefore the species has received limited study.

²² ICES, 2012. ICES Implementation of advice for data limited stocks in 2012 in its 2012 Advice. ICES CM 2012/ACOM 68. Available at: <https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2012/ADHOC/DLS%20Guidance%20Report%202012.pdf> [Accessed 5 June 2017].

Appendix VI: Marine protected areas around the UK

For updates and more information about MPAs in the UK, visit <https://www.mcsuk.org/ocean-emergency/marine-protected-areas/>.

The data below is correct as of January 2022.



Appendix VII: Guidance on habitat scoring where MPAs with habitat features are present

Relates to section 5.1.1 of the MCS Wild Capture Methodology

This document has been prepared to provide guidance for ratings assessors and stakeholders when scoring habitat impacts where MPAs with habitat features are present, specifically when applying section 5.1.1 of the MCS Wild Capture Methodology. It aims to clarify various terms and provides definitions relating to this section of the methodology to help ensure it is interpreted and applied consistently.

This guidance does not apply to MPAs that have been designated for non-habitat purposes such as pelagic species like dolphin and porpoise. The methodology evaluates impacts of the fishery on such species in section 5.1.2 and 5.1.3 (Table 16 and Table 17), as there is no specific mechanism relating to MPAs for these species in the current methodology.

Scale of assessment

As stated in the methodology, the scale of most fishery ratings assessments is based on the wider stock area and is therefore generally a very large geographical area, for example the entire North Sea. At such a scale, it is difficult for MCS to identify if fishing is occurring in an MPA[s] or not and if it is, to what extent.

Defining 'high likelihood'

The methodology states that 'where available information clearly indicates a **high likelihood that a fishery/fleet at the scale of the assessment is occurring in an MPA**, the MPA tab in the above matrix (sic) is applied to score habitat impacts', referring to Table 15 of the methodology. The statement 'high likelihood... at the scale of the assessment' is defined as follows:

There is evidence (e.g. recent catch reports or VMS data) of significant bottom towed fishing activity (>=20% of the catch or effort or coverage) from the fleet[s] under the unit of assessment occurring in an MPA or MPAs designated for seabed features.

Scenarios

To better facilitate understanding of scoring of habitat impacts in MPAs, the following scenarios have been identified:

Scenario one: less than 20% of the fishery is operating in MPAs

Where there is not a high likelihood that a fishery/fleet at the scale of the assessment is operating in an MPA, we use the default habitat score for that gear. For example, demersal otter trawling over mud is scored 0.5 based on the habitat matrix (Table 15). In these scenarios, we recognise there may still be some bottom towed fishing operating within MPAs, and may refer to this within the text of specific ratings, and also encourage the supply chain to investigate their specific sources. See **Supply chain recommendations** below.

Scenario two: 20% or more of the fishery is operating in designated or managed MPAs

Where there is a high likelihood that a fishery/fleet at the scale of the assessment is occurring in an MPA, the MPA column in the habitat matrix (Table 15) is applied to score habitat impacts. For example, demersal otter trawling is scored 1 based on the habitat matrix (Table 15).

Scenario three: Default red ratings: 20% or more of the fishery is operating in managed MPAs and fishing illegally or there is concern for the features or objectives of the site

Where there is a high likelihood that a fishery/fleet at the scale of the assessment is occurring in a designated and managed MPA and:

- i. There is insufficient evidence²³ demonstrating that the activity is not damaging to the protected feature[s] or a threat to the conservation objectives of the site[s]; or
- ii. A significant proportion²⁴ of the fishing activity is operating illegally²⁵ in an MPA;

A critical fail is triggered, and a default red rating is applied.

Supply chain recommendations

In cases where there is not a high likelihood of fishing within MPAs at the scale of the assessment (as defined above), but there may still be some bottom towed fishing operations within some MPAs designated for seabed features within the unit of assessment, MCS encourages the supply chain to identify if their specific sources are being caught from within the MPAs.

If sources are suspected of coming from within designated and managed MPAs, MCS advises businesses to:

- i. Establish if the fishing activity is operating legally inside a designated and managed MPA.
- ii. Request evidence (such as justification of management measures or an Environmental Impact Assessment or appropriate risk assessment²⁶) from the fishery or managing authority to demonstrate that the activity is not damaging to protected features or a threat to the conservation objectives of the site[s].

Where suitable evidence demonstrating the above cannot be provided or the activity is operating illegally inside the MPA, MCS would consider fish from these sources as red rated and therefore Fish to Avoid and would encourage businesses to source alternatives.

Note MCS does not envisage developing specific ratings profiles for fisheries taking place in individual MPAs at this stage.

MCS is aware that because the required information is not routinely made available to commercial buyers, it is difficult for them to currently know precisely where fish have been caught and if there is overlap with any MPAs. As monitoring practices and technologies continue to improve, and as supply chain information and traceability systems are better developed, we anticipate that it will become easier to integrate such information into seafood buying decisions. Likewise, as MPA management and monitoring improves, it will become easier for the industry and managers to demonstrate to buyers that fish being procured has not been caught using fishing methods that are damaging to MPAs.

²³ Evidence here generally refers to publicly available information including reports or assessments from relevant managing authorities, scientific research organisations, or conservation advisory bodies. Environmental Impact Assessments (EIAs) and Habitat Risk Assessments (HRAs) would be examples of such evidence.

²⁴ Significant proportion refers to 20% or more of the fishery at the scale of the assessment.

²⁵ Illegal operations here refers to incursions into MPAs which are contrary to agreed and active management measures for the site.

²⁶ For example, the risk based approach adopted for European Marine Sites.

MCS strongly encourages commercial buyers to support the ongoing designation of MPAs and swift implementation of robust management measures inside these areas so that these important habitats can be afforded proper protection as quickly as possible, and play their role in recovering the health and function of our seas.



If you have any questions or specific queries about Marine Conservation Society seafood ratings or you would like to comment on or contribute to information in the Good Fish Guide please contact the Marine Conservation Society at:

Tel: 01989 566 017

Email: ratings@mcsuk.org



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