

Assessing the Implications of the Landing Obligation on MSC Certified Fisheries in Europe

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Table of Contents

Disclaimer.....	2
Glossary with MSC terms described	3
1 Executive Summary.....	4
2 Introduction	5
3 LO – MSC interaction analysis.....	6
3.1 LO – Principle 1 interactions	7
3.2 LO – Principle 2 Interactions	8
3.3 LO – Principle 3 interactions	9
4 Review of 25 MSC fisheries.....	10
4.1 Risk by fleet type.....	11
4.2 Risk by discard level	12
4.3 LO-MSC versus fishery risk interaction matrices	13
4.4 Potential for specific fisheries to be impacted	14
5 Discussion.....	15
6 References	16
7 Appendix 1: Analysis of the interactions between the LO and the MSC Fisheries Certification Requirements V.2.0 scoring tree	17

Disclaimer

It is highlighted that the analysis and results presented here are those of the authors alone. Additionally, while the authors together have considerable experience of the MSC assessment and CFP implementation processes, the analysis of the likely performance of MSC-certified fisheries against the MSC assessment tree on the basis of the LO having been implemented is brief, informed by limited data, and has had to make assumptions about potential LO implementation progress; as such, the results can only be considered speculative. In contrast, MSC assessment teams of the future, which will be responsible for the formal assessment of EU fisheries against the MSC Standard, will benefit from much greater levels of information, and from the passage of time and the knowledge of LO implementation progress that will have been gained.

Glossary with MSC terms described

CFP	Common Fisheries Policy
EU	European Union
HCR	Harvest control rules (the pre-agreed rule/s or action/s defining the management response to changes in indicators of stock status with respect to reference points).
LO	Landing Obligation
LRP	Limit reference point (The low point below which the status of a fishery stock is considered undesirable and which management is aiming to avoid).
MCRS	Minimum conservation reference size
MLS	Minimum landing size
MSC	Marine Stewardship Council
MSY	Maximum sustainable yield
PI	Performance indicator (the intermediate level of the MSC assessment tree, defining a group of similar, related Scoring Issues (MSC performance criteria) against which fishery performance is assessed).
SG	Scoring Guidepost (the specific level of performance that is described for Scoring Issues at the minimum acceptable level for MSC certification(SG60), the MSC passing level (SG80) and for fisheries performing at the highest level (SG100)).
SI	Scoring Issue (the most detailed level of the MSC assessment tree, defining a single performance criterion against which fishery performance is assessed).
TAC	Total allowable catch
TRP	Target reference point (The point which corresponds to a state of a fishery stock which is considered desirable and which management is aiming to achieve.).
UoA	Unit of assessment (The target stock(s) combined with the fishing method/gear and practice (including vessel type/s) pursuing that stock, and any fleets, or groups of vessels, or individual fishing operators or other eligible fishers that are considered within a specific MSC fishery assessment).

1 Executive Summary

The recent reform of the Common Fisheries Policy (CFP) of the European Union (EU) introduced a Landing Obligation (LO) for all EU fishing vessels for certain species and fisheries starting from 2015. The primary objectives of the LO are to reduce unwanted catch while at the same time promoting sustainable fisheries by reducing fishing mortality of animals of low commercial value species and sizes.

If the LO is fully implemented, including through catches being monitored at sea at significantly high levels, it will drive improvements in gear selectivity to reduce the catch of undesirable species and sizes, whilst it is likely that fishing operations will change to maximize the use of the space on board vessels and quota available for high value species and sizes. Nevertheless, improvements in data collection through rigorous monitoring of all catches of commercial stocks will be required, as low levels of at-sea monitoring that result in weak implementation of the LO would undermine progress.

In recent years, significant efforts and various consumer-led approaches have also been attempting to drive greater sustainability and legality in European fisheries. The Marine Stewardship Council (MSC) certification scheme is one of these approaches and has achieved a high level of penetration. However, non-compliance with the LO would introduce illegality into the supply chain, which could lead to the loss of MSC certification and, with it, access to key markets. Evidence to date suggests weak LO implementation, continued discarding, and the likely degradation of catch data quality.

This study assesses how strongly the LO interacts with the MSC Standard, based on a comparison of the LO specifications with the Scoring Issues (SIs) that are used to assess fisheries within the default Version 2.0 MSC assessment tree. A review of 25 MSC certified EU fisheries (covering demersal trawl, demersal static gear and pelagic fisheries from the Baltic Sea, North Sea, North Western waters and South Western waters) was also undertaken to determine if weak implementation of the LO could lead to their future suspension or reassessment failure.

The analysis suggests the following:

- 1) There are strong interactions between the LO and MSC assessment tree, in particular with Performance Indicators (PIs) covering harvest strategy and compliance – PI 1.2.1 and PI 3.2.3, respectively.
- 2) In the event of weak LO implementation, EU demersal trawl fisheries appear to be at particular risk of failing MSC assessment, through not meeting the MSC minimum acceptable Scoring Guidepost (SG)60 level of performance for Scoring Issues (SIs) covering harvest strategy monitoring and fishery compliance monitoring.
- 3) In the event of weak LO implementation, fisheries with already low (<10%) discard rates are considered to be at low risk of failing to meet the MSC requirements because of their intrinsic low risk of not meeting LO discarding specifications.
- 4) Effective implementation of the LO, including with appropriate levels of monitoring, appears likely to be important for the continuing certification of EU demersal trawl fisheries.
- 5) The risk of failing to meet the MSC requirement of an average score of at least 80 for each of the three Principles was not assessed, but must be considered high for any fishery where multiple SIs appear likely to be scored at SG60.

2 Introduction

The recent reform of the Common Fisheries Policy (CFP) of the European Union (EU) introduced a Landing Obligation (LO) for all EU fishing vessels for certain species and fisheries starting from 2015. Its introduction is one of the most significant reform elements in the new CFP, and represents a fundamental shift in the management approach to EU fisheries. Its primary objective is to reduce unwanted catch (European Union, 2013), while at the same time to promote sustainable fisheries by reducing fishing mortality of animals of low commercial value sizes and species.

The LO is only applicable to total allowable catch (TAC)-regulated species in the Atlantic and to species that have a minimum landing size (MLS) in the Mediterranean Sea, caught in European waters or by European fishing vessels. It is being implemented progressively by species and fisheries, starting with pelagic fisheries and fisheries in the Baltic Sea in 2015, to be completed by 2019 (European Union, 2013).

No new technical measures are foreseen to specifically accompany the implementation of the LO. There are also no specific additional requirements for its monitoring and control, except for an obligation to document the catches, details of which are to be specified in multiannual plans. Failing to comply with the LO is categorized as a serious infringement under Regulation (EC) No. 1224/2009 (European Commission, 2009), but there will be a 2-year delay before sanctions take effect, i.e. from 1 January 2017 (European Union, 2015).

Many commercial stocks are moderately to highly discarded (ICES, 2015), so if the LO is fully implemented (i.e., is monitored at sea at significantly high levels) it will drive improvements in gear selectivity to reduce the catch of undesirable species and sizes, whilst it is likely that fishing operations will change to maximize the use of the space on board vessels and quota available for high value species and sizes. The LO could therefore represent the biggest push for more selective fishing in the European Union in the history of the CFP (Borges *et al.*, 2016).

Furthermore, if the LO is fully implemented catch data quality will increase and so stock assessment uncertainty will decrease, the harvest strategy and HCR will be more robust, and evidence of compliance will be available. These factors should all lead to an increase in score (i.e., an increased chance of certification) for EU fisheries assessed against the MSC Standard. However, in undertaking this project, the authors have assumed that the LO will be implemented only weakly, with low levels of at-sea monitoring, since the LO has no compulsory at-sea monitoring requirements, and EU Member States have yet to commit to a significant increase in monitoring, control and surveillance (MCS) programmes.

Significant efforts and various approaches have been attempting to drive greater sustainability and legality in European fisheries over the last decade; there is clearly the potential for interaction between these other approaches and the LO, but weak implementation of the LO may undermine progress. The Marine Stewardship Council (MSC) certification scheme is one of these approaches, and the MSC has achieved a high level of penetration in European fisheries. Nevertheless, non-compliance with the LO would introduce illegality into the supply chain, and could lead to fisheries gaining additional conditions of MSC certification, or even to the loss of the loss of MSC certification for some fisheries, and with it access to key markets.

The aims of this study were:

- i) To determine where and how strongly the LO interact with the MSC Standard, based on a comparison of the LO specifications with the Scoring Issues (SIs) that are used to assess fisheries within the default Version 2.0 MSC assessment tree;
- ii) To forecast the potential future performance of 25 MSC certified EU fisheries (covering demersal trawl, demersal static gear and pelagic fisheries from the Baltic Sea, North Sea, North Western waters and South Western waters) to determine if weak implementation of the LO could lead to suspension or recertification failure for existing MSC certified fisheries;
- iii) To highlight where improvements to existing practices may be required in order to continue meeting the MSC Standard.

It is important to emphasise that this project has attempted to forecast what may happen with MSC certified EU fisheries in 2019 when all TAC regulated fisheries and stocks will be covered by the LO, whilst assuming weak implementation of the LO. However, faster progress with implementing the LO, evidence of widespread fishery compliance with the LO specifications, changes to the MSC Standard, or other factors could render the results invalid.

3 LO – MSC interaction analysis

A review was undertaken to identify how strongly the LO interacted with the default version 2.0 MSC assessment tree. For this analysis, every MSC SI under each PI was considered, and divided in to those SIs that had no/weak interaction, a moderate interaction, or a strong interaction with the LO.

For this purpose, it is important to understand that the MSC assessment tree defines three levels of performance: SG 60 (the minimum acceptable level for MSC certification), SG80 (the MSC passing level) and SG100 (the highest level). Importantly, if a fishery fails to meet the SG60 level of performance for any SI where the SG60 is required to be scored, then it would automatically fail assessment, while failing to meet the SG80 level of performance where that is required to be scored would result only in a condition of certification being set, to bring the fishery up to that level. However, not all SIs are required to be scored at SG60, SG80 and SG100; for example:

PI and SI		SG60 scored?	SG80 scored?	SG100 scored?
PI 1.2.2, SIc	Harvest control rules (HCRs) evaluation	Yes	Yes	Yes
PI 1.2.1, SIc	Harvest strategy monitoring	Yes	No (default pass)	No (no bonus score available)
PI 1.2.2, SIb	Harvest control rules (HCRs) robustness to uncertainty	No (fishery cannot fail)	Yes	Yes
PI 1.2.1, SIc	Harvest strategy review	No (fishery cannot fail)	No (default pass)	Yes

In these examples, PI 1.2.2, SIc and PI 1.2.1, SIc are both scored at SG60. As such, if a fishery does not meet these minimum specified performance criteria then it would fail MSC assessment directly. However, neither PI 1.2.2, SIb nor PI 1.2.1, SIb are scored at SG60, so in these cases a fishery would be considered to be meeting this minimum performance criterion by default, and cannot fail MSC assessment.

Further, in these examples, PI 1.2.2, SIc and PI 1.2.2, SIb are both scored at SG80. In these cases, if a fishery fails to meet this MSC passing level of performance then a condition of certification would be set, requiring the fishery to raise its performance to this SG80 level. For PI 1.2.1, SIc, neither SG80 nor SG100 are scored, so a fishery is required simply to meet the specified SG60 performance criterion or it would fail MSC assessment. However, PI 1.2.1, SIb is only scored at SG100, indicating a level of performance in excess of that required for MSC certification, so a fishery cannot fail or have a condition of certification set against this SI, but it does allow for a bonus score.

As such, as well as simply comparing the requirements of the LO and MSC SIs, a key consideration in the analysis of interaction was how any deficiencies in meeting the LO might impact scoring under the MSC; the interactions were judged to be weak where there appeared to be little or no interaction and thus little or no chance of a condition of certification being set, moderate where there is interaction with the potential of the SG80 criterion not being met such that a condition of certification would be set, and strong where there is interaction with the potential of an SG60 criterion not being met, such that a fishery would fail MSC assessment.

The full LO – MSC interaction analysis is presented in Appendix 1, and a summary of the key findings related to the SIs that are considered to have a moderate or strong interaction with the LO is presented in the following sections.

3.1 LO – Principle 1 interactions

MSC Principle 1 assesses stock status and management of the target species. The following Principle 1 SIs are considered to have moderate or strong interactions with the LO:

PI	SI	Interaction	Brief rationale
1.1.1	a Stock status relative to recruitment impairment	Moderate	If the LO is not fully implemented, catch data used in the stock assessment may become more uncertain, particularly for those species for which a high proportion of the catch is discarded, and this may progressively reduce confidence in the status of the targeted species. However, other data (e.g., survey data) may be available to help score this SI, and the SG60 level requires only that it is likely that the stock is above the point where recruitment would be impaired.
	b Stock status in relation to achievement of Maximum Sustainable Yield (MSY).	Moderate	Similar to PI 1.1.1, SIa, confidence in the status of the targeted stock may reduce if catch data becomes more uncertain. This SI is not scored at SG60, so fisheries cannot fail directly through this SI.
1.2.1	a Harvest strategy design	Strong	The LO (and associated discard management plans) should be considered part of the harvest strategy. The SG60 requirement is that harvest strategy is <u>expected</u> to achieve stock management objectives reflected in PI 1.1.1 SG80 (i.e., that recruitment is not

				impaired and the stock is fluctuating around BMSY). It is considered that weak implementation of the LO could result in a fishery failing assessment.
	b	Harvest strategy evaluation	Moderate	Related to PI 1.2.1, SIa, SG60 requires only that the harvest strategy is <u>likely</u> to work based on prior experience or plausible argument. It is unlikely that this SI would result in a direct assessment failure, although a Condition might be set requiring a fishery to demonstrate that 'evidence exists that [the harvest strategy] is achieving its objectives' (i.e., SG80).
	c	Harvest strategy monitoring	Strong	This SI is scored only at SG60, and requires that monitoring is in place that is expected to determine whether the harvest strategy is working. A fishery is at risk of failing assessment if the LO specifications of discarding are not being monitored effectively.
1.2.2	b	HCRs robustness to uncertainty	Moderate	This SI assesses the robustness of harvest control rules (HCRs) to uncertainty. The data made available through the LO should reduce uncertainty associated with catches (and discarding) in the fishery, but weak implementation may increase uncertainty. However, this SI is not scored at SG60, so fisheries cannot fail directly.
	c	HCRs evaluation	Moderate	This SI interacts with the LO in that data made available should allow for a stronger evaluation of the success of the HCRs. Alternatively, weak implementation of the LO could mean that the evidence of the effectiveness of the HCRs could become more uncertain. However, SG60 requires only that there is some evidence that the tools used are appropriate, so this SI is unlikely to result in a direct assessment failure.
1.2.3	b	Monitoring	Moderate	This SI requires that stock abundance and UoA removals are monitored in support of the HCRs, which is clearly linked to the LO specifications, although the SG60 requirements are only for one indicator to be available, which wouldn't necessarily need to be total catch. This SI is unlikely to result in a direct assessment failure.
	c	Comprehensiveness of information	Moderate	This SI requires that there is good information on all other fishery removals from the stock. This is clearly directly linked to the LO specifications, but this SI is only scored at SG80, so fisheries cannot fail directly.
1.2.4	b	Assessment approach	Moderate	This SI requires that the stock assessment estimates stock status relative to reference points, but if the LO is weakly implemented and the quality of the catch data feeding in to the stock assessment deteriorates, then reference points may not be able to be estimated. This would impact scoring, although SG60 requires only that there are generic reference points, so this SI is unlikely to result in a direct assessment failure.

3.2 LO – Principle 2 Interactions

MSC Principle 2 assesses the impact of the fishery on the wider environment, including on species other than the MSC target species. The following Principle 2 SIs are considered to have moderate or strong interactions with the LO:

PI	SI	Interaction	Brief rationale
2.1.2	c Primary species management strategy implementation	Moderate	SG80 requires that there is some evidence that the measures/partial strategy to manage catches of main (i.e., generally, those species comprising more than 5% of the catch) primary species are/is being implemented successfully. Catch reporting under the LO should be

				an important consideration for this SI, but there may be other information available to meet the requirement, so this SI is unlikely to result in a direct assessment failure.
2.2.2	c	Secondary species management strategy implementation	Moderate	This SI is similar to PI 2.1.2, SIc, but is related to secondary species (i.e. those not managed with reference points).

3.3 LO – Principle 3 interactions

MSC Principle 3 assesses the management of the fishery and its ability to deliver responsible and sustainable outcomes across Principle 1 and Principle 2. The following Principle 3 SIs are considered to have moderate or strong interactions with the LO:

PI	SI		Interaction	Brief rationale
3.2.2	b	Responsive-ness of decision-making processes	Strong	At SG60, this SI requires that decision-making processes respond to serious issues identified in relevant research, monitoring, evaluation and consultation. If managers failed to take appropriate action where it was indicated that a fishery was failing to meet LO specifications, then a fishery could fail directly through this SI.
3.2.3	a	MCS implementation	Strong	This SI considers the existence of monitoring, control and surveillance (MCS) in the fishery, and its effectiveness. If the monitoring system is considered inadequate to enforce the LO, for example because non-compliance with LO is commonplace within the fishery, then a fishery could fail directly through this SI.
3.2.3	b	Sanctions	Moderate	This SI requires that sanctions to deal with non-compliance exist. If non-compliance with the LO is common then it might be presumed that sanctions do not provide effective deterrence as required for SG80. However, this SI is unlikely to result in a direct assessment failure.
3.2.3	c	Compliance	Strong	This SI assesses whether fishers comply with the management system, including, when required, providing information of importance to the effective management of the fishery. If data related to the LO are not provided, or data are of consistently poor quality, then a fishery could fail directly through this SI.
3.2.3	d	Systematic non-compliance	Moderate	This SI requires that there is no evidence of systematic non-compliance. If non-compliance with the LO and any discard management plan was considered to be widespread within the fishery under assessment then it should impact scoring of this SI. However, this SI is only scored at SG80, so fisheries cannot fail directly.
3.2.4	a	Management performance evaluation	Moderate	This SI requires that mechanisms are in place to evaluate parts of the fishery-specific management system. However, as evaluation of only 'some' parts is required at SG60, this SI is unlikely to result in a direct assessment failure.

4 Review of 25 MSC fisheries

Following completion of the analysis to determine the strength of interaction between the LO and the MSC SIs, a review of the scoring for the SIs in Principle 1, 2 and 3 that were considered to have moderate or strong interactions was undertaken for 25 MSC fisheries.

The 25 EU fisheries (covering demersal trawl, demersal static gear and pelagic fisheries from the Baltic Sea, North Sea, North Western waters and South Western waters) that were reviewed comprised 14 demersal trawl fisheries, 3 demersal static gear fisheries, and 8 pelagic fisheries, all of which take place in EU waters and are already subject to the LO, or will be by 2019. However, the fisheries are not identified individually because, as noted earlier, this report presents a forecast of potential implications for MSC-certified fisheries assuming weak implementation of the LO, and the situation for a range of key factors may change that would render the results invalid.

In order to undertake the review, the latest full MSC assessment report for each fishery was obtained from the MSC website (www.msc.org), but a number of the reports were somewhat dated due to the MSC five-year assessment cycle, so the latest stock assessment information was also obtained from the ICES website (<http://www.ices.dk/community/advisory-process/Pages/Latest-advice.aspx>) to ensure that up-to-date stock and management information was considered.

A key distinction was made between the fisheries on overall discard rate for the target species/stocks (which is relevant for Principle 1 scoring in particular, which has to consider the status and management of the species/stock overall); stocks that are discarded at <10% were considered to be 'low discarding', 10-25% was considered to be 'moderate discarding', and >25% was considered to be 'high discarding'.

The review then considered the scoring commentary in each of the 25 MSC fishery reports together with the relevant ICES stock assessment information to determine the likely risk posed to each fishery by the LO for each SI assessed as having a moderate or strong interaction with the LO. Low risk was determined as being where factors associated with the LO appeared unlikely to be key determinants for scoring the SI, moderate risk was determined as being where factors associated with the LO appeared somewhat likely to be key determinants for scoring the SI, and high risk was determined as being where factors associated with the LO appeared very likely to be key determinants for scoring the SI. A summary of the key findings related to the SIs that are considered to have a moderate or strong interaction with the LO is presented in the following sections:

4.1 Risk by fleet type

The analysis suggests that the risk posed to MSC certification by the LO is greatest to demersal trawl fisheries, with 6 out of 14 of those fisheries being considered high risk for PI 1.2.1. SIc (Harvest strategy monitoring), PI 3.2.3 SIa (MCS implementation) and PI 3.2.3 SIc (Compliance); these SIs are considered to have a strong LO-MSC interaction. None of the demersal static gear or pelagic fisheries reviewed were considered to be high risk for any of the SIs, although all of these fisheries were considered to be at moderate risk for PI 3.2.3 SIb (Sanctions).

PI	SI	Demersal trawl (14 fisheries)						Demersal static gear (3 fisheries)						Pelagic (8 fisheries)					
		Low Risk		Moderate Risk		High Risk		Low Risk		Moderate Risk		High		Low Risk		Moderate Risk		High Risk	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
1.1.1	a	12	86	2	14	-	-	3	100	-	-	-	-	8	100	-	-	-	-
1.1.1	b	11	79	3	21	-	-	3	100	-	-	-	-	8	100	-	-	-	-
1.2.1	a	5	36	8	57	1	7	2	67	1	33	-	-	8	100	-	-	-	-
1.2.1	b	5	36	3	21	6	43	3	100	-	-	-	-	8	100	-	-	-	-
1.2.1	c	2	14	6	43	6	43	1	33	2	67	-	-	6	75	2	25	-	-
1.2.2	b	8	57	6	43	-	-	-	-	3	100	-	-	8	100	-	-	-	-
1.2.2	c	7	50	7	50	-	-	3	100	-	-	-	-	8	100	-	-	-	-
1.2.3	b	9	64	4	29	1	7	3	100	-	-	-	-	8	100	-	-	-	-
1.2.3	c	5	36	8	57	1	7	1	33	2	67	-	-	4	50	4	50	-	-
1.2.4	b	9	64	5	36	-	-	3	100	-	-	-	-	7	88	1	13	-	-
2.1.2	c	9	64	4	29	1	7	2	67	1	33	-	-	7	88	1	13	-	-
2.2.2	c	8	57	6	43	-	-	3	100	-	-	-	-	8	100	-	-	-	-
3.2.2	b	7	50	6	43	1	7	3	100	-	-	-	-	8	100	-	-	-	-
3.2.3	a	5	36	3	21	6	43	3	100	-	-	-	-	7	88	1	13	-	-
3.2.3	b	1	7	12	86	1	7	-	-	3	100	-	-	-	-	8	100	-	-
3.2.3	c	4	29	4	29	6	43	3	100	-	-	-	-	7	88	1	13	-	-
3.2.3	d	4	29	4	29	6	43	2	67	1	33	-	-	7	88	1	13	-	-
3.2.4	a	9	64	4	29	1	7	3	100	-	-	-	-	8	100	-	-	-	-

NB: SIs in red have a strong LO-MSC interaction, such that there is the potential for fisheries to fail MSC assessment directly, through not meeting MSC minimum (SG60) requirements.

4.2 Risk by discard level

These data suggest that the risk posed to MSC certification by the LO essentially increases as the discard rate increases, with all three fisheries with discard rates in excess of 25% being considered high risk for PI 1.2.1. SIc (Harvest strategy monitoring), PI 3.2.3 SIa (MCS implementation) and PI 3.2.3 SIc (Compliance); these SIs are considered to have a strong LO-MSC interaction. Only one fishery with a low discard rate was considered to be high risk for a single SI, but fisheries with a moderate level of discarding were generally considered to be at a moderate level of risk from the LO.

PI	SI	<10% Discards (14 fisheries)						10-25% Discards 8 fisheries)						>25% Discards (3 fisheries)					
		Low Risk		Moderate Risk		High Risk		Low Risk		Moderate Risk		High Risk		Low Risk		Moderate Risk		High Risk	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
1.1.1	a	14	100	-	-	-	-	6	75	2	25	-	-	3	100	-	-	-	-
1.1.1	b	14	100	-	-	-	-	5	63	3	38	-	-	3	100	-	-	-	-
1.2.1	a	12	86	2	14	-	-	3	38	5	63	-	-	-	-	2	67	1	33
1.2.1	b	13	93	-	-	1	7	3	38	1	13	4	50	-	-	2	67	1	33
1.2.1	c	8	57	6	43	-	-	1	13	4	50	3	38	-	-	-	-	3	100
1.2.2	b	12	86	2	14	-	-	4	50	4	50	-	-	-	-	3	100	-	-
1.2.2	c	13	93	1	7	-	-	5	63	3	38	-	-	-	-	3	100	-	-
1.2.3	b	14	100	-	-	-	-	6	75	2	25	-	-	-	-	2	67	1	33
1.2.3	c	9	64	5	36	-	-	1	13	7	88	-	-	-	-	2	67	1	33
1.2.4	b	13	93	1	7	-	-	6	75	2	25	-	-	-	-	3	100	-	-
2.1.2	c	11	79	3	21	-	-	6	75	1	13	1	13	1	33	2	67	-	-
2.2.2	c	13	93	1	7	-	-	6	75	2	25	-	-	-	-	3	100	-	-
3.2.2	b	14	100	-	-	-	-	4	50	4	50	-	-	-	-	2	67	1	33
3.2.3	a	11	79	3	21	-	-	4	50	1	13	3	38	-	-	-	-	3	100
3.2.3	b	-	-	14	100	-	-	1	13	7	88	-	-	-	-	2	67	1	33
3.2.3	c	11	79	3	21	-	-	3	38	2	25	3	38	-	-	-	-	3	100
3.2.3	d	11	79	3	21	-	-	2	25	3	38	3	38	-	-	-	-	3	100
3.2.4	a	14	100	-	-	-	-	6	75	2	25	-	-	-	-	2	67	1	33

NB: SIs in red text have a strong LO-MSC interaction, such that there is the potential for fisheries to fail assessment directly through not meeting MSC minimum (SG60) requirements.

4.3 LO-MSC versus fishery risk interaction matrices

In considering the overall risk posed by the LO to MSC certified fisheries, it is useful to summarise how the LO-MSC interaction and individual fishery risks interact across each SI to affect scoring. Where MSC-LO interactions are weak, there is considered to be low or no risk to any fishery, and these SIs were not considered further in this project. Where MSC-LO interactions are moderate, the LO is considered to pose only a risk of Conditions being imposed (i.e., of a fishery scoring 60 for an SI), but where the MSC-LO interaction is strong there is considered to be some risk of a direct fail through not meeting the minimum MSC requirement for the SI (i.e. of a fishery scoring <60 for an SI). This can be described in the following interaction matrix:

		Risk to fishery of lower score		
		Low	Moderate	High
MSC-LO interaction	Weak	Low risk or no impact (and not assessed in this project)		
	Moderate	Low risk of condition	Moderate risk of condition	High risk of condition
	Strong	Low risk of fail / Low risk of condition	Moderate risk of fail / High risk of condition	High risk of fail

The interaction matrices for all MSC SIs across the three different fleet types identified in the project are as follows:

Demersal trawl		Risk to fishery of lower score		
		Low	Moderate	High
MSC-LO interaction	Weak	Not assessed in this project		
	Moderate	126	78	17
	Strong	35	30	20

Demersal static		Risk to fishery of lower score		
		Low	Moderate	High
MSC-LO interaction	Weak	Not assessed in this project		
	Moderate	29	10	0
	Strong	12	3	0

Pelagic		Risk to fishery of lower score		
		Low	Moderate	High
MSC-LO interaction	Weak	Not assessed in this project		
	Moderate	89	15	0
	Strong	36	4	0

The interaction matrices for all SIs across fisheries with the three different discard levels identified in the project are as follows:

		Risk to fishery of lower score		
		Low	Moderate	High
<10% discards				
MSC-LO interaction	Weak	Not assessed in this project		
	Moderate	151	30	1
	Strong	56	14	0

		Risk to fishery of lower score		
		Low	Moderate	High
10-25% discards				
MSC-LO interaction	Weak	Not assessed in this project		
	Moderate	57	39	8
	Strong	15	16	9

		Risk to fishery of lower score		
		Low	Moderate	High
>25% discards				
MSC-LO interaction	Weak	Not assessed in this project		
	Moderate	7	24	8
	Strong	0	4	11

4.4 Potential for specific fisheries to be impacted

In order to determine how specific fisheries are likely to perform during MSC assessment with weak implementation of the LO, the risk results for every SI were compiled for each fishery individually. The compiled results suggest the following outcomes for the different fisheries in terms of a direct fail against the MSC Standard:

	Total	Fleet Type			Discard level		
		Demersal mobile	Demersal static	Pelagic	<10%	10-25%	>25%
Low risk of fail	19	8	3	8	14	5	0
High risk of fail	6	6	0	0	0	3	3
Total	25	14	3	8	14	8	3

It is also necessary to highlight that whilst failing to achieve the minimum score of SG60 for every SI results in a direct fail for fisheries under assessment in the MSC process, fisheries are also required to score an average of at least 80 for each of the three MSC Principles. As such, even if a fishery meets the SG60 requirement for every SI, if too many SIs are scored below 80, bringing the overall Principle score below 80, then a fishery will also fail MSC assessment. Therefore, the risk of failure due to the LO must be considered high for any fishery where multiple SIs appear likely to be scored at SG60.

5 Discussion

The data and analysis generated through this project suggest that the ongoing MSC certification of EU demersal trawl fisheries and EU fisheries with high discard rates is likely to be put at some risk if implementation of the LO is weak.

The higher risk posed by the LO to demersal trawl fisheries is associated to two concerns: firstly because these fisheries usually have relatively high discard rates of species defined by the MSC as target, primary and secondary species, and secondly because there are indications that the LO will not be monitored at sea at a significant level.

This first issue is important because demersal trawl fisheries operating in EU waters typically catch a range of different species, and managing and matching quota allocations for individual vessels to ensure that fishing can continue can be challenging. Whilst discarding of over-quota species has been allowed in order to continue catching under-quota species, this will not be permitted under the LO. Vessels without quota for TAC-managed species taken in their catch will also be challenged by the LO.

The first issue is also important because the MSC V.2.0 assessment tree addresses all catches of a species, with landed and any discarded catch being considered together. Where species are the target species or are considered to be 'main' primary or secondary species (usually through comprising >5% of the assessed fishery's catch), their status and management is assessed at the minimum passing level of SG60. Failure to address management issues can therefore be critical for MSC certification.

The second issue of monitoring the LO is important because the MSC process is evidence-based, and where SIs require evidence of, for example, stock status or fishery compliance, the absence of evidence to assess performance, or high levels of uncertainty due to low data quality, will count against fisheries. In this regard, it is noted that there is some evidence of weak implementation of the LO in fisheries already subject to the LO specifications, with indications that the catch profiles between observed and unobserved components of some fleets has been different; this suggests that discarding in contravention of the LO is still occurring at some level. This would have potential consequences for catch data quality that feeds in to the evaluation of stock status and the harvest strategy, as well as for confidence in the fishery compliance, all of which is likely to impact MSC scoring.

Although LO monitoring may have improved across the EU by 2019 when all relevant fisheries are scheduled to be subjected to the LO, the experience to date indicates that this is unlikely to be achieved at significant levels. Thus, the risk posed by the LO to almost half (6 out of 14) of the MSC-certified EU demersal trawl fisheries that were reviewed by this project is deemed high, and may lead to some of these fisheries being suspended and/or failing to achieve recertification.

Overall, the results of this project suggest that at-sea monitoring programmes will be important for the maintenance of MSC certification for many EU fisheries. These monitoring programmes provide a basis to judge if the LO, as a key component of CFP and the specific harvest strategy for individual fisheries, is being complied with.

It is worth mentioning that weak implementation of the LO is expected to pose relatively little risk to fisheries with low or negligible levels (<10%) discards, even if a fishery is not monitored at significant levels, because of their intrinsic low risk of not meeting LO discarding specifications.

6 References

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7 Appendix 1: Analysis of the interactions between the LO and the MSC Fisheries Certification Requirements V.2.0 scoring tree

The following table considers provides the results of an analysis of the likelihood that the scoring for MSC Performance Indicators (PIs) and the Scoring Issues (SIs) under each PI could be impacted in the event that the implementation of the Landing obligation (LO) and associated discard management plans was weak or subject to non-compliance.

A summary of the interaction is provided in the ‘Summary of the interaction’ column, while the significance of the interaction is indicated in the ‘Interaction rating’ column.

Principle 1: Sustainable target fish stocks

The MSC defines the focus of Principle 1 as “A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.”

Principle	Component	Performance Indicator (PI)		Summary of the interaction with the Landing Obligation (LO)	Interaction Rating
1	Outcome	1.1.1	Stock status	<p>This PI addresses the stock status of the fishery’s target species in relation to the point of recruitment impairment (PRI – which is roughly equivalent to a limit reference point limit) and in relation to maximum sustainable yield (MSY).</p> <p>If fully implemented with appropriate monitoring being in place, the data made available through the LO should promote better understanding of stock status for TAC-managed species (or species with minimum landing sizes (MLSs) in the Mediterranean), but such data will not be critical to scoring this PI at or above the MSC passing level of SG80 (i.e., European fisheries are already able to achieve high scores in the absence of additional LO data). However, if not fully implemented, catch data used in the stock assessment may become more uncertain, particularly for those species for which a high proportion of the catch is discarded, and this may progressively reduce confidence in the status of the targeted species.</p>	Moderate (SIa, SIb)
		1.1.2	Stock rebuilding	<p>This PI addresses situations where stock status of the fishery’s target species is between the limit reference point and the target reference point.</p>	Weak (All SIs)

		<p>S1b (Rebuilding evaluation) at SG80 requires that there is evidence that the rebuilding strategies are rebuilding stocks, and reliable catch data will be important for that. Nevertheless, it is unlikely that the data made available through the LO, or the degradation of discard data, will be critical to scoring this SI at or above SG80, in particular where good quality survey data are available.</p>	
1.2.1	Harvest strategy	<p>This PI addresses the overall management strategy of the fishery to achieve stock status objectives for the target species.</p> <p>S1a (Harvest strategy design) at SG80 requires that the harvest strategy is responsive to the state of the stock and the elements work together towards achieving stock management objectives. The LO (and associated discard management plans) should be considered part of the management strategy. Lack of full implementation of the LO could impact scores of this SI significantly.</p> <p>S1b (Harvest strategy evaluation) at SG80 requires that the harvest strategy may not have been fully tested but evidence exists that it is achieving its objectives. If the objective of the LO is to eliminate discards (other than <i>de minimis</i> exemptions) and there is not evidence that this is occurring, or that catch data are incomplete, then scoring for this SI could be impacted. However, it is noted that the LO would form only part of the overall harvest strategy, so other elements may be scored highly.</p> <p>S1c (Harvest strategy monitoring) only appears at SG60 (the MSC minimum acceptable score), so failing to meet this requirement would automatically result in a fishery failing assessment. This SI requires that monitoring is in place that is expected to determine whether the harvest strategy is working. As the LO and associated discard management plans should be considered part of the harvest strategy, this should be an important point of interaction with the LO. While there are a number of ways to test if the harvest strategy is working (e.g., through fishery independent stock surveys, logbook catch data, dockside monitoring data, etc.), robust data on all catches, as specified by the LO, may be expected and required for this SI if the LO is implemented fully.</p> <p>S1f (Review of alternative measures) at SG80 requires that there is a regular review of alternative measures to minimise mortality of unwanted catches of the target stock; essentially, this aims to ensure that discarding is minimised, which is complementary to the aims of the LO. Nevertheless, fisheries can achieve the SG80 for this SI without implementation of the LO.</p>	<p>Strong (S1a, S1c)</p> <p>Moderate (S1b)</p>

Management	1.2.2	Harvest control rules & tools	<p>This PI addresses the harvest control rules (HCRs) and tools in place to constrain harvests of the fishery's target species to appropriate levels at varying levels of stock abundance.</p> <p>S1b (HCRs robustness to uncertainty) at SG80 requires that the HCRs are likely to be robust to the main uncertainties. This SI interacts with the LO in that the data made available through the LO should reduce uncertainty associated with discarding and/or catches in fisheries including the one under assessment. However, if not fully implemented, the opposite is true and uncertainty is likely to increase.</p> <p>S1c (HCRs evaluation) at SG80 requires that available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs. This SI also interacts with the LO in that data made available should allow for a stronger evaluation of the success of the HCRs. On the other hand, a LO that is not implemented could mean that the tools used to implement HCRs are not appropriate and effective in controlling exploitation, such that scoring would be impacted.</p>	Moderate (S1b, S1c)
	1.2.3	Information & monitoring	<p>This PI addresses the availability of information related to the fishery and the target species, and higher scores should be supported through the provision of additional data from the LO when implemented.</p> <p>S1b (Monitoring) at SG80 requires that stock abundance and UoA removals are regularly monitored at a level of coverage consistent with the HCRs. Where the HCRs are precautionary and include room for implementation error, issues in implementation of the LO may not greatly affect scoring of this SI. However, this would depend on the level of implementation and the degradation of the catch data. Degradation of catch data can compromise the accuracy and coverage necessary for the HCR (relevant to SG80).</p> <p>S1c (Comprehensiveness of information) only has SG80, which requires that there is good information on all other removals from the target stock. As understanding total removals is a key objective for the LO, there is a direct link here to the LO for MSC fisheries targeting TAC-managed species (MLS-managed species in the Mediterranean).</p>	Moderate (S1b and S1c)

		1.2.4	Assessment of stock status	<p>This PI addresses the adequacy of the stock assessment for the target species.</p> <p>Slb (Assessment approach) at SG80 requires that the assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated. If implemented fully, the LO will cause a change in selectivity that might create the need to re-estimate reference points. This may require time but measures are in place to do so routinely through scientific process. However, if not implemented fully, reference points may not be able to be estimated as stock assessment quality deteriorates, which would impact scoring.</p> <p>Slc (Uncertainty in the assessment) at SG80 only requires that uncertainty is taken in to account in the stock assessment, which means it interacts only in a superficial way with the LO.</p>	Moderate (Slb)
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Principle 2: Environmental impact of fishing

The MSC defines the focus of Principle 2 as “Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.”

Principle	Component	Performance Indicator (PI)		Interaction with the Landing Obligation (LO)	Interaction Rating
	Primary species	2.1.1	Outcome	<p>This PI addresses the stock status of the fishery’s primary species in relation to their PRIs.</p> <p>Primary species are not target species, but are those where management tools and measures are in place, intended to achieve stock management objectives reflected in either limit or target reference points.</p> <p>Similar to PI 1.1.1 for the target species, if fully implemented with appropriate monitoring being in place, the data made available through the LO should promote better understanding of stock status for TAC-managed species (or MLS-managed species in the Mediterranean with reference points). However, if not fully implemented, catch data used in stock assessments may become more uncertain, particularly for those species for which a high proportion of the catch is discarded, and this may progressively reduce confidence in the status of the targeted species. Nevertheless, Sla scores only ‘main’ primary species (i.e., generally, those comprising more than 5% of the catch), so not all</p>	Weak (All SIs)

			fisheries will be impacted, and the minimum SG60 requirement may be attainable in many cases even without good catch data.	
	2.1.2	Management	<p>This PI addresses the management of the fishery and its ability to maintain or not hinder rebuilding of primary species.</p> <p>Sla (Management strategy in place) at SG80 requires that there is a partial strategy in place, if necessary, that is expected to maintain or not hinder the rebuilding of main primary species. This is similar to PI 1.2.1 for the target species and, similarly, the LO and associated discard management plans should be considered part of the strategy for primary species. Nevertheless, the LO would be just one element of such a partial strategy, and at UoA level there might be fishery-specific measures that would allow for scores of 80 or more to be achieved even if the LO was not fully implemented.</p> <p>Sic (Management strategy implementation) at SG80 requires that there is some evidence that the measures/partial strategy is being implemented successfully. While the primary species management strategy will comprise a number of other elements as well as the LO and associated discard management plans, implementation of the LO should be an important consideration for this SI. However, at SG80 only 'main' primary species are considered (i.e. generally those comprising more than 5% of the catch), so species comprising a small percentage in the catch will not be considered. In addition, there might be other fishery-specific measures that are implemented and allow the fishery to meet the SG80, even if the LO generally is not.)</p> <p>Sle (Review of alternative measures) at SG80 requires that there is a regular review of alternative measures to minimise mortality of unwanted catches of primary species; essentially, this SI aims to ensure that discarding is minimised, which is complementary to the aims of the LO and associated discard management plans. Nevertheless, fisheries are likely to be able to achieve the SG80 without implementation of the LO.</p>	Moderate (Sic)
	2.1.3	Information	<p>This PI addresses the adequacy of information available to determine the risk posed by the fishery to primary species.</p> <p>Sla (Information adequacy of assessment of impact on main primary species) has links to the LO in that the provision of high quality data through full implementation of the LO should support the attainment of a high score. If the LO is not fully implemented in the fishery, though, then depending</p>	Weak (All SIs)

			<p>on stock status of the main primary species, it may still be possible for a fishery to meet the SG80 requirement (the MSC passing score) on the basis of other data (e.g., landings data, stock status data, or observer data).</p> <p>Slc (Information adequacy for management strategy) at SG80 requires that information is adequate to support a partial strategy to manage main primary species. However, even if the LO is not implemented at the UoA level, there may be other sources of information related to other components of the partial strategy, that may mean the scoring would not be impacted.</p>	
Secondary species	2.2.1	Outcome	<p>This PI addresses the stock status of the fishery's secondary species in relation to biologically-based limits.</p> <p>Secondary species are those which are in scope of the MSC program, but where management tools and measures, intended to achieve stock management objectives reflected in either limit or target reference points, are NOT in place.</p> <p>Secondary species are very unlikely to be TAC-managed, but species managed through MLSs in the Mediterranean may be secondary species if they are not managed against reference points. If this is the case, the LO will interact for these secondary species in the same way as primary species (see comments for PI 2.1.1).</p>	<p>Weak (LO species without reference points)</p>
				<p>None (Non-LO species)</p>
	2.2.2	Management	<p>This PI addresses the management of the fishery and its ability to maintain or not hinder rebuilding of secondary species.</p> <p>MLS-managed species in the Mediterranean that are not managed against reference points should interact with the secondary species PIs in the same way as TAC-managed species elsewhere interact with primary species PIs (see comments for PI 2.1.2).</p>	<p>Moderate (LO species without reference points)</p> <p>None (Non-LO species)</p>

	2.2.3	Information	<p>This PI addresses the adequacy of information available to determine the risk posed by the fishery to secondary species.</p> <p>MLS-managed species in the Mediterranean that are not managed against reference points should interact with secondary species PIs in the same way as TAC-managed species elsewhere interact with primary species PIs (see comments for PI 2.1.3).</p>	<p>Weak (LO species without reference points)</p>
				<p>None (Non-LO species)</p>
ETP species	2.3.1	Outcome	<p>This PI addresses the impact of the fishery on Endangered, Threatened and Protected (ETP) species, which the MSC considers to be those species which are recognised by national ETP legislation listed in binding international agreements including CITES Appendix 1 and agreements under the Convention on Migratory Species, as well as out-of scope species (amphibians, reptiles, birds and mammals) that are listed in IUCN Redlist as vulnerable (VU), endangered (EN) or critically endangered (CE)..</p> <p>As ETP species will not be TAC-managed (or MLS-managed in the Mediterranean), the LO does not interact with this PI.</p>	None
	2.3.2	Management	<p>This PI addresses the management of the fishery and its ability to meet national and international requirements and not hinder recovery of ETP species.</p> <p>No interaction (see comments for PI 2.3.1)</p>	None
	2.3.3	Information	<p>This PI addresses the adequacy of information collected to determine the risk posed by the fishery to ETP species.</p> <p>No interaction (see comments for PI 2.3.1)</p>	None
Habitats	2.4.1	Outcome	<p>This PI addresses the impact of the fishery on habitat structure and function, and on vulnerable marine ecosystems (VMEs).</p>	None

			As habitats are not considered under the LO, the LO does not interact with this PI.	
	2.4.2	Management	This PI addresses the management of the fishery and its ability to ensure that there is no risk of serious or irreversible harm to habitats. No interaction (see comments for PI 2.4.1)	None
	2.4.3	Information	This PI addresses the adequacy of information available to determine the risk posed by the fishery to habitats. No interaction (see comments for PI 2.4.1)	None
Ecosystem	2.5.1	Outcome	This PI addresses the impact of the fishery on key ecosystem elements of ecosystem structure and function. Foodwebs and trophic structures may be considered to be key ecosystem elements for particular fisheries, and the data made available through the LO may support efforts to better understand how fisheries interact with fish communities. Nevertheless, such data are unlikely to be critical to scoring this PI at or above the MSC passing level of SG80.	Weak (All SIs)
	2.5.2	Management	This PI addresses the management of the risk posed by the fishery to cause serious or irreversible harm to ecosystem structure and function. S1b (Management strategy evaluation) at SG80 requires that there is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the fishery and or the ecosystem. As for PI 2.5.1, if fully implemented, data made available through the LO may support efforts to better understand how fisheries interact with fish communities (and vice versa if the LO is not fully implemented), but such data are unlikely to be critical to scoring this PI at or above the MSC passing level of SG80.	Weak (All SIs)
	2.5.3	Information	This PI addresses the adequacy of the knowledge of the impacts of the fishery on the ecosystem. S1d (Information relevance) at SG80 requires that Adequate information is available on the impacts of the fishery on the components of the ecosystem (i.e., including target species and primary species). Understanding the impact of the fishery on fish communities may be supported by data made	Weak (All SIs)

			available through the LO if fully implemented (and vice versa). However, these data are unlikely to be critical to scoring this PI at or above the MSC passing level of SG80	
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Principle 3: Effective management

The MSC defines the focus of Principle 3 as “The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.”

Principle	Component	Performance Indicator (PI)		Interaction with the Landing Obligation (LO)	Interaction Rating
3	Governance and policy	3.1.1	Legal & customary framework	This PI addresses the appropriateness and effectiveness of the legal and/or customary framework to deliver sustainability in the fishery and observes the legal rights of people dependent on fishing. No interaction	None
		3.1.2	Consultation, roles & responsibilities	This PI addresses the effectiveness of the consultation processes. No interaction	None
		3.1.3	Long term objectives	This PI addresses the existence of clear long-term objectives within the management policy. No interaction	None
	Fishery specific management system	3.2.1	Fishery specific objectives	This PI addresses the existence of short and long-term objectives within the fishery-specific management system. The LO and associated discard management plans should establish fishery specific objectives, including the exemptions to landing. As such, they should be considered in scoring this PI. However, the effectiveness of the implementation is not considered, and so the interaction with this PI is limited.	Weak (All SIs)

3.2.2	Decision making processes	<p>This PI addresses the effectiveness of the decision-making and dispute resolution processes acting within the fishery.</p> <p>SIb (Responsiveness of the decision-making process) at SG80 requires that decision-making processes respond to serious and other important issues identified in relevant research and monitoring (etc.) in a transparent, timely and adaptive manner. It is conceivable that where research and monitoring indicate that the fishery is failing to meet the LO specification (including those of any associated discard plans), managers might be expected to take action, such that if they didn't it would impact the scoring of this SI.</p> <p>SIc (Accountability and transparency of management system and decision making processes) at SG80 requires that information on the fishery's performance and management action is available on request, and explanations are provided for any actions or lack of actions associated with findings from research and monitoring (etc.). The LO specifications should result in detailed data on catches being made available, and this SI indicates that managers would be expected to explain and if these data are not available. However, it is not clear that a lack of data or action on the LO would impact the scoring of this SI where explanations were provided.</p>	Strong (SIb)
3.2.3	Compliance & enforcement	<p>This PI addresses the existence of monitoring, control and surveillance mechanisms that ensure the management measures in the fishery are enforced and complied with.</p> <p>SIa (MCS implementation) at SG80 requires that a monitoring, control and surveillance system has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules. If the monitoring system is inadequate to enforce the LO and associated discard management plans, or non-compliance with LO is commonplace within the fishery, then scoring of this SI should be impacted.</p> <p>SIb (Sanctions) at SG80 requires that sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence. If non-compliance with the LO is commonplace within the fishery, then it may be presumed that sanctions do not provide effective deterrence. In this case, scoring of this SI should be impacted.</p> <p>SIc (Compliance) at SG80 requires that some evidence exists to demonstrate fishers comply with the management system under assessment, including, when required, providing information of</p>	Strong (SIa, SIc) Moderate (SIb, SIc)

		<p>importance to the effective management of the fishery. If data related to the LO and associated discard management plans are not provided, or data are of poor quality, then the scoring of this SI should be impacted.</p> <p>S1d (Systematic non-compliance) only occurs at SG80, and requires that there is no evidence of systematic non-compliance. If non-compliance with the LO and any discard management plan was considered to be widespread within the fishery under assessment then it should impact scoring of this SI.</p>	
	3.2.4	<p>Management performance evaluation</p> <p>This PI addresses the system in place to monitor and evaluate the performance of the fishery-specific management system against its objectives.</p> <p>S1a (Evaluation coverage) at SG80 requires that mechanisms are in place to evaluate key parts of the fishery-specific management system. The LO specifications and associated discard management plans should be considered key parts of the fishery-specific management system, and so evaluation mechanisms should be required, here.</p>	Moderate (S1a)