Strengthening the evidence requirements for MSC certification

Consultation Summary Report

May 2021

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Glossary of abbreviations and technical terms

FAO – The Food and Agriculture Organization of the United Nations

This is a working paper, and hence it represents work in progress. This report is part of ongoing policy development.

The views and opinions expressed in parts of this report are those of stakeholders and do not necessarily reflect the official policy or position of the Marine Stewardship Council.

Purpose and scope of this report

Every five years, the Marine Stewardship Council (MSC) initiates a [Fisheries Standard Review](#) to help ensure our assessment and certification system remains the leading measure of fisheries sustainability. The current review began in 2018 and will conclude in 2022.

Stakeholders from all sectors are at the heart of our review, helping identify issues, develop solutions and test proposed changes. We have completed research into the topics identified in the Terms of Reference, and will next develop potential options for revisions. One of the topics identified is *strengthening the evidence requirements for MSC certification*. We are holding a series of consultations throughout 2021 and early 2022 for stakeholders to take part in the development of the Fisheries Standard.

This report details the following for the 2021 consultation survey on the topic of supporting the prevention of gear loss and ghost fishing:

This report details the following for the 2021 consultations on the topic of strengthening the evidence requirements for MSC certification:

- Background to topics discussed
- Participation data
- Next steps in the review process

It is the goal of MSC consultations to value authenticity, fairness and inclusiveness, secure strategic insight and build consensus and credibility. To achieve this, the MSC's processes for consultation follow the [ISEAL Standard Setting Code of Good Practice](#) and the [FAO Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries](#).

We publish this feedback as part of our commitment to transparency in our consultation process.

Background

Review of the MSC Fisheries Standard

The MSC regularly carries out a formal review of the MSC Fisheries Standard to make sure our assessment and certification system remains the leading measure of fisheries sustainability. The Fisheries Standard is based on United Nations FAO guidelines for ecolabelling, and is reviewed after five years in line with the ISEAL Standard Setting Code of Best Practice.

Through the review, we incorporate widely accepted new science and fisheries management best practice. We also make changes to improve its implementation and address stakeholder concerns.

The need for high quality information

In the context of an MSC assessment, confidence regarding a fishery's impact or the success of a management measure is tied to the quality of the available information. As such, assessment teams must take into consideration the type, amount and quality of information when scoring a fishery.

The MSC Fisheries Standard contains guidance to help assessors decide whether the information provided by a fishery is adequate to meet different scoring guideposts. However, this guidance is limited and allows room for interpretation on what level of information is good enough.

While expert judgement in these areas is necessary, it is important that assessment teams are consistent in their judgement of information adequacy. Inconsistency can lead to inequality in the program and may create a disincentive for fisheries to gather more and better quality data.

These issues can be mitigated to a great extent by setting explicit requirements on the type and quality that is adequate to meet certain scoring guideposts. In doing this in a systematic way, the MSC program can also help to drive on-the-water improvements in fisheries monitoring.

Evidence requirements framework

This project is developing an Evidence Requirements Framework to help assessors judge whether fisheries have provided adequate information to show they meet the Fisheries Standard. The three-step framework will be used to score the information-related performance indicators across all three principles of the Standard and will make sure assessors use a systematic and consistent approach.

Step 1: Risk assessment
Assessors consider the risk of the Unit of Assessment having a negative impact on a species or a habitat feature – such as by considering the gear type, gear designs and fishing methods, size of the fishery, and geo-spatial distribution of fishing effort. This classification of risk guides assessors' judgement in the remaining steps of the framework, with greater levels of risk calling for a higher quality of information.

Step 2: Evaluation of information quality
Assessors evaluate the quality of information provided by a fishery against pre-determined criteria, including the objectivity of information, its relevance to the unit of assessment and how complete it is. The risk classification is taken into consideration at this stage.

Clear requirements will describe what level of quality the information must achieve at different scoring guideposts levels. These will be focused on the characteristics of the information, such as its level of precision, and will include thresholds that must be met. Requirements will be more ambitious for those fisheries classed as having a higher level of risk.

The outputs of the workshop will contribute to the development of all three steps of the Evidence Requirements Framework.

As part of the review, the MSC has previously consulted stakeholders on *introducing requirements on the type and quality of evidence needed for scoring fisheries* and *establishing best practice in monitoring, control and serveillance*. The 2021 consultation activities are detailed below.

Online workshops

Using Microsoft Teams, the MSC held an online consultation workshop on the topic of *strengthening the evidence requirements for MSC certification.* This was split across two sessions:

- Monday 17th May 2021 (see workshop agenda)
- Monday 24th May 2021

The workshop was designed to generate technical knowledge and information needed to develop requirements on the type and quality of evidence needed for scoring fisheries. This is a project being undertaken as part of the MSC's Fisheries Standard Review. Participants were invited based on their expertise in fisheries monitoring, fisheries statistics or MSC assessment.

Throughout the course of the workshop participants were asked tow identify key considerations, based on their own expertise, that should be taken into account by MSC assessment teams when evaluating the adequacy of fisheries monitoring information. These considerations will be used to develop scoring thresholds and to provide assessment teams with guidance on how to evaluate information quality.

Participation

This section presents participation data for the consultation activities detailed above.

Online consultation workshop participation

The was attended by 12 participants on 17th May and 9 participants on 24th May. The full list of participants can be found in Table 3 in Annex I: Participation. For participants that did not consent to their names being published, only stakeholder group and country is available. A breakdown of stakeholder groups (Table 1) and geographical regions (Table 2) can be found below.

Table 1: Number of individual participants representing each stakeholder group.

Stakeholder group	17th May	24th May
Academic/scientific	4	4
Conformity assessment/accreditation	2	2
Fisheries management	2	2
MSC's Stakeholder Advisory Council (STAC)	2	0
MSC's Technical Advisory Board (TAB)	1	1
Total:	11	9

Table 2: Number of individual participants representing each geographical region.

Geographical region	17th May	24th May
Europe	6	6
North America	4	3
South America	1	0
Total:	11	9

Definitions

The workshop focused on the concept of accuracy, which refers to a combination of bias and precision. The MSC provides definitions for these terms in the MSC-MSCI Vocabulary v1.3. Separately, the project team has also referred to definitions in the OECD Glossary of Statistical Terms, upon which the MSC's definition are based. Some participants also introduced alternative definitions during discussions. The range of definitions considered during the workshop is provided below.

Term	MSC definition	OECD definition	Definition based on ISO
Bias	(Statistical): An effect which deprives a statistical result of representativeness by systematically distorting it, as distinct from a random error which may distort on any one occasion but balances out on the average. Bias is different from variance; it is a measure of the difference with the true value because the samples are not representative of the data population.	An effect which deprives a statistical result of representativeness by systematically distorting it, as distinct from a random error which may distort on any one occasion but balances out on the average.	Trueness (opposite: bias) refers to a systematic difference between the estimate and the true value, called bias. Bias has a sign: it is positive or negative (or zero).

Term	MSC definition	OECD definition	Definition based on ISO
Precision	A quality associated with a class of measurements and refers to the way in which repeated observations conform to themselves; and in a somewhat narrower sense refers to the dispersion of the observations, or some measure of it, whether or not the mean value around which the dispersion is measured approximates the "true" value. It is the inverse of uncertainty.	The property of the set of measurements of being very reproducible or of an estimate of having small random error of estimation.	Precision (opposite: imprecision) refers to the variability between repeated measurements and corresponds to random error in statistical estimates.
Accuracy	Accurate data refers to the closeness of computations or estimates to the exact or true values that the statistics were intended to measure.	Closeness of computations or estimates to the exact or true values that the statistics were intended to measure.	Accuracy refers to the combination of trueness and precision. This definition departs from the widespread use of accuracy as opposite of bias.

Workshop summary

Discussions with respect to bias in fisheries information

Information sources

Participants preceded the main discussions by identifying the main monitoring methods or sources of information that would likely be available and relevant in an MSC assessment.

Type	Information sources
Real-time observation of fishing operations	Logbooks and self-reporting Human observers and monitors Electronic monitoring Vessel position monitoring
Ex-post observation of fishing operations	On board inspections Transhipment monitoring Port sampling and dockside monitoring Landing and sales accounting
Other information on fishing operations	Research studies including fishing trials

| | Reference fleets |
| | Interviews and other qualitative techniques |

Types of bias

Participants discussed the main types of bias that may exist in the information used in a fishery assessment. This includes bias within the information itself and in regard to how it is used by assessors, and it may not refer exclusively to bias in its statistical sense.

Bias	Description
Observation bias	Discrepancy from the truth during the process of observing and recording information
	Can occur as a result of observer effects, use of biased estimators (estimation methods), data handling protocols, measuring errors.
Response bias	The tendency for participants to respond inaccurately when providing information, in the sense of overestimating or underestimating a value.
	Can occur as a result of conflict of interest, the respondent's competency, questioning method, social biases, cognitive bias
Confirmation bias	The tendency to use information in a way that confirms a prior belief
	Can occur as a result of selecting or favouring certain information, ignoring contrary information, biased interpretation

Questions with respect to how bias might be identified and considered

Participants suggested question that assessors might ask when evaluating the accuracy of information with respect to levels of bias and precision.

Objectivity
The extent to which information is free from conflict of interest

- Has the information been independently collected or verified?
- Is there any controversy surrounding how the information has been collected?
- Has the information been handled in a way that exposes it to corruption?
- Have I been able to access the information or ask the question directly?
- Does the information source or respondent have a potential conflict of interest?

Relevance
The extent to which information is pertinent or connected to the matter in hand

- Is the information representative of the heterogeneity of the Unit of Assessment?
- Was the information collected by a monitoring programme that was designed to collect it?
- Has the information been produced using a suitable analytical method?
- Is the issuing authority or respondent the most appropriate source for the information?

Completeness
The extent to which information captures all elements and dimensions

- Is information collected and available for all vessels or fishers in the UoA?
- Is information collected and available for all relevant fishing operations in space and time?
- Am I able to fill information gaps sufficiently using alternative information sources?

Consistency
The extent to which information is accordant with itself and other comparable sources

- Am I able to verify information using other sources?
- Is there any information that is not accordant with other comparable sources?
- Does the information incorporate a range of perspectives?

Discussions with respect to precision of information

General discussion on the setting of requirements on information precision
Throughout the discussions, participants provided some general thoughts on the concept of setting requirements around the precision of information needed to achieve certification.

- Variability is a characteristic of a stochastic system and not is necessarily an indication that something is wrong per se.
- Low precision of an estimate is not necessarily indicative of bad information and could instead be indicative of something else. For instance, low precision in the estimate of the bycatch of a protected species may be explained high variability of the bycatch, low sampling rates, imprecise measurements (e.g., poor visual weight estimates), etc.
- It may be more appropriate to focus on confidence rather than accuracy. Confidence is a much broader, more flexible concept that may include considerations of bias and precision but does so in the wider context of the situation. In a very general sense, confidence is the individual's perception when the system of interest is accurate.

Using CV as a statistical measures of precision
Participants discussed the theoretical and practical considerations of using the coefficient of variation as a statistical measure of precision when considering the evolution of fisheries information as part of an MSC fishery assessment. Note that some participants preferred to refer to the use of standard error and relative standard error.

- The coefficient of variation (CV) is the ratio of the standard deviation to the mean. The higher the coefficient of variation, the greater the level of dispersion around the mean. The lower the value of the coefficient of variation, the more precise the estimate.
- CV is a commonly used measure of precision in statistics but its potential relevance is contextual. For instance, a CV of 0.2 may indicate relatively low variation but the implication of this value depends on why we are interested in it and how much precision is required.
- CV is not a useful measure of precision in the case of rare events, such as infrequent bycatch or isolated instances of shark finning, due to the due to the non-normal distribution of the estimator. CVs measure variability, but confidence intervals depend on the underlying

distribution. CVs associated with estimates of rare events might not be useful because the CVs are themselves very variable. Other statistical methods are available to measure variation in these datasets, but these approaches are more sophisticated and less commonplace in fisheries.

- CV or alternative statistic when applied to an available data sample, such as a bycatch rate of a population of ETP species, may meet a specified threshold, but the estimate of error and precision when applied to an extrapolated magnitude of ETP catch by the Unit of Assessment may not.

- CV is not routinely available or requested by assessors during an MSC fishery assessment. It was noted that should be a consideration when deciding whether thresholds based on CV should be required for scoring. For instance, where CV is not available, key challenges are who would calculate the CV, and would the appropriate data be available to do this? It was noted that even data-rich fisheries going through assessment typically only provide aggregated data for reasons of confidentiality, from which assessors may not be able to calculate a CV.

Using alternative information as proxies for precision

Participants were asked to consider what alternative statistical measures or other information might be appropriate to give an indication of the precision of information.

- There is no clear direct equivalent measure to CV, although numerous methods exist that describe error and uncertainty in information. These are not direct equivalents to CV, and the same issues remain regarding the feasibility of these measures being used or calculated by assessment teams.

- Information that has been collected independently or verified by a competent authority is generally considered to provide a good level of confidence in the quality of the information.

- Certain monitoring methods may provide confidence, to a greater or lesser extent, that information is precise. For instance, observer coverage has direct relationship with CV, and coverage rates can in theory be set in order to achieve a target level of precision. However, contrary to precision, trueness is typically not improved by an increase in coverage rates.

- There are many factors that affect the overall adequacy of observer information, even if precision is high, such as bias. Moreover, observers may not be a feasible or appropriate monitoring method for some fisheries.

- Confidence regarding the quality of information may come from the design and effective implementation of the monitoring programme. For example, if a fishery is effectively implementing a monitoring design that should in theory be capable achieving a specific objective, such as detection of rare bycatch events, this may provide confidence that the information being generated is precise. Conversely, in a poorly implemented program, bias may be introduced where there are departures from the sample design.

- It may be appropriate to consider several sources of information as a way to achieve higher precision, or confidence in the information.

- Related to this, expert opinion can be important in providing confidence in the precision of information. Various methods exist to gather expert opinion. The field of "expert elicitation" defines various methods to gather expert opinion, which can be used in combination with quantitative information to gauge its veracity and its level of precision. An example was

provided of this approach being used to help make management decisions for an area with very limited monitoring information, where expert opinion is effectively used to mitigate uncertainty and increase confidence in the existing information.

Next steps

We are currently reviewing all feedback received from the consultation survey as well as independent research and our own internal data analysis. This will inform our decisions on proposed changes to the MSC Fisheries Standard. We will carry out an impact assessment on the proposed changes. We will also seek the advice of our governance bodies on the proposed changes.

The MSC will use the information and knowledge gained through consultations to refine the options for revisions to the Standard. The proposed revisions will be reviewed by the MSC governance bodies in late 2021.

Following this consultation, the next opportunity to comment on proposed changes will be during the 60-day public consultation on the draft Standard in early 2022.

The new MSC Fisheries Standard will be released in 2022 subject to approval from the MSC governance bodies.

Annex I: Participation

Table 3: List of participants in the online consultation workshop on 17th and 24th May 2021. For those participants who consented to this, their names and organisations are included.

Name	Organisation	Stakeholder group	Country
Chrissie Sieben	Independent consultant	Conformity assessment/accreditation	UK
Christopher Zimmerman	Thünen Institute of Baltic Sea Fisheries	MSC's Technical Advisory Board (TAB)	Germany
Eric Gilman	Pelagic Ecosystems Research Group	Academic/scientific	USA
Gudrun Gaudian	Independent consultant	Conformity assessment/accreditation	UK
Redacted at request of individual	Redacted at request of individual	Fisheries management	Canada
Jennifer Cahalan	Pacific States Marine Fisheries Commission	Fisheries management	USA
Lisa Borges	Independent consultant	Academic/scientific	Portugal
María José Espinosa Romero	Comunidad y Biodiversidad, A. C.	MSC's Stakeholder Advisory Council (STAC)	Mexico
Robert Arthur	Independent consultant	Academic/scientific	UK
Stefanie Moreland	Trident Seafoods Corporation	MSC's Stakeholder Advisory Council (STAC)	USA
Tom Peatman	Independent consultant	Academic/scientific	UK
Victor Restrepo	International Seafood Sustainability Foundation	MSC's Technical Advisory Board (TAB)	Spain

Annex II: Agenda

Agenda

All times are British Summer Time (BST) and indicative only.

Table 4: Agenda for day 1 of workshop held Monday 17 May 2021

Time	Item	Details
17.00	Welcome	
	Introduction	Background to the project and objectives of the workshop Opportunity for questions
17.45	Break	
17.50	Session 1 Case study fisheries	This session will introduce two case studies that are intended to focus the workshop discussions Participates will identify the likely environmental impacts of these case study fisheries and the data that may be available to understand and monitor these impacts This initial session serves as an orientation and warm up to the following sessions
18.35	Break	
18.45	Session 2 Bias in fishery information	This session will focus on the issue of bias in fisheries information Participants will discuss sources and indicators of bias, and ways in which bias can be mitigated Participants will generate a list of questions that could be used to guide auditors in assessing the accuracy of fishery information with respect to bias Participants will also produce a description of a best practice monitoring design for the case study fishery that would mitigate bias
20.00	End	

Table 5: Agenda for day 2 of workshop held Monday 24 May 2021

Time	Item	Details
17.00	Welcome and recap	
17.25	Session 3 Precision of fishery information	This session will focus on precision of fishery information Participants will discuss ways in which the precision of an estimate can be described, and what levels of precision are desirable in different situations Participants will generate a list of questions that could be used to guide auditors in assessing the accuracy of fishery information with respect to precision Participants will also identify the range of possible approaches for determining levels of precision in the case study fishery under different scenarios
18.10	Break	

18.15	Session 3 continued	The discussion on precision will continue and focus on possible thresholds for acceptable levels of precision, and proxies for use in data poor situations
19.00	Break	
19.05	Parking lot and wrap up	Time set aside to cover any topics not covered sufficiency in breakout sessions or any other issues raised Workshop wrap up and next steps of the project
20.00	End	