

CSI Guidance and Evaluation Parameters for Fishery Conformity Assessment

Version 3.0

Public Comment Draft

October 15, 2026



Responsibility for these Requirements

The Board of Certified Seafood International (CSI) is responsible for this document, CSI Fishery *Conformity Assessment Guidance and Evaluation Parameters*. The CSI Board will review the contents of this document on an ongoing basis.

Table of Contents

Responsibility for these Requirements	2
Purpose	7
Background	7
Scope.....	8
Normative References	8
Normative Documents.....	8
Guidance Documents	8
Terms and Definitions	9
Part I. Assessment Processes	9
1. Assessing Conformity with CSI Requirements	9
2. Non-Conformities	11
3. Disqualifying Activities.....	12
4. Dat-Limited Fishery Tool	12
5. Local and Traditional Fishery Knowledge	13
6. Fishery Scale and Intensity	14
Part II. Evaluation Parameters.....	15
Core Tenet 1. Management operates an effective fishery management system.	15
CSI Requirement 1.1.1	15
CSI Requirement 1.1.2	17
CSI Requirement 1.1.3	18
CSI Requirement 1.1.4	19
CSI Requirement 1.1.5	20
CSI Requirement 1.1.6	21
CSI Requirement 1.2.1	22
CSI Requirement 1.2.2	23
CSI Requirement 1.2.3	25
CSI Requirement 1.2.4	26
CSI Requirement 1.3.1.....	27
CSI Requirement 1.3.2	29
CSI Requirement 1.3.3	31
CSI Requirement 1.3.4	32
CSI Requirement 1.4.1	33
CSI Requirement 1.4.2	35

Core Tenet 2. Management assesses and responds to the state of the target stock.....	37
CSI Requirement 2.1.1	37
CSI Requirement 2.1.2	38
CSI Requirement 2.1.3	39
CSI Requirement 2.1.4	41
CSI Requirement 2.1.5	43
CSI Requirement 2.1.6	45
CSI Requirement 2.1.7	46
CSI Requirement 2.1.8	47
CSI Requirement 2.2.1	49
CSI Requirement 2.2.2	50
CSI Requirement 2.2.3	52
CSI Requirement 2.2.4	54
CSI Requirement 2.2.5	55
CSI Requirement 2.2.6	57
Core Tenet 3. Management effectively regulates, enforces, and monitors fishing operations.....	59
CSI Requirement 3.1.1	59
CSI Requirement 3.1.2	60
CSI Requirement 3.2.1	61
CSI Requirement 3.2.2	63
CSI Requirement 3.2.3	64
CSI Requirement 3.2.4	65
CSI Requirement 3.3.1	66
CSI Requirement 3.3.2	68
CSI Requirement 3.3.3	69
CSI Requirement 3.3.4	70
CSI Requirement 3.4.1	72
CSI Requirement 3.4.2	74
Core Tenet 4. Management assesses and responds to fishery impacts on the ecosystem.....	76
CSI Requirement 4.1.1	76
CSI Requirement 4.1.2	77
CSI Requirement 4.1.3	79
CSI Requirement 4.1.4	81
CSI Requirement 4.1.5	83
CSI Requirement 4.2.1	84

CSI Requirement 4.2.2	86
CSI Requirement 4.2.3	88
CSI Requirement 4.3.1	90
CSI Requirement 4.3.2	92
CSI Requirement 4.3.3	94
CSI Requirement 4.3.4	96
CSI Requirement 4.3.5	98
CSI Requirement 4.4.1	100
CSI Requirement 4.4.2	101
CSI Requirement 4.4.3	103
CSI Requirement 4.4.4	105
Part III. EPs and Guidance for the Enhanced Fishery Module	107
Management Theme E1 – Management and Transboundary Considerations.....	108
CSI Requirement E1.1	108
CSI Requirement E1.2	109
CSI Requirement E1.3	110
CSI Requirement E1.4	111
CSI Requirement E1.5	112
Management Theme E2 – Target Stock.....	113
CSI Requirement E2.1	113
CSI Requirement E2.2	114
CSI Requirement E2.3	116
CSI Requirement E2.4	118
CSI Requirement E2.5	119
CSI Requirement E2.6	121
CSI Requirement E2.7	122
CSI Requirement E2.8	124
Management Theme E3 – Environmental Impacts	126
CSI Requirement E3.1	126
CSI Requirement E3.2	127
CSI Requirement E3.3	129
CSI Requirement E3.4	131
Part IV. Methods and Guidance	132
Section A. Guidance on Reference Points and Proxies	132
Section B. Guidance on HCRs.....	134

Section C. Method to Assign Species to Categories for Assessment.....	135
Section D. Non-Target Species Assessment Method.....	140
Section E. Habitat Assessment Method.....	148
Section F. Habitat Categorization by Susceptibility to Gear	153
Section G. Ecosystem Assessment Method	160
Appendices	165
Appendix 1. List of acronyms.....	165

Purpose

To establish Evaluation Parameters (EPs) to be used by independent Certification Bodies (CBs) when assessing the conformity of fisheries with the CSI Fishery Management Standard, and to provide assessors with methods and additional guidance on how to apply EPs and related assessment tools during CSI fishery conformity assessments.

Background

Certified Seafood International (CSI) delivers a competitive new third-party certification program with global reach, and chain of custody with the ability to identify harvest origin on the eco-label. Benchmarked by the Global Sustainable Seafood Initiative (GSSI), CSI audits fisheries management against a clear and rigorous Fishery Management Standard grounded in the globally recognized guidance of the United Nations Food and Agriculture Organization (UN FAO).

Credibility: CSI is a rigorous program benchmarked by GSSI. Our fisheries are certified against a standard grounded in the internationally recognized principles of the UN FAO. These FAO criteria were developed in partnership with the world's leading fishery biologists, environmental organizations and fishery managers from 70 countries.

Affordability: Credible certification should not impose steep cost burdens on the seafood sector. The clarity of our standard, together with a commitment to minimizing program overhead, is delivering value for money and removing cost burdens from seafood supply chains. As we work to finalize a long-term funding model for our new program, affordability will remain an overriding objective and any program fees will be kept to a minimum.

Transparency: CSI believes deeply in the fishing communities that harvest wild-capture seafood, and we want to share their stories with the world. Our program provides more than a generic stamp of approval. We offer a choice to identify harvest origin on the CSI label; and we provide an online platform to communicate a wider range of information about certified fisheries. Through these and other innovations, we work every day to enhance transparency and trust.

Improvement: By recognizing fisheries that meet a clear set of established management requirements, CSI encourages more fisheries to engage and improve. We believe that a stable standard, focused on fisheries management and based on internationally recognized UN principles, provides clarity and consistency that is vital for fisheries striving for certification.

Global Reach: CSI has been developed in partnership with existing regional certification programs, and builds upon their successes. Most significantly, the Responsible Fisheries Management (RFM) program has rolled into CSI, allowing us to launch with existing certified fisheries that land approximately three million metric tonnes.

More information about CSI is available on our website: www.CSI.Fisheries.org

Contact CSI at: rfmcertification@csi.com

Scope

This document applies to assessment of conformity of fisheries with the CSI Fishery Management Standard.

Normative References

Normative Documents

CSI Fishery Management Standard, Version 3.0. Certified Seafood International. Draft, October 15, 2026.

CSI Glossary of Terms, Version 1.0. Certified Seafood International. Draft, October 15, 2026.

CSI Fishery Assessment Methodology, Version 1.0. Certified Seafood International. Draft, October 15, 2026.

Guidance Documents

Guidance documents are not normative (i.e., non-mandatory) but they can provide CBs and assessors with valuable insights into the intent of the Scheme Owner. The following three FAO documents were foundational in the development of the CSI Fishery Management Standard:

- [Code of Conduct for Responsible Fisheries](#)
- [Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries](#)
- [Guidelines for the Ecolabelling of Fish and Fishery Products from Inland Capture Fisheries](#)

For technical issues that may arise during a fishery assessment, assessors may consult the following FAO resources:

- [International Guidelines on Bycatch Management and Reduction of Discards](#)
- [International Guidelines for the Management of Deep-sea Fisheries in the High Seas](#)
- [Voluntary Guidelines for flag State performance](#)
- [Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication](#)
- [Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries. Revision 1](#)
- [Guidelines for the Ecolabelling of Fish and Fishery Products from Inland Capture Fisheries](#)
- [Technical Guidelines on Aquaculture Certification](#)
- [Guidelines to reduce sea turtle mortality in fishing operations](#)

Terms and Definitions

All terms are defined in the *CSI Glossary of Terms*. A list of acronyms is given in Appendix 1.

Part I. Assessment Processes

1. Assessing Conformity with CSI Requirements

This section summarizes the process for assessing conformity of a fishery with the CSI Fishery Management Standard. The intent is to give guidance to fishery assessors. For more details about the required elements of a fishery assessment, readers should refer to the *CSI Fishery Assessment Methodology*.

During a fishery assessment, the assessment team compiles and reviews objective evidence about the management of the fishery under consideration. Evidence comes from desktop review and from on-site assessment activities. The latter may include presentations, interviews, or discussions with representatives of the fishery, management agency scientists and personnel, and other stakeholders. The aim is for the team to compile available information and use it as evidence to assess the conformity of the fishery management system with the CSI Fishery Management Standard.

For each CSI requirement, the assessment team will need to determine if the fishery management system is in conformity or not in conformity. “Conformity” is when the team determines that the CSI requirement is demonstrably fulfilled based on their review of objective evidence. “Non-conformity” is when the team determines that the CSI requirement is not demonstrably fulfilled. The latter may occur because:

- a) There is negative evidence indicating non-fulfillment of the CSI requirement (i.e., there is evidence showing non-conformity); or
- b) There is insufficient evidence to demonstrate that the CSI requirement is fulfilled (i.e., there is an absence of positive evidence showing conformity).

The team will make its determination of conformity or non-conformity based on Evaluation Parameters (EPs). An EP is a part of an CSI requirement that represents the finest level of evaluation considered during conformity assessment. EPs are intended to give assessors a systematic and objective way to consider the most salient technical aspects of each CSI requirement. There are three types of EP: Management Process (EP1); Adequate Information (EP2); and Status/Outcome (EP3). These EP types are the three “lenses” through which an assessor will look at fishery management (see Table 1).

Table 1. Description of Evaluation Parameters (EPs).

Quick Guide - Evaluation Parameters			
	EP1	EP2	EP3
	Management Process	Adequate Information	Status/Outcome
Definition	Evaluation of conformity is based on consideration of evidence for the implementation of appropriate processes or systems by management.	Evaluation of conformity is based on consideration of evidence for the availability of information that is of sufficient quality and scope for its intended purpose.	Evaluation of conformity is based on consideration of evidence for the current state of the component in question falling within acceptable limits (i.e., status). Alternatively, evaluation of conformity may be based on evidence that the management approach is known or likely to have the intended effect on the component (i.e., outcome).
Questions	Has the Fisheries Management Organization or Arrangement (FMOA) implemented appropriate processes/systems to address the intent of the requirement? [Is there a process in place to address the issue?]	Does the FMOA have access to information of sufficient quality and scope to address the intent of the requirement? [Is adequate information available to address the issue?]	Can the FMOA show that the current status of the component is within acceptable limits? Alternatively, can the FMOA show that the approach taken is likely to attain its desired outcome? [Is the resource within acceptable limits? Alt: Is management action likely to fix the problem?]

Depending on the complexity and scale of the issue addressed by a given CSI requirement, several EPs may be applicable. Most CSI requirements consist of three EPs (EP1, EP2, and EP3) although some consist of only two EPs. Regardless of EP number, the underlying mechanism for conformity assessment remains the same: the team evaluates all applicable EPs to make its determination about conformity with the CSI requirement.

The assessment team will provide a written rationale that supports each determination in respect of fishery conformity or non-conformity. The rationale responds in detail to the EPs within each CSI requirement, providing objective evidence for all assertions of fact.

It is not uncommon for questions to arise during the team's deliberations over determination of conformity. The team may request clarification from the fishery client or solicit additional information. Clarification requests may take place after the on-site assessment, but such discussions with the fishery client are to be completed before the team proposes a determination about conformity.

Once the team members have made their own determinations of conformity, the lead assessor will assemble all proposed determinations and supporting rationales. The lead assessor should consolidate these results in a working draft of the Fishery Assessment Report. The lead assessor then convenes a meeting of the assessment team to consider the proposed determinations of conformity and supporting rationales (i.e., a "scoring meeting"). This meeting may be held in person or via phone or video-conference call. If disagreement arises about a conformity determination, the lead assessor strives to reach consensus among team members. However, if assessors cannot agree, then the final determination is decided by simple majority.

2. Non-Conformities

The *CSI Fishery Assessment Methodology* presents detailed requirements for assessment teams to follow for grading and follow-up on non-conformities (NCs). Only a summary of the process is given here.

For each CSI requirement, the team determines if all applicable EPs are met. If yes, then the determination of “conformity” is assigned to the requirement and documented in the fishery assessment report.

If one or more EP is not fulfilled within a given CSI requirement, then the fishery is not in conformity and the assessment team raises an NC against that requirement. NCs are graded into one of three categories¹ as follows:

Minor NC – The fishery does not meet any one (1) of the EPs within a given CSI requirement;

Major NC – The fishery does not meet any two (2) of the EPs within a given CSI requirement; or

Critical NC – The fishery does not meet three (3) of the EPs within a given CSI requirement.

The assessment team iterates the process of conformity determination across all applicable CSI requirements to identify all unmet EPs and assign grades to any NCs that have been raised. The team then reviews the overall level of conformity of the fishery relative to prescribed NC thresholds (Table 2).

Table 2. Minimum fishery performance level is defined by the number and grade of NCs.

Core Tenet	Max. Number of NCs by Grade (not to be exceeded)		
	Minor NC	Major NC	Critical NC
1	3	1	0
2	3	1	0
3	3	1	0
4	3	1	0
EFM	3	1	0

Note: Within a Core Tenet, the thresholds for minor and major NCs are not additive. In other words, the fishery may not have more than 1 major NC or not more than 3 minor NCs, but it cannot have both major and minor NCs.

If the observed number of NCs is greater than the prescribed threshold value within any Core Tenet, then the assessment team raises a critical NC. This action causes the fishery assessment to be paused pending further review by the CB's Program Manager.

¹ At their discretion, the team may also raise “observations” (also known as recommendations or opportunities for improvement) to the attention of the fishery client. An observation is an area or issue of concern that currently conforms with the Standard but could be improved upon.

If the observed number of NCs is less than the prescribed threshold values, then the assessment team will proceed to write-up the findings, including a detailed description of all NCs raised. For each NC, the team will solicit a corrective action plan (CAP) from the fishery client. CAPs will be reviewed for adequacy before they are included in the draft Fishery Assessment Report. Subsequent steps are described in the *CSI Fishery Assessment Methodology*.

3. Disqualifying Activities

Disqualifying activities are:

- a) the use of explosives, poisons or comparable destructive fishing practices;
- b) forced labor or other abusive labour practices;
- c) knowing or willful engagement in illegal, unreported and unregulated (IUU) fishing; or
- d) illegal shark finning.

The assessment team should look for evidence that disqualifying activities 3a-d do not occur within the Unit of Certification (UOC). Table 3 gives examples of evidence that would indicate the UOC does engage in a disqualifying activity.

Table 3. Examples of evidence for UOC engagement in a disqualifying activity.

Activity	Evidence for the Disqualifying Activity
Destructive fishing practices	UOC vessels are linked to convictions for fishing illegally using a destructive fishing practice such as explosives or poisons within the past two years.
Forced labour	UOC vessels are linked to convictions for forced labour violations within the past two years.
IUU fishing	Unreported and/or unregulated fishing is prevalent within the scope of the UOC's operations. Significant rates of non-compliance with fishing regulations or laws are detected within the scope of the UOC's operations. "Significant" means that illegality is widespread (i.e., violations occur across numerous fishing operations) or that a high rate of illegality persists through time.
Shark finning	UOC vessels are linked to convictions for illegal shark finning within the past two years. In jurisdictions where shark finning is not regulated, there should be evidence that vessels of the UOC do not participate in shark finning, and if sharks are retained, they are landed with fins naturally attached.

4. Dat-Limited Fishery Tool

For fisheries with data limitations, CSI allows the assessment team to apply a risk-based approach (see Appendix 2, CSI Fishery Assessment Methodology). The Data-Limited Fishery (DLF) Tool² may be used for CSI requirements as shown in Table 4.

Table 4. CSI Requirements for which the DLF Tool may be applied.

	CSI Requirement No.	RFM V2.2³ Equivalent Requirement No.
Target Stock	2.2.5	6.3
NT Species	4.1.2, 4.1.3	12.2.1, 12.2.2
ETP Species	4.2.2	12.2.4
Habitat	4.3.2	Out of Scope
Ecosystem	4.4.2	Out of Scope

5. Local and Traditional Fishery Knowledge

The CSI scheme provides for the utilization of Local and Traditional Fishery Knowledge (LTFK) by fishery management organizations. For select CSI Requirements, LTFK is cited as an acceptable form of evidence for conformity with a specified evaluation parameter. When the assessment team relies on LTFK in a fishery assessment, they should be able to demonstrate that such information is verifiable. Verifiability may be shown by applying the process outlined below.

- 5.1 Assessors may consider relevant traditional knowledge sources to be verifiable LTFK when two criteria are met:
 - 5.1.1 The information meets the CSI definition of Local Fishery Knowledge and/or Traditional Fishery Knowledge; and
 - 5.1.2 At least one of the following applies:
 - a. the knowledge was collected and analyzed through a systematic, objective and well-designed process;
 - b. the knowledge has been independently reviewed by relevant experts;
 - c. in lieu of formal scientific testing, the knowledge is considered plausible by one or more relevant experts; or

² CSI is currently in the process of developing the DLF Tool. It will be based on the [Data Deficient Framework \(DDF\)](#).

³ CSI Responsible Fisheries Management (RFM) Fisheries Standard, Version 2.2. Certified Seafood International, April 2025. <https://csicertified.org/wp-content/uploads/2025/06/CSI-RFM-V2.2-Global-Scope-Standard-FINAL.pdf>

- d. fishery managers have good reason to believe the knowledge is substantive and not just hearsay.

Note that assessors are not expected to review every instance of LTFK usage by fishery managers. Rather, assessors may evaluate LTFK based on a sample of evidence. For example, assessors may cross-check the validity of LTFK using expert opinions obtained during interviews with fishery scientists and managers. Alternatively, assessors may review FMOA processes used to collect or verify LTFK.

6. Fishery Scale and Intensity

Fisheries may vary significantly in terms of the amount of management effort that needs to be directed towards them. In general, the degree of management oversight and/or the level of information needed by managers will increase as the scale and/or intensity of fishing operations increases. For this reason, CSI gives assessors discretion to account for fishery scale and intensity (S&I) during the assessment process. Select CSI requirements prompt the assessor to consider S&I when evaluating evidence of conformity. For such requirements, the assessor should expect that more robust evidence will be available for larger and/or more intensive fisheries. Conversely, for smaller or lower-intensity fishing operations, less detailed evidence may suffice as evidence of conformity.

Assessors may estimate the S&I of a fishery by considering a list of contributing factors. Such factors may include but are not limited to the following:

- A. Total number of participating fishers;
- B. Fleet size;
- C. Fleet composition (e.g., vessel classes);
- D. Average duration of fishing trips;
- E. Use of active or passive gear types;
- F. Degree of mechanization;
- G. Use of tenders or transshipment at sea;
- H. Spatial range of fishing operations; and
- I. Temporal nature of fishing.

With respect to applying the above-mentioned factors, it is expected that the fishery client will present relevant information about fishery S&I to the assessment team (i.e., the "burden of proof" rests with the fishery client). The team may then use this information as appropriate to make determinations about fishery S&I.

Part II. Evaluation Parameters

Core Tenet 1. Management operates an effective fishery management system.

CSI Requirement 1.1.1

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.1 Fishery Management System
CSI Requirement No.	1.1.1
CSI Requirement	A structured and legally mandated Fishery Management System (FMS) shall be in place.
Relevant Definitions	Fisheries Management Organization or Arrangement (FMOA) Fishery Management System (FMS)
Scope of Application	All types of fisheries
Clarification	
<p>1. Applicable organizational level A structured and legally mandated FMS should be established for the fishery at the local, national, or regional level as applicable⁴.</p> <p>2. Unresolved Disputes The management system shall not be subject to continuing, unresolved, or repeated disputes or administrative instability⁵.</p> <p>3. Conflict vs. Dispute FAO refers to “conflicts” in relation to disagreements arising between different groups of fishers or fishery sectors (CCRF 7.6.5, 10.1.4, 10.1.5) whereas FAO refers to “disputes” in relation to disagreements between States over the management of a fishery (see CCRF clause 6.15). CSI follows FAO usage, addressing fishery disputes under 1.1.1 and fishery conflicts under 1.1.5. It is noted that a conflict between two fisheries may exist within one national jurisdiction, or it may extend beyond national boundaries and thus be subject to a regional or international management arrangement. In either case, the conflict would fall within the scope of 1.1.5.</p>	
EPs and Guidance	
<p>EP1 – Management Process NA</p>	
<p>EP2 – Adequate Information There is sufficient information to confirm that a structured and legally mandated FMS is in place for the fishery. Evidence may come from legislation or statutes that provide for the establishment of an FMS or those agencies charged with implementation of the FMS at local, state, national or international levels as appropriate.</p>	

⁴ § 29.5, FAO Ecolabelling Guidelines 2009.

⁵ Supporting Clause 1.1, CSI RFM Standard v2.2.

EP3 – Status/Outcome

There is evidence that the FMS is established at appropriate organizational levels for management of the fishery under consideration. There is no compelling evidence to indicate that the FMS is subject to continuing, unresolved, or repeated disputes or administrative instability.

CSI Requirement 1.1.2

Core Tenet	1 Management operates an effective fishery management system.
Management Theme	1.1 Fishery Management System
CSI Requirement No.	1.1.2
CSI Requirement	The FMS provides an institutional framework for the conservation and management of aquatic resources.
Relevant Definitions	Conservation and Management Measure (CMM) Fishery Management System (FMS)
Scope of Application	All types of fisheries
Clarification	
-	
EPs and Guidance	
EP1 – Management Process	
The FMS provides a process or system by which the FMOA elaborates its long-term objectives for conservation and management of aquatic resources. Evidence for this process or system may come from FMOA policy documents, policy objectives, governing legislation, strategic plans, management procedures, or related institutional documentation.	
EP2 – Adequate Information	
There is evidence that the FMS provides an institutional framework for conservation and management of aquatic resources. Evidence should come from FMS processes associated with conservation and management of the target stock. This may include but is not limited to activities involving: information gathering, analysis, planning, monitoring, research, decision-making, resource allocation, formulation of CMMs, harvest control, and enforcement. Note: the rationale for EP2 may present evidence in broad outline form (e.g., at the level of CSI Management Theme).	
EP3 – Status/Outcome	
NA	

CSI Requirement 1.1.3

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.1. Fishery Management System
CSI Requirement No.	1.1.3
CSI Requirement	Fisheries management arrangements and decision-making shall be transparent and provide for the consultation of fishers and affected stakeholders.
References	CCRF 6.13, 7.1.9; IRFM 1.1.5; CSC-RFM 1.8, 2.2, 8.3
Relevant Definitions	Local and Traditional Fishery Knowledge (LTFK) Stakeholder
Scope of Application	All types of fisheries
Clarification	
Consultation Process As part of its decision-making process, the FMOA shall consult with fishers and other affected stakeholders. This does not mean that fishers or other stakeholders are required to have specific decision rights in the fishery. Rather, there should be a consultation process that regularly seeks and accepts relevant information from fishers, including local and traditional fisher knowledge (LTFK), and there is a transparent mechanism by which the management system demonstrates consideration of the information obtained. The assessor should verify that the consultation process involves the identification of relevant parties which may include, for example, indigenous people, local fishing communities, or other groups whose livelihoods depend on the resource.	
EPs and Guidance	
EP1 – Management Process The decision-making process involves a mechanism for identifying and consulting with fishers and affected stakeholders. Such consultations are done in accordance with national laws and regulations as may be applicable, and extend to those with a legitimate interest in the use and management of the fishery resource. Evidence for a consultation mechanism may come from agency policies and procedures or from records of prior FMOA consultations (e.g., published announcements, agency requests for public comment on proposals, targeted consultations with fisher associations or industry representatives, meetings with affected stakeholder groups).	
EP2 – Adequate Information NA	
EP3 – Status/Outcome There is evidence that the FMOA is transparent about fishery management decisions. Transparency should be evident in a review of recent (e.g., within the last 5 years) management decisions for the fishery. Evidence may include published records or announcements from management actions and/or descriptions of how the FMOA followed their decision-making policies and procedures to reach a management decision. Evidence may also include the consultations cited in EP1.	

CSI Requirement 1.1.4

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.1. Fishery Management System
CSI Requirement No.	1.1.4
CSI Requirement	The precautionary approach shall be applied widely to the conservation and management of the target stock and the ecosystem.
Relevant Definitions	Precautionary Approach (PA) Uncertainty
Scope of Application	All fisheries
Clarification	
<p>A Note on the Scope of 1.1.4</p> <p>The scope of CSI Requirement 1.1.4 is intended to apply broadly to the FMS, focusing on how widely the FMOA applies a precautionary approach to processes which are relevant to the fishery under consideration. CSI Requirement 1.2.3 also treats the PA but it focuses specifically on whether FMP documentation adequately describes how the PA is applied to the target stock. More detailed requirements for the conservation and management of the target stock and the ecosystem (i.e., fishery-specific or UOC-specific requirements) are given elsewhere in the Standard.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is evidence that the FMOA integrates the PA into ongoing management processes for the target stock and ecosystem. Evidence may come from integration of precaution into routine stock assessment activities or practices for setting harvest levels, adherence to precautionary Harvest Control Rules (HCRs), enactment of precautionary CMMs to cover everyday fisheries operations, or other recent precautionary actions taken by management.</p>	
<p>EP2 – Adequate Information</p> <p>There is evidence that the FMOA applies the PA even when scientific uncertainty impedes an informed decision-making process. More specifically, there should be evidence that management is cautious when scientific knowledge is uncertain. Such caution may be evidenced by the way the FMOA takes into account, inter alia, uncertainties relating to the size and productivity of the target stock, reference points, and stock condition in relation to reference points (CCRF 7.5.2). Alternatively, precaution may be evidenced by interim management actions (e.g., temporary CMMs or comparable measures) or by initiation of studies to acquire scientific information to address the source of uncertainty.</p>	
<p>EP3 – Status/Outcome</p> <p>NA</p>	

CSI Requirement 1.1.5

Core Tenet	1 Management operates an effective fishery management system.
Management Theme	1.1 Fishery Management System
CSI Requirement No.	1.1.5
CSI Requirement	<p>A. The fishery shall be regulated in a way that avoids or minimizes conflict among fishers using different types of vessels, fishing gears, and/or fishing methods.</p> <p>B. There shall be a means to settle conflicts arising within or among fisheries sectors.</p>
Relevant Definitions	Sufficient Information
Scope of Application	All types of fisheries
Clarification	
Conflict vs. Dispute See note of clarification in CSI Requirement 1.1.1.	
EPs and Guidance	
EP1 – Management Process In line with 1.1.5B, there is a process or system in place to settle conflicts arising within or among fishery sectors. Conformity may be evidenced by fishery policies, procedures, and/or legislation relevant to conflict resolution. Evidence may come, for example, from FMOA procedures which initiate a review process to balance the needs of competing user groups. Evidence may also come from previous FMOA deliberations over conflicts that have arisen within or among fishery sectors. In the latter case, evidence may not be UOC-specific but there should be reason to expect that the process or system for conflict resolution would apply to the fishery under consideration.	
EP2 – Adequate Information In line with 1.1.5A, there is evidence that fishing is regulated so as to avoid or minimize conflict among fishers using different types of vessels, fishing gears, and/or fishing methods. Evidence may come from FMOA deliberations related to the elaboration of new fishing laws or regulations, or other documents (e.g., public consultations) that demonstrate efforts by the FMOA to avoid or minimize conflict among fishers.	
EP3 – Status/Outcome There is evidence the process or system in EP1 is effective at settling conflicts that arise within or among fishery sectors. Direct evidence may come from previous examples of effective conflict resolution. Alternatively, the conclusion may be supported by evidence that existing systems or processes are likely to be effective at conflict resolution in relation to the UOC.	

CSI Requirement 1.1.6

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.1. Fishery Management System
CSI Requirement No.	1.1.6
CSI Requirement	<p>For shared target stocks*, there shall be bilateral, subregional or regional fisheries management organization or arrangement that addresses management of the target stock over its entire area of distribution.</p> <p>*Applicable to UOCs with a target stock that is transboundary, shared, straddling, highly migratory, or a high seas fish stock exploited by two or more States.</p>
Relevant Definitions	Shared Target Stock
Scope of Application	Shared target stocks, RFMO
Clarification	
<p>A Note on the Scope of 1.1.6</p> <p>Regional fisheries management organizations (RFMOs) are just one example of an “arrangement” for the management of a shared target stock over its entire area of distribution. Other forms (bilateral, trilateral, and subregional arrangements) exist as well and may be considered.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is evidence for an arrangement in place at the appropriate level (bilateral, subregional, regional) for management of the target stock over its entire area of distribution. Management processes of the RFMO or other arrangement may be evidenced by records of cooperation among its members or by their participation in formal fishery discussions or arrangements.</p>	
<p>EP2 – Adequate Information</p> <p>NA</p>	
<p>EP3 – Status/Outcome</p> <p>There is evidence that the arrangement referred to in EP1 is effective at managing the target stock over its entire area of distribution. The effectiveness of the management arrangement may be evidenced by:</p> <p><u>Status</u>: a history of cooperation among participating entities to sustainably manage the target stock over its entire area of distribution.</p> <p>Or</p> <p><u>Outcome</u>: the shared target stock is not overfished nor is it subject to overfishing over its entire area of distribution.</p>	

CSI Requirement 1.2.1

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.2. Fishery Management Plan
CSI Requirement No.	1.2.1
CSI Requirement	<p>There shall be a Fishery Management Plan (FMP) or other management framework* for the target stock.</p> <p>* FAO recognizes FMPs and other management frameworks (CCRF 7.3.3).</p>
Relevant Definitions	Fishery Management Plan (FMP)
Scope of Application	All types of fisheries
Clarification	
<p>Definition – Fishery Management Plan (FMP)</p> <p>An administrative instrument for long-term strategic management of fishery resources. The FMP: sets out long-term objectives for the fishery; identifies partners in the fishery and their respective roles; and specifies the management rules. The FMP may also provide additional details about the fishery which are relevant to its management.</p> <p>Because an FMP may address multiple stocks or species, the assessment team should confirm that, at a minimum, the scope of the plan covers management of the target stock and UOC.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>NA</p>	
<p>EP2 – Adequate Information</p> <p>There is an FMP or other management framework covering the fishery under consideration. Minimally, the plan or framework identifies the long-term management objectives for the target stock, the fishery partners and their respective roles, and relevant management rules and regulations. Evidence for the existence of an FMP or framework may come from approved management plans, documented management frameworks, or other established administrative/regulatory structures.</p>	
<p>EP3 – Status/Outcome</p> <p>There is evidence that the FMP is implemented by, and receives the general support of, relevant authorities and fishery partners. Evidence may come from interviews with agency personnel and fishery representatives, or from evidence of their involvement in FMP development and/or implementation.</p>	

CSI Requirement 1.2.2

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.2. Fishery Management Plan
CSI Requirement No.	1.2.2
CSI Requirement	<p>The FMP or other management framework shall set out long-term management objectives consistent with optimal utilization* of the target stock while also reflecting the scale and intensity of the fishery, and it shall identify management approaches, actions, or measures to meet those objectives.</p> <p>* See CSI Glossary of Terms.</p>
Relevant Definitions	<p>Best Available Scientific Information (BASI)</p> <p>Conservation and Management Measure (CMM)</p> <p>Fishery Management Plan (FMP)</p> <p>Local and Traditional Fishery Knowledge (LTFK)</p> <p>Management Action</p> <p>Optimal utilization</p> <p>Scale and Intensity (S&I)</p>
Scope of Application	All types of fisheries
Clarification	
<p>1. Definition – Optimal Utilization</p> <p>The conservation and management objective of ensuring long-term sustainable use of fisheries resources. Optimal utilization is pursued through the adoption of appropriate measures, based on the best available scientific information, which are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield (MSY), as qualified by relevant environmental and economic factors, including the special requirements of developing countries. [adapted from FAO CCRF 7.2.1]</p> <p>2. Definition – Conservation and Management Measure (CMM)</p> <p>A specific control which is imposed on a fishery to attain a conservation and management objective. CMMS may include input controls (fishing effort limitations), output controls (catch quotas), technical measures (gear regulations, closed areas, and time closures), and socio-economic incentives (access and use rights).</p> <p>3. Definition – Management Action</p> <p>A step or measure taken by managers to prevent, stop, limit, and/or reverse an adverse trend. For example, as a stock approaches or exceeds its limit reference point, managers should take management action(s) to reverse the decline in stock abundance. Some types of management actions include corrective actions, remedial actions, and preventative actions.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>NA</p>	
<p>EP2 – Adequate Information</p> <p>The FMP or other management framework identifies long-term management objectives for the target stock and the fishery under consideration. These objectives are consistent with optimal utilization of the resource and also reflect BASI. Objectives may incorporate verifiable LTFK. Evidence may come</p>	

from approved management plans, documented management frameworks, or other established administrative/regulatory structures.

EP3 – Status/Outcome

A. Documented: The FMP or other management framework identifies management approaches, management actions, or CMMs relevant to meeting long-term management objectives for the target stock (as cited in EP2). Evidence may come from approved management plans, documented management frameworks, or other established administrative/regulatory structures.

AND

B. Actioned: There is evidence that the management actions (as cited in A) are taken to achieve the long-term objectives as set out in the FMP or other management framework. Evidence may include the implementation of relevant conservation and management measures, rules, or regulations that are consistent with an objective of optimal utilization of the target stock.

CSI Requirement 1.2.3

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.2. Fishery Management Plan
CSI Requirement No.	1.2.3
CSI Requirement	The FMP or other management framework shall specify how a precautionary approach is applied to management of the target stock and how uncertainty is addressed.
Relevant Definitions	Precautionary Approach (PA) Uncertainty Fishery Management Plan (FMP)
Scope of Application	All types of fisheries
Clarification	
<p>1. Definition – Uncertainty Lack of perfect knowledge of the many factors that may affect a fish stock and the consequence of this lack of perfect knowledge. For example, there is uncertainty in stock assessment, estimation of biological reference points, and responsiveness to management action.</p> <p>2. Uncertainty and the PA The precautionary approach dictates that greater caution is used in the face of greater uncertainty. While it is not possible to account for every uncertainty, fishery managers should recognize and address the “main” sources of uncertainty – those factors with the greatest potential to affect outcomes.</p>	
EPs and Guidance	
<p>EP1 – Management Process The FMP or other management framework describes a process (or refers to one) for applying precaution in management of the target stock. This process is likely to identify the main sources of uncertainty.</p>	
<p>EP2 – Adequate Information The FMP or other framework document specifies how uncertainty is addressed (see EP2 of CSI Requirement 1.1.4 for examples of how the FMOA may address uncertainty). Documentary evidence may come from approved management plans, documented management frameworks, or other established administrative/regulatory structures.</p>	
<p>EP3 – Status/Outcome NA</p>	

CSI Requirement 1.2.4

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.2. Fishery Management Plan
CSI Requirement No.	1.2.4
CSI Requirement	The FMP or other management framework shall set out objectives to reduce, minimize, or mitigate adverse impacts of the fishery on the ecosystem.
Relevant Definitions	Adverse Impact Best Available Scientific Information (BASI) Ecosystem Fishery Management Plan (FMP) Local and Traditional Fishery Knowledge (LTFK)
Scope of Application	All types of fisheries
Clarification	
Note: CSI Requirement 4.4.2 also addresses ecosystem impacts. However, 1.2.4 is focused on substantiating the <u>plan</u> while 4.4.2 is concerned with verifying details of <u>implementation</u> .	
EPs and Guidance	
EP1 – Management Process NA	
EP2 – Adequate Information The FMP or other management framework sets out one or more objectives to reduce, minimize, or mitigate adverse impacts of the fishery on the ecosystem. Objectives are based on BASI and may incorporate verifiable LTFK if applicable. Evidence may come from approved management plans, documented management frameworks, or other established administrative/regulatory structures.	
EP3 – Status/Outcome NA	

CSI Requirement 1.3.1

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.3. Fishery Statistics
CSI Requirement No.	1.3.1
CSI Requirement	<p>The Fisheries Management Organization or Arrangement (FMOA) shall have a system for collecting fishery data in line with international standards* and/or best practice for the sector.</p> <p>* FAO. 1999. Guidelines for the routine collection of capture fishery data. FAO Fisheries Technical Paper. No. 382. Rome, FAO. 1999. 113 p. https://www.fao.org/3/x2465e/x2465e.pdf</p>
Relevant Definitions	<p>Fishery Management System (FMS)</p> <p>Fishery data</p> <p>Shared target stock</p>
Scope of Application	All types of fisheries
Clarification	
<p>1. Quality and Quantity of Fishery Data</p> <p>With respect to evaluating the quality and quantity of fishery data, assessors should consider how the fishery data supports the specific needs of stock assessment (see 1.3.4) and whether the target stock presents any unusual challenges for fishery data collection. For example, if a fishery is managed using spawning escapement goals, as is the case with many Pacific salmon stocks, then the assessor may need to provide additional detail on how managers enumerate fish escapement (e.g., with aerial surveys, weir counts, mark-recapture, sonar, etc.) and any limitations that may be associated with such data.</p> <p>2. Data Collection for Shared Target Stocks</p> <p>The system for collecting fishery data may entail a cooperative sharing agreement or arrangement between neighboring states to ensure that fishery data are collected over the entire range of a shared target stock (i.e., a transboundary stock).</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is a process or system in place to collect relevant fishery data. The process or system may be evidenced by FMS protocols or procedures for fishery data collection. Alternatively, the process or system may be evidenced by statistical databases that are generated from fishery data collections (e.g., computer-based data management systems) or summaries of those databases.</p>	
<p>EP2 – Adequate Information</p> <p>There is evidence that the system for fishery data collection for the target stock is aligned with relevant international standards and/or best practice for the sector. Alignment may be evidenced in relation to:</p> <ul style="list-style-type: none"> - The <i>FAO Guidelines for the routine collection of capture fishery data</i>⁶; - The FAO Coordinating Working Party on Fishery Statistics <i>Handbook of Fishery Statistical Standards</i>⁷; 	

⁶ <https://www.fao.org/3/x2465e/x2465e.pdf>

⁷ <https://www.fao.org/cwp-on-fishery-statistics/handbook/general-concepts/en/>

<ul style="list-style-type: none"> - UN Fish Stocks Agreement⁸, Annex 1, Article 3 – Basic Fishery Data; - another applicable international standard for the collection of fishery data; or - alignment to documented best practice for the sector.
EP3 – Status/Outcome NA

⁸ <https://www.un.org/oceancapacity/UNFSA>

CSI Requirement 1.3.2

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.3. Fishery Statistics
CSI Requirement No.	1.3.2
CSI Requirement	Timely, complete, and reliable fishery statistics shall be compiled for the target stock.
Relevant Definitions	Best Available Scientific Information (BASI) Fishery data Fishery statistics Local and Traditional Fishery Knowledge (LTFK) Scale and intensity (S&I)
Scope of Application	All types of fisheries Includes data-limited fisheries (DLFs)
Clarification	
<p>The guidance given below clarifies the terms “timely” (EP1), “reliable” (EP2), and “complete” (EP3).</p> <p><u>Timely</u> Fishery statistics for the target stock are compiled in a <u>timely</u> manner. Here, “timely” means that the production, maintenance, or updating of fishery statistics occurs on a timescale that supports decision-making by management authorities (e.g., annual stock assessments in support of setting seasonal catch limits). Periodicity of fishery statistics compilation (e.g., twice per year, annually, every two years, etc.) is appropriate to the S&I of the fishery and the biology of the target stock.</p> <p><u>Reliable</u> Here, “reliable” means there is evidence the statistics are accurate. In evaluating whether fishery statistics are reliable, assessors should consider potential sources of bias introduced through data collection procedures. One key consideration is the potential for fishery-dependent information to introduce a source of bias into fishery statistics. Fishery-independent information can provide a valuable way to check for bias in fishery-dependent data sets.</p> <p><u>Complete</u> Here, “complete” means the compilation of fishery data is broad enough in scope to fulfill its intended purpose for conservation and management of the target stock.</p> <p>Fishery Statistics vs. Fishery Data Fishery data are facts about a fishery that result from measurements or observations. In general, fishery data consists of raw, unprocessed information that is collected directly from fishing activities (logbooks, observers, surveys), such as individual catch weights, fish sizes, or vessel locations. Fishery statistics, on the other hand, represent collections of fishery data. In general, fishery statistics result from the analysis, organization and/or aggregation of fishery datasets (e.g., total annual landings or CPUE) that are used to inform management decisions. Both terms are defined in the CSI Glossary of Terms.</p>	
EPs and Guidance	
EP1 – Management Process	

There is a process or system in place to compile fishery statistics for the target stock. Compilation is timely. The process may be evidenced by a past history of compiling statistics for the target stock. Timeliness of the process may be evidenced by the regularity (e.g., annual) of updates of fishery statistics for the target stock.

EP2 – Adequate Information

Fishery statistics compiled for the target stock are considered reliable. Compilation of statistics should integrate BASI or consider BASI in subsequent stages of analysis. Fishery statistics may incorporate verifiable LTFK if applicable. Reliability of fishery statistics may be evidenced by an internal or external expert review process (e.g., peer review, independent panel review), attestation from qualified professionals, or another means of system appraisal⁹.

EP3 – Status/Outcome

Fishery statistics compiled for the target stock are considered complete. Evidence as in EP2.

In jurisdictions where laws, rules, or regulations define minimum quality objectives for fishery statistics, assessors may consider such minima to be evidence of conformity with EP3.

⁹ Section 8.4.7, FAO Guidelines for routine collection of capture fishery data.

CSI Requirement 1.3.3

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.3. Fishery Statistics
CSI Requirement No.	1.3.3
CSI Requirement	The quality and quantity of fishery data shall be sufficient to derive reliable estimates of catch and fishing effort for the target stock.
Relevant Definitions	Fishery data Fishery statistics Sufficient information
Scope of Application	All types of fisheries BASI
Clarification	
EPs and Guidance	
EP1 – Management Process	
NA – For management process, see CSI Requirement 1.3.1 (EP1) and 1.3.4 (EP1).	
EP2 – Adequate Information	
There is evidence that fishery data collections are of sufficient quality and quantity to derive reliable estimates of catch and fishing effort for the target stock. Fishery data are collected and maintained in line with international standards for best practice (FAO 2004 Coordinated Working Party (CWP) on Fishery Statistics Handbook of Fishery Statistical Standards .) and they are subject to verification. Evidence for fulfilment of EP2 may come from fisheries database summaries, stock assessment reports, and intra or inter-agency reviews or external reviews.	
EP3 – Status/Outcome	
The FMOA has successfully derived estimates of catch and fishing effort for the target stock in the recent past. Previous estimates were considered reliable. Evidence may come from stock assessment reports.	

CSI Requirement 1.3.4

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.3. Fishery Statistics
CSI Requirement No.	1.3.4
CSI Requirement	Fishery datasets shall be maintained, regularly updated, and reviewed periodically to ensure they remain useful for stock assessment purposes.
Relevant Definitions	fishery data fishery statistics stock assessment
Scope of Application	All types of fisheries BASI LTFK
Clarification	
<p>Clarification of the terms “timely” and “periodically” generally follows CSI Requirement 1.3.2.</p> <p>Timely means that the production, maintenance, or updating of fishery statistics occurs on a timescale that supports decision-making by management authorities (e.g., annual stock assessments in support of setting seasonal catch limits).</p> <p>Periodically means the frequency of review of fishery datasets is sufficient to ensure they remain useful for stock assessment purposes. The FMOA may review fishery data on a continuous (i.e., ongoing) basis. Alternatively, reviews may be discontinuous with a frequency reflecting management needs (e.g., for an annual stock assessment schedule, reviews might occur every fifth year).</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is a process or system in place to ensure that fishery datasets are maintained and regularly updated. This process or system involves a periodic review of fishery datasets to ensure they remain useful for stock assessment purposes. Updates reflect advances in knowledge and incorporate BASI as applicable. Updates may also incorporate verifiable LTFK. Evidence for fulfillment of EP1 may come from FMOA policies and procedures for the collection and maintenance of fishery data (e.g., running quality control and quality assurance (QA/QC) tests on datasets) or from stock assessment reports.</p>	
<p>EP2 – Adequate Information</p> <p>NA</p>	
<p>EP3 – Status/Outcome</p> <p>There is evidence that the datasets are subjected to periodic review to ensure they remain useful for stock assessment purposes. Evidence for fulfillment of EP3 may come from agency reports, stock assessment reports, peer reviews of stock assessments, or another type of “system appraisal” (see examples in: FAO 1999 Guidelines for routine collection of capture fishery data, FAO Fisheries Technical Paper No.382).</p>	

CSI Requirement 1.4.1

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.4. Fisheries Research
CSI Requirement No.	1.4.1
CSI Requirement	Fisheries research shall be conducted as appropriate to support the effective conservation and management of the target stock and its ecosystem. Research results shall be disseminated in manner that is timely and transparent, and respects confidentiality where appropriate.
Relevant Definitions	Scale and intensity (S&I)
Scope of Application	All types of fisheries To include enhanced fisheries
Clarification	
<p>1. Fisheries Research vs. Fishery Data The scope of CSI Requirement 1.4.1 covers fisheries research, which may include programs or initiatives that use experimental approaches to collect new information (e.g., growth and mortality data from tagging experiments, stock unit information, growth parameters, other relevant scientific investigations). Fisheries research may also encompass efforts aimed at improving stock assessment models or methods to better estimate reference points or to refine escapement goals. However, the scope of 1.4.1 does not encompass the routine collection of capture fishery data¹⁰ (e.g., fishing fleet statistics, fishing effort, landings, biological sampling of catches, etc.), which is addressed under CSI Management Theme 1.3.</p> <p>2. Research is Initiated as Appropriate In the absence of adequate scientific information, the FAO recommends that appropriate research is initiated in a timely manner (CCRF 12.3). The intent of CSI Requirement 1.4.2 is that research should be initiated if and when it is appropriate to do so, with priority given to resolving uncertainties about the status of the target stock. Significant unknowns about the ecosystem of the target stock may also be grounds to initiate research. Timeliness of research should reflect the specific nature of the uncertainty, the S&I of the fishery, and known or perceived risks.</p> <p>3. Confidentiality The intent of CSI Requirement 1.4.1 is to ensure that management is transparent about its handling of results from fisheries research while also respecting any confidentiality arrangements that may apply.</p> <p>4. Timely Dissemination of Fisheries Research (EP3) Dissemination of fisheries research should be “timely” in the sense that the information is made available to stakeholders on a timeline that enables their informed participation in relevant management processes or decisions.</p>	
EPs and Guidance	
<p>EP1 – Management Process There is evidence of a process or system to initiate fisheries research if and when it is appropriate to do so. The responsible agency may be: a local, national, or regional management authority; a fisheries research institution; or another body. A formal process may be established in agency policies or</p>	

¹⁰ FAO. 1999. Guidelines for the routine collection of capture fishery data. FAO Fisheries Technical Paper. No. 382. Rome, FAO. 1999. 113 p. <https://www.fao.org/3/x2465e/x2465e.pdf>

procedures, or mandated through statute. If the process or system is informal, the assessment team may consider evidence from interviews with representatives from relevant groups (fisheries researchers, scientists, management agencies, fisher associations, stakeholders) to verify the process or system is in place.

EP2 – Adequate Information

There is evidence that fisheries research is conducted to support the conservation and management of the target stock and/or its ecosystem. Evidence of fishery research projects or initiatives may be documented in scientific reports, research articles, or related documents. Depending on the S&I of the fishery, management may rely on fishery research from a surrogate source (i.e., information from a comparable fishery situation).

EP3 – Status/Outcome

A. There is evidence for the effective and timely dissemination of results from fisheries research. Evidence may include publications, reports, websites, conference presentations, meeting agendas, outreach efforts, and educational materials.

AND

B. There is evidence that the dissemination of research results is aligned with applicable confidentiality arrangements. Evidence may come from review of the confidentiality agreements that are in place, interviews with responsible staff from management agencies, or attestations from relevant fishers or industry representatives.

CSI Requirement 1.4.2

Core Tenet	1. Management operates an effective fishery management system.
Management Theme	1.4. Fisheries Research
CSI Requirement No.	1.4.2
CSI Requirement	Shared Target Stocks: Management shall cooperate with relevant international organizations to facilitate research on optimal utilization of the target stock. Research results shall be shared with the relevant parties.
Relevant Definitions	Fishery data Fisheries Management Organization or Arrangement (FMOA) Optimal utilization Shared target stock
Scope of Application	Shared target stocks (i.e., transboundary stocks)
Clarification	
<p>1. Fisheries Research vs. Fishery Data See above clarification (1.4.1) regarding fisheries research vs. fishery data.</p> <p>2. Relevant International Organizations In the context of CSI Requirement 1.4.2, a relevant international organization should be a regional fisheries management organization (RFMO) or comparable authoritative body established through, for example, a bilateral or multilateral agreement among States with jurisdiction over the shared target stock.</p> <p>3. Optimal Utilization CSI defines "optimal utilization" broadly in relation to the long-term sustainable use of a fishery resource (see CSI Glossary of Terms). In the context of CSI requirement 1.4.2, research programs that aim to improve the understanding of the biology, ecology, ecosystem, or status of a shared target stocks are consistent with the objective of optimal utilization.</p>	
EPs and Guidance	
<p>EP1 – Management Process There is evidence that management cooperates with or lends its support to relevant international organizations for research on the shared target stock. Evidence may come from participation in research conducted by regional fishery management organizations or from the provision of technical or financial support to such bodies.</p>	
<p>EP2 – Adequate Information Research previously conducted by the relevant international organization addressed an area of uncertainty in relation to optimal utilization of the shared target stock. Evidence may come from cooperative research reports or other published works showing that the FMOA supports/contributes to the research initiatives undertaken by relevant international organization.</p>	
<p>EP3 – Status/Outcome There is evidence that research results are shared with relevant parties. Sharing may be evidenced by publication of research results or from the direct communication of research results between relevant parties.</p>	

Core Tenet 2. Management assesses and responds to the state of the target stock.

CSI Requirement 2.1.1

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.1. Stock Assessment
CSI Requirement No.	2.1.1
CSI Requirement	The state of the target stock shall be regularly assessed using a method which is appropriate for the species, fishery, and ecosystem.
Relevant Definitions	Stock assessment Target stock
Scope of Application	All types of fisheries
Clarification	
Here “regularly” means the stock assessment recurs on a timeframe which is appropriate to the biology of the target stock.	
EPs and Guidance	
EP1 – Management Process There is a management process for conducting regular stock assessments of the target stock. The process identifies the regularity with which stock assessments recur (e.g., on an annual basis). This process may be evidenced by FMOA policies and procedures, agreements with fisheries research institutes, or legal mandates.	
EP2 – Adequate Information There is a history of assessment of the target stock which demonstrates that stock assessments are conducted regularly. Fulfilment of EP2 is evidenced by the record of completed assessments (e.g., published stock assessment reports).	
EP3 – Status/Outcome There is evidence that the method of stock assessment is appropriate for species, fishery, and ecosystem. Assessors shall evaluate the specific stock assessment model/practices applied to the target stock and verify the technical appropriateness for use. Less elaborate methods of stock assessment may be accepted provided there is evidence that management authorities apply a more precautionary approach (e.g., reduced exploitation rate) when those methods yield greater uncertainty about the state of the stock.	

CSI Requirement 2.1.2

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.1. Stock Assessment
CSI Requirement No.	2.1.2
CSI Requirement	Stock assessment shall account for the range, structure, productivity, and resilience of the target stock.
Relevant Definitions	Stock assessment Stock structure Target stock
Scope of Application	All types of fisheries
Clarification	
<p>1. Range The intent of 2.1.2 is that stock assessment shall account for the entire range of the target stock. Per the CSI definition, “The target stock should comprise a single management unit as defined by the relevant FMOA, which should ideally correspond to a biological population. In assessing compliance with the Standard, assessors consider the impacts of all fisheries on the target stock <u>over its entire area of distribution.</u>”</p> <p>2. Stock Structure See clarification for CSI Requirement 3.2.1.</p>	
EPs and Guidance	
<p>EP1 – Management Process NA</p>	
<p>EP2 – Adequate Information The quality of information on the range, structure, productivity, and resilience of the target stock is sufficient for stock assessment purposes. Evidence may come from a review of stock assessment reports or associated materials, and/or interviews with stock assessment experts.</p>	
<p>EP3 – Status/Outcome There is evidence that stock assessment takes into account the range, structure, productivity, and resilience of the target stock. Evidence may come from the assessment team’s technical review of relevant assessment documentation (e.g., published stock assessment reports, ecosystem assessment reports), which should verify that the scope of stock assessment covers all required technical elements.</p>	

CSI Requirement 2.1.3

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.1. Stock Assessment
CSI Requirement No.	2.1.3
CSI Requirement	<p>Stock assessment shall consider total fishing mortality* of the target stock.</p> <p>*See CSI Glossary of Terms. <i>Total fishing mortality</i> is defined as all sources of fishing mortality of the stock including: discards; unobserved and incidental mortality; unreported catches; and catches in other fisheries.</p>
Relevant Definitions	<p>Discards</p> <p>Stock assessment</p> <p>Total fishing mortality</p>
Scope of Application	All types of fisheries
Clarification	
<p>1. Quantification of Total Fishing Mortality</p> <p>The intent of CSI Requirement 2.1.3 is that the authors of the stock assessment shall <i>consider</i> all sources of fishing mortality of the target stock. Ideally, stock assessments yield quantitative estimates of fishing mortality for each source (i.e., fishery removals, discards, unobserved and incidental mortality, unreported catches, and catches in other fisheries). However, some sources of mortality may be difficult to monitor accurately because of limitations in data collection (e.g., unreported catches in recreational or subsistence fisheries are often under sampled). Where quantification is impractical, stock assessment authors may use qualitative approaches to estimate the contribution of a source of fishing mortality. The assessment team shall describe the specific circumstances and provide a rationale for how the approach taken aligns with best practice and/or international guidelines for stock assessment.</p> <p>2. Escapement Goals</p> <p>Some fisheries are managed according to escapement goals, and these are exceptional under CSI Requirement 2.1.3 in that quantitative information on total fishing mortality may not be available. For such target stocks, the assessment team should describe the specific circumstances of management according to escapement goals and provide an explanation for how the approach taken aligns with best practice and/or international guidelines for stock assessment. The team's rationales for EP1, EP2, and EP3 should reflect the specific management objective (e.g., constant escapement) rather than a goal to quantify total fishing mortality.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is a management process or system in place to collect information on total fishing mortality of the target stock. Data collection supports an understanding of the different sources of fishing mortality of the target stock – specifically fishery removals, discards, unobserved and incidental mortality, unreported catches, and catches in other fisheries. Evidence may come from stock assessment reports, specifications of data collection programs, or FMPs.</p> <p>In the case of a shared target stock, the participating nations have put a system in place to ensure that data on fishery removals and fishing mortality are collected for the entire stock. Evidence may come from international agreements or conventions.</p>	

EP2 – Adequate Information

Existing datasets are adequate to support an understanding of total fishing mortality. Fishery data are collected at a frequency and level of detail that supports effective management of the stock. The information is considered to be reliable and accurate. Evidence may come from stock assessment reports, catch datasets, or observer reports.

EP3 – Status/Outcome

There is evidence that stock assessments address total fishing mortality of the target stock. All significant fishery removals are known or estimated, and stock assessments provide a quantitative estimate of fishing mortality. Stock assessments identify all sources of fishing mortality, specifically fishery removals, discards, unobserved and incidental mortality, unreported catches, and catches in other fisheries. Stock assessment may incorporate verifiable LTFK. Evidence for fulfillment of EP3 may come from stock assessment reports and/or interviews with stock assessment authors.

Note: During on-site assessment, the assessment team may seek out the views of fishery scientists to cross-check the effectiveness of the data collection process and perceptions about the accuracy of estimates for total fishing mortality of the target stock.

CSI Requirement 2.1.4

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.1. Stock Assessment
CSI Requirement No.	2.1.4
CSI Requirement	In line with the precautionary approach, the FMOA shall account for scientific uncertainty about the status of the target stock. Uncertainty may be addressed through a suitable method of risk assessment.
Relevant Definitions	Precautionary Approach (PA) Scale and intensity (S&I) Stock assessment Uncertainty
Scope of Application	All types of fisheries
Clarification	
<p>Clarification: Suitable Method of Risk Assessment</p> <p>In implementing the PA, the FAO Ecolabeling Guidelines (2009) recommend that relevant uncertainties are “...taken into account through a suitable method of risk assessment.” Although FAO does not elaborate on what may constitute a “suitable” method of risk assessment, it seems clear that no single method will suffice for all types of uncertainties under all circumstances. Therefore, it is to be expected that the FMOA may select a risk management method based on the specific needs and circumstances of management and also with due consideration given to the S&I of the fishery.</p> <p>When faced with uncertainty, the need for risk assessment should be evaluated in light of two considerations: 1) What is the source of the uncertainty? and 2) What are the consequences of that uncertainty? With respect to the former, FAO highlights numerous sources of uncertainty in fishery datasets and stock assessments including:</p> <ul style="list-style-type: none"> a. estimates of abundance; b. model structure; c. parameter values used in models; d. future environmental conditions; e. effectiveness of implementation of management measures; f. future economic and social conditions; g. future management objectives, and h. fleet capacity and behavior. <p>With respect to addressing the consequences of uncertainty, FAO emphasizes that taking a precautionary approach will focus on an appraisal of outcomes under different scenarios for management action. <i>The precautionary approach to assessment would follow a process of identifying alternative possible hypotheses or states of nature, based on the information available, and examining the consequences of proposed management actions under each of these alternative hypotheses. This process would... at the very least, aim to consider: (a) uncertainties in data; (b) specific alternative hypotheses about underlying biological, economic and social processes, and (c) calculation of the theoretical response of the system to a range of alternative management actions.</i></p> <p>In assessing CSI requirement 2.1.4, the team may consider how the risk assessment method addresses the source of uncertainty identified in relation to the UOC. The team may also consider how the risk</p>	

assessment method addresses consequences of uncertainty by asking whether the FMOA has made a comparison of alternative management actions.
EPs and Guidance
<p>EP1 – Management Process</p> <p>There is a management process or system in place to account for scientific uncertainty about the status of the target stock. The process is precautionary and may involve risk assessment if and when necessary. Evidence may come from the records of the decision-making process (e.g., agency meeting minutes, other records from FMOA deliberations).</p>
<p>EP2 – Adequate Information</p> <p>NA</p>
<p>EP3 – Status/Outcome</p> <p>There is evidence that the FMOA takes account of uncertainty about the status of the target stock. The most consequential sources of uncertainty (e.g., estimates of stock size, productivity, natural mortality, reference points, stock status in relation to reference points, fishing mortality, and environmental conditions) are accounted for in line with the PA. Relevant uncertainties may be addressed through a suitable method of risk assessment if and when necessary. Evidence may come from stock assessment reports, FMPs, and related documents.</p>

CSI Requirement 2.1.5

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.1. Stock Assessment
CSI Requirement No.	2.1.5
CSI Requirement	<p>Fishery data inputs (see 1.3.2 and 1.3.3) shall be sufficient* to support a robust stock assessment in line with best practice and/or applicable international standards. Stock assessment may also use verifiable LTFK if applicable.</p> <p>* “Sufficient information” is information that is judged to be appropriately reliable, relevant, and current for its intended use given the scale and intensity of the fishery under consideration.</p>
Relevant Definitions	Best Available Scientific Information (BASI) Fishery data Local and Traditional Fishery Knowledge (LTFK) Stock assessment Sufficient information Target stock
Scope of Application	All types of fisheries
Clarification	
<p>1. Fishery Data CSI Requirements 1.3.2 and 1.3.3 address the quality of fishery data sets in general terms whereas CSI requirement 2.1.5 addresses the sufficiency of such data sets for stock assessment purposes. In evaluating the sufficiency of fishery data inputs, the assessment team may also consider their review of evidence for total fishing mortality (CSI Requirement 2.1.5).</p> <p>2. Applicable International Standards The FAO Ecolabelling Guidelines¹¹ address methodological aspects of stock assessment as follows. “There are many ways in which state and trends in stocks may be evaluated, that fall short of the highly quantitative and data-demanding approaches to stock assessment that are often used for large scale fisheries in developed countries. Use of less elaborate methods for stock assessment should not preclude fisheries from possible certification for ecolabelling. However, it should be noted that, to the extent that the application of such methods results in greater uncertainty about the state of the “stock under consideration”, more precautionary approaches to managing fisheries on such resources will be required which may necessitate lower levels of utilization of the resource.” Also see Hoggarth et al. (2006)¹².</p>	
EPs and Guidance	
EP1 – Management Process NA	
EP2 – Adequate Information	

¹¹ § 32, , FAO Ecolabelling Guidelines 2009.

¹² Hoggarth, DD, Abeyasekera, S, Arthur, RI, Beddington, JR, Burn, RW; Halls, AS, Kirkwood, GP, McAllister, M, Medley, P, Mees, CC; Parkes, GB; Pilling, GM; Wakeford, RC; Welcomme, RL (2006) Stock assessment for fishery management – A framework guide to the stock assessment tools of the Fisheries Management Science Programme (FMSP). FAO Fisheries Technical Paper. No. 487. Rome, FAO. 2006. 261p.

Fishery data inputs for the chosen method of stock assessment are sufficient for evaluation of the state and trend of the target stock. Inputs represent the BASI and may include verifiable LTFK if applicable. Evidence may come from technical review of stock assessments or from peer review of the methodology that is in use.

EP3 – Status/Outcome

There is evidence that the stock assessment is robust and aligned with best practice and/or applicable international standards. Such alignment may be evidenced through a peer review process (e.g., previous reviews by independent technical experts) or it may be based on the professional judgement of the assessment team.

CSI Requirement 2.1.6

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.1. Stock Assessment
CSI Requirement No.	2.1.6
CSI Requirement	Stock assessment results shall be published in a timely manner, respecting confidentiality arrangements as may be applicable.
Relevant Definitions	Stock assessment
Scope of Application	All types of fisheries
Clarification	
<p>1. Timely Publication of Stock Assessment Results (EP2) Publication of stock assessment results should be “timely” in the sense that the information is made available to decision-makers and stakeholders on a timeline that enables their informed participation in relevant management processes or decisions.</p> <p>2. Confidentiality (EP3) The intent of CSI Requirement 2.1.6 is to ensure that management is transparent about stock assessment results while also respecting any confidentiality arrangements that may apply.</p>	
EPs and Guidance	
<p>EP1 – Management Process NA</p>	
<p>EP2 – Adequate Information There is a history of timely publication of stock assessment results. Evidence may be found on agency websites where stock assessment reports are published (e.g., on the website of the responsible FMOA or scientific research entity), or evidence may come from another source which can be used to establish a timeline for the publication of stock assessment results.</p>	
<p>EP3 – Status/Outcome There is evidence that the publication of stock assessment results is aligned with applicable confidentiality arrangements. Evidence may come from review of the confidentiality agreements that are in place, interviews with responsible staff from management agencies, or attestations from relevant fishers or industry representatives.</p>	

CSI Requirement 2.1.7

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.1. Stock Assessment
CSI Requirement No.	2.1.7
CSI Requirement	Shared Target Stocks: Management shall cooperate with relevant international organizations to ensure that results from stock assessment reflect the best available scientific information.
Relevant Definitions	Best Available Scientific Information (BASI) Fisheries Management Organization or Arrangement (FMOA) Shared target stock Stock assessment
Scope of Application	Shared target stocks (i.e., transboundary stocks)
Clarification	
Relevant International Organizations In the context of CSI Requirement 2.1.7, a relevant international organization should be an RFMO or comparable authoritative body established through, for example, a bilateral or multilateral agreement among States with jurisdiction over the shared target stock.	
EPs and Guidance	
EP1 – Management Process A process exists for management to cooperate with relevant international organizations on activities related to assessment of the shared target stock. Evidence may come from FMOA policies, bi- or multi-lateral agreements, or FMPs that pertain to the shared target stock.	
EP2 – Adequate Information There is evidence that the FMOA has previously contributed fishery data or other information representing BASI to the relevant international organization(s). Such contributions may be evidenced by, for example, data citations or data summaries provided in stock assessment reports from the relevant international organization(s) for the shared target stock.	
EP3 – Status/Outcome There is evidence of ongoing cooperation with relevant international partners to facilitate assessment of the shared target stock using BASI. Evidence as in EP1 and EP2.	

CSI Requirement 2.1.8

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.1. Stock Assessment
CSI Requirement No.	2.1.8
CSI Requirement	Where information about the target stock is insufficient, alternative assessment approaches may be used (e.g., surrogate information) in lieu of an analytical stock assessment methodology but only in low-risk circumstances.
Relevant Definitions	Data-limited fishery (DLF) Proxy Stock assessment Surrogate information
Scope of Application	Data-limited fisheries (DLFs). The scope of application of 2.1.8 is restricted to low-risk fisheries. If the UOC represents a fishery that is managed using stock-specific assessment information or is judged to be high-risk in the view of the assessment team, then CSI requirement 2.1.8 is not assessed, and EP1, EP2, and EP3 are NA.
Clarification	
In keeping with the FAO Ecolabel Guidelines (2009), the CSI Fishery Management Standard makes a provision for the use of surrogate information in assessing target stocks under some circumstances. CSI requirement 2.1.8 provides that, in the absence of specific information on the target stock, generic evidence based on similar stocks may be used for fisheries with low risk. However, the greater the risk of overfishing, the more specific evidence is necessary to ascertain the sustainability of the fishery. Small-scale fisheries and artisanal/traditional fisheries with low exploitation rates may meet the scoping criteria of 2.1.8 as being low risk. Large-scale, intensive, and industrial fisheries are unlikely to meet the scoping criteria for designation as low risk.	
EPs and Guidance	
EP1 – Management Process	There is a management process or system in place that allows for the use of surrogate information (i.e., generic evidence from a similar stock). The process is only applied to fisheries with low risk, and the process stipulates a need for greater reliance on stock-specific information as risk increases.
EP2 – Adequate Information	If the FMOA has utilized surrogate information to manage the target stock, there is adequate information to substantiate the determination that the fishery is low risk for overfishing of the target stock.
EP3 – Status/Outcome	There is evidence that management authorities have effectively used surrogate information in the past to manage the target stock. Overfishing did not occur, and the risk of overfishing continues to be low. Evidence may come from stock assessments or related reports. These documents should justify the use of surrogate information and designation of the fishery as low risk.

CSI Requirement 2.2.1

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.2. Reference Points
CSI Requirement No.	2.2.1
CSI Requirement	There shall be appropriate limit and target reference points (LRP and TRP) for the target stock.
Relevant Definitions	Best Available Scientific Information (BASI) Limit Reference Point (LRP) Precautionary Approach (PA) Reference Point (RP) Target Reference Point (TRP)
Scope of Application	All types of fisheries
Clarification	
<p>1. Development of Reference Points (RPs) RPs are developed using BASI and take account of uncertainty in accordance with the PA.</p> <p>2. Proxies The use of proxies for RPs is considered further under CSI Requirements 2.2.2 and 2.2.3. See additional guidance in Section A.</p> <p>3. Non-fishing Impacts In assessing whether RPs are “appropriate” for the target stock, the team may consider whether the RPs (or proxies) adequately account changes in stock productivity that can occur due to natural variability, ecosystem change, or impacts other than fishing.</p>	
EPs and Guidance	
<p>EP1 – Management Process There is a management process or system for setting LRPs and TRPs that reflects management objectives for the target stock. An RP-setting process may be evidence in documented policies or procedures, or evidence may come from previous actions by management authorities to set or revise RPs.</p>	
<p>EP2 – Adequate Information There is adequate information to substantiate that RPs (LRP and TRP) for the target stock were set using BASI and that they account for uncertainty in line with the PA. Evidence may come from relevant stock assessment reports, procedures for setting or reviewing reference points, management reviews, management strategy evaluations, or relevant external/technical reviews.</p>	
<p>EP3 – Status/Outcome There is evidence that the FMOA has set appropriate RPs (LRP and TRP) for the target stock. Evidence may come from stock assessments, FMPs, or similar documents.</p>	

CSI Requirement 2.2.2

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.2. Reference Points
CSI Requirement No.	2.2.2
CSI Requirement	The TRP shall be set in manner consistent with long-term optimal utilization of the target stock.
Relevant Definitions	Best Available Scientific Information (BASI) Maximum Sustainable Yield (MSY) Optimal utilization Precautionary Approach (PA) Proxy Target Reference Point (TRP)
Scope of Application	All types of fisheries
Clarification	
<p>1. Optimal Utilization TRPs are consistent with long term optimal utilization of the target stock. Here, “optimal utilization” means achieving maximum sustainable yield (MSY), a suitable proxy, or a lesser fishing mortality rate when necessary to address a competing management priority (e.g., avoiding adverse impacts on dependent predator (DP) species, reducing interactions with ETP species, managing multispecies fisheries, etc.).</p> <p>2. Proxies The CSI Glossary of Terms defines a proxy as “an alternate approach that results in an equivalent outcome to the primary approach.”</p> <p>When direct estimation of RPs is precluded by limitations of fishery data, proxies for the productive capacity of the stock may be used. Suitable proxies may include, for example, standardized Catch per Unit of Effort (CPUE) as a proxy for biomass, or specific levels of fishing mortality and biomass, which have proven useful in other fisheries, can be used with a reasonable degree of confidence in the absence of better defined levels. However, use of proxies may introduce additional uncertainty, and so should trigger extra precaution in setting biological RPs. See additional guidance in Section A.</p> <p>3. Development of TRPs As provided for in CSI Requirement 2.2.1, the TRP (and LRP) for the target stock is developed using BASI and accounts for uncertainty in accordance with the PA.</p>	
EPs and Guidance	
<p>EP1 – Management Process NA – see CSI Requirement 2.2.1</p>	
<p>EP2 – Adequate Information There is adequate information to show that TRP selection reflects BASI for the target stock. Evidence may come from documents associated with TRP development/selection including testing, modeling, simulation, reviews/meta-analyses of similar fish stocks, consultation, peer review, or other relevant reports.</p>	
EP3 – Status/Outcome	

There is evidence that the TRP for the target stock is set at a level which approximates MSY or a suitable proxy of MSY, or it is set to a lesser fishing mortality rate. Evidence may come from stock assessments, FMPs, or similar documents.

CSI Requirement 2.2.3

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.2. Reference Points
CSI Requirement No.	2.2.3
CSI Requirement	The LRP for the target stock shall be set to avoid impacts that may be irreversible or very slowly reversible such as recruitment overfishing. The LRP shall account for uncertainty, in line with the precautionary approach.
Relevant Definitions	Best Available Scientific Information (BASI) Irreversible or very slowly reversible Limit Reference Point (LRP) Point of Recruitment Impairment (PRI) Precautionary Approach (PA) Proxy Recruitment overfishing
Scope of Application	All types of fisheries
Clarification	
<p>1. Definition – Recruitment Overfishing A type of overfishing in which the rate of fishing is (or has been) such that annual recruitment to the exploitable stock has become significantly reduced. The situation may be characterized by a greatly reduced spawning stock, a decreasing proportion of older fish in the catch, and/or generally very low recruitment year after year.</p> <p>2. Definition – Point of Recruitment Impairment (PRI) The stock level below which recruitment may be impaired.</p> <p>3. Irreversible or Very Slowly Reversible Impacts The LRP is set to avoid impacts that may be irreversible or very slowly reversible such as recruitment overfishing.</p> <p>4. Proxies When direct estimation of RPs is precluded by limitations of fishery data, proxies for the productive capacity of the stock may be used. Suitable proxies may include, for example, standardized CPUE as a proxy for biomass, or specific levels of fishing mortality and biomass, which have proven useful in other fisheries, can be used with a reasonable degree of confidence in the absence of better defined levels. However, use of proxies may introduce additional uncertainty, and so should trigger extra precaution in setting biological RPs. See additional guidance in Section A.</p> <p>5. Development of TRPs As provided for in CSI Requirement 2.2.1, the LRP (and TRP) for the target stock is developed using BASI and accounts for uncertainty in accordance with the PA.</p> <p>6. Escapement Goal as a Proxy for LRP For some target stocks such as salmon, a spawning escapement goal may serve as a suitable proxy for the point at which recruitment may be impaired. A spawning escapement goal may therefore meet the intent of CSI Requirement 2.2.3 with respect to LRPs. See additional guidance in Section A.</p>	
EPs and Guidance	

<p>EP1 – Management Process</p> <p>NA – see CSI Requirement 2.2.1</p>
<p>EP2 – Adequate Information</p> <p>There is adequate information to substantiate that the LRP or proxy was set using BASI and that the LRP or proxy accounts for uncertainty in line with the PA. Evidence may come from stock assessment reports or FMPs.</p>
<p>EP3 – Status/Outcome</p> <p>There is evidence that the LRP for the target stock (or proxy) is set at a level to avoid overfishing and other impacts that are irreversible or very slowly reversible. Evidence may come from stock assessments, FMPs, or similar documents.</p>

CSI Requirement 2.2.4

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.2. Reference Points
CSI Requirement No.	2.2.4
CSI Requirement	The FMOA shall specify remedial actions to be taken when reference points are approached or exceeded.
Relevant Definitions	Limit Reference Point (LRP) Remedial action
Scope of Application	All types of fisheries
Clarification	
<p>1. Remedial Actions and Rebuilding Plans</p> <p>The CSI Standard requires the FMOA to specify remedial action(s) to be taken when RPs are exceeded. By extension, remedial actions should be agreed in advance and stated clearly in an appropriate instrument (e.g., an FMP, harvest strategy, HCR, or comparable document). Remedial actions may also be set out in a stock rebuilding plan or stock recovery plan although it should be noted that CSI does not require the preparation of rebuilding plans <i>per se</i>.</p> <p>2. Remedial Actions for Species Managed with Escapement Goals</p> <p>For species that are managed according to levels of escapement (e.g., spawning escapement goals are used to manage many salmonid fisheries), such minima may serve as proxies for LRPs. Performance relative to escapement goals should be evaluated over a 4 to 5 year period. For underperforming target stocks, remedial action shall be taken with the objective of returning them to safe biological levels.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>NA</p>	
<p>EP2 – Adequate Information</p> <p>The FMOA specifies for the target stock the remedial actions to be taken if RPs are approached or exceeded. Evidence may come from a FMP, harvest strategy, HCR, rebuilding plan, or comparable document.</p>	
<p>EP3 – Status/Outcome</p> <p>There is evidence that remedial actions are effective. Evidence for effectiveness may be based on:</p> <p><u>Status:</u> The FMOA has a prior history of responding with remedial actions for the target stock when RPs were approached or exceeded.</p> <p>Or</p> <p><u>Outcome:</u> If the target stock has not previously exceeded the LRP (and hence, stock assessment has not previously triggered a remedial action), then the assessment team may look to examples from comparable fisheries managed by the same FMOA (i.e., surrogate information) or modeling/computer simulations to evaluate the likelihood of effectiveness of remedial actions.</p>	

CSI Requirement 2.2.5

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.2. Reference Points
CSI Requirement No.	2.2.5
CSI Requirement	<p>The target stock shall not be overfished, and the level of fishing shall be appropriate relative to current stock status, taking into account environmental conditions* when relevant.</p> <p>* Productivity of stocks may fluctuate due to natural environmental variability and/or anthropogenic impacts other than fishing.</p>
Relevant Definitions	<p>Data-limited fishery (DLF)</p> <p>Limit Reference Point (LRP)</p> <p>Overfished</p> <p>Overfishing</p> <p>Proxy</p>
Scope of Application	All types of fisheries
Clarification	
<p>1. Definition - Overfished</p> <p>A stock is considered “overfished” when it is exploited beyond an explicit limit beyond which stock abundance is considered too low to ensure safe reproduction. In many fishery management systems, the term is used when biomass has been estimated to be below a limit biological RP that is used as the signpost defining an “overfished condition”.</p> <p>2. Definition - Overfishing</p> <p>A level of fishing effort or fishing mortality such that a reduction of this level would, in the medium term, lead to an increase in the total catch.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>Environmental variability, when appropriate, is taken into account when determining status and trend for the target stock. Evidence may come from relevant stock assessment reports and/or ecosystem assessment reports, Management Strategy Evaluations (MSEs) that explore different environmental scenarios, or precautionary buffers on harvest rates or other management responses to uncertainty associated with environmental variability.</p>	
<p>EP2 – Adequate Information</p> <p>There is sufficient information to conclude that the target stock is likely to be above its LRP or proxy, and to therefore conclude that the target stock is not overfished.</p> <p>DLFs: The DLF Tool may be used in situations where quantitative information about the status of the target stock is limited.</p>	
<p>EP3 – Status/Outcome</p> <p>The level of fishing (exploitation rate) is appropriate relative to current stock status (EP2), taking into account environmental conditions (EP1) when relevant. Evidence may come from stock assessment reports.</p>	

CSI Requirement 2.2.6

Core Tenet	2. Management assesses and responds to the state of the target stock.
Management Theme	2.2. Reference Points
CSI Requirement No.	2.2.6
CSI Requirement	Should the target stock exceed its LRP or otherwise be identified as depleted, remedial actions shall be taken to rebuild the stock within a reasonable timeframe.
Relevant Definitions	Limit Reference Point (LRP) Management action Remedial action Target Reference Point (TRP)
Scope of Application	Depleted stocks If the stock targeted by the UOC is not depleted, then CSI Requirement 2.2.6 is not assessed, and EP1, EP2, and EP3 are NA.
Clarification	
<p>For a target stock that has exceeded its LRP or whose status has otherwise been identified as depleted, the FMOA shall implement remedial actions to rebuild the stock within a reasonable timeframe. In assessing whether a timeframe is “reasonable” or not, the team should consider the following guidelines.</p> <ol style="list-style-type: none"> 1) The FMOA should respond promptly to any stock’s designation as being depleted. 2) The FMOA may respond to stock depletion by taking immediate steps to implement remedial actions. Alternatively, the FMOA may need to analyze the situation further (e.g., study different scenarios) before proposing a specific course of action. 3) The FMOA may need up to one year to identify the appropriate plan of action. However, the time needed to develop remedial actions shall not be used to justify management inaction. 4) Proposed remedial actions should identify specific measures that are expected to rebuild the stock to the TRP. 5) Remedial actions should aim to rebuild stocks within two generation times or less unless extraordinary circumstances apply (e.g., environmental regime shifts). 6) In no case shall the schedule for rebuilding of the stock exceed two certification cycles (i.e., not more than ten years) except in cases where the biology of the stock, other environmental conditions, or management measures under an applicable international agreement dictate otherwise. 	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is a management process or system in place to implement remedial actions if a target stock exceeds its LRP or is otherwise identified as depleted. The process aims to rebuild the stock within a reasonable time frame. Evidence may come from agency deliberations over appropriate remedial</p>	

actions or evidence may come from agency documents (e.g., FMP, harvest strategy, HCR, rebuilding plan, or comparable document).

EP2 – Adequate Information

Adequate information is available on status and trend for the target stock and its responsiveness to remedial actions. Evidence may come from updated monitoring and assessment of stock status.

EP3 – Status/Outcome

Status: In response to stock depletion, the FMOA has implemented remedial actions to rebuild the target stock. There is evidence that remedial actions are likely to be effective and should rebuild the stock to the TRP within a reasonable timeframe.

Or

Outcome: Based on prior experience managing other depleted stocks, the remedial actions taken by the FMOA are likely to achieve rebuilding of the target stock within a reasonable timeframe.

Core Tenet 3. Management effectively regulates, enforces, and monitors fishing operations.

CSI Requirement 3.1.1

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.1 Harvest Control
CSI Requirement No.	3.1.1
CSI Requirement	There is a harvest control rule (HCR) or comparable framework to ensure optimal utilization of the target stock.
Relevant Definitions	Harvest Control Rule (HCR) Optimal utilization Point of Recruitment Impairment (PRI) Reference Point (RP)
Scope of Application	All fisheries
Clarification	
<p>Comparable Framework</p> <p>In the context of CSI Requirement 3.1.1, a “comparable framework” means a rule or set of rules that serve the same function as an HCR in that: 1) the rule determines management action in response to changes in stock status; and 2) the rule is agreed in advance.</p> <p>Section B gives additional guidance on HCRs.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>The HCR is <u>designed</u> to ensure optimal utilization of the target stock. The objective of optimal utilization may be explicit, or it may be implicit in design features of the rules or associated HCR metrics. For example, the HCR may aim to maintain the stock at levels capable of producing maximum sustainable yields (e.g., BMSY) or it may aim to avoid depletion of the stock below a specific limit threshold level (e.g., the PRI). HCR design features may be evidenced in documentation relating to HCR development (FMOA deliberations or meetings) or their adoption (e.g., CMMs, FMPs, etc.).</p>	
<p>EP2 – Adequate Information</p> <p>Thresholds that trigger management action are clearly <u>defined</u>. There should be adequate information about how such thresholds relate to optimal utilization of the stock and/or avoidance of limit thresholds such as the PRI. Thresholds may be explicitly or implicitly linked to RPs such as the TRP and/or LRP.</p>	
<p>EP3 – Status/Outcome</p> <p>There is evidence that the HCR represents a set of pre-agreed management actions to be taken in response to changes in stock status. Evidence may come from past management actions that were taken in line with the HCR. Where historical evidence is lacking because thresholds have not been exceeded, evidence may come from binding commitments (e.g., in national law), which specify in advance the management actions to be taken per the HCR.</p>	

CSI Requirement 3.1.2

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.1 Harvest Control
CSI Requirement No.	3.1.2
CSI Requirement	There is evidence the HCR is implemented and effective.
Relevant Definitions	Harvest Control Rule (HCR) Point of Recruitment Impairment (PRI) Reference Point (RP)
Scope of Application	All fisheries
Clarification	
<p>1. HCR or Comparable Framework See note of clarification in CSI Requirement 3.1.1.</p> <p>2. Evaluation of HCR Effectiveness In evaluating the effectiveness of the HCR under EP3, the assessment team may need to cross-reference evidence already presented for another CSI requirement. For example, the rationale may cite the status of the target stock relative to its LRP (as reported for CSI Requirement 2.2.5) or the triggering of a defined and pre-agreed management action (as identified in CSI Requirement 3.1.1). Section B gives additional guidance on HCRs.</p>	
EPs and Guidance	
<p>EP1 – Management Process There is evidence that the FMOA <u>implements</u> the HCR as agreed. Evidence may come from past management actions that were taken in response to changes in stock status, or evidence may come from routine management processes such as the determination of annual harvest levels (e.g., the setting of TAC or allowable fishing effort for each fishing season).</p>	
<p>EP2 – Adequate Information There is adequate <u>information</u> about HCR implementation. Information may come from records showing how management responded to changes in stock status in line with the HCR. Or where thresholds have not been exceeded, the information may derive from analogy to management responses using the HCR in other comparable fishery situations.</p>	
<p>EP3 – Status/Outcome There is evidence to substantiate that the HCR is <u>effective or is likely to be effective</u> at maintaining the stock at levels capable of producing MSY (e.g., BMSY) or at levels which avoid depletion of the stock below a limiting threshold (e.g., the PRI). Evidence may come from FMOA experience applying the HCR to the target stock, or it may come from experience applying the HCR in other fisheries.</p>	

CSI Requirement 3.2.1

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.2. Conservation and Management Measures
CSI Requirement No.	3.2.1
CSI Requirement	Conservation and Management Measures (CMMs) shall be developed with consideration given to: <ul style="list-style-type: none"> A. The structure and status of the target stock over its entire range; B. Relevant biological attributes of the target stock, such as age of maturity and reproductive potential; and C. Protection of spawners and, where appropriate, juveniles.
Relevant Definitions	Best Available Scientific Information (BASI) Conservation and Management Measure (CMM) Stock structure
Scope of Application	All types of fisheries
Clarification	
<p>Stock Structure</p> <p>CMMs should take account of the stock structure of the target stock over its entire area of distribution. Here, structure may refer to considerations like genetic diversity, avoidance of localized depletions, demographic independence of populations or stocks, difference in age structure, or the presence of environmental barriers to movement or gene flow. In addition, consideration of structure may refer to anadromous or catadromous life cycles, ontogenetic shifts, migrations for feeding, growth, or reproduction, and movements between national and international waters.</p> <p>Note that effective management of the target stock does imply that the FMOA must obtain detailed information about each feature contributing to stock structure. Some approaches, such as the development of escapement goals, will tend to account for the most salient features of stock structure by integrating the outcomes across the stock's entire range. For example, escapement in Pacific salmon stocks (i.e., the successful return of adult salmon to their natal spawning areas) represents the net result of fishery removals and survivorship across numerous life history stages and the movements of individuals across large freshwater and oceanic regimes.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>NA</p>	
<p>EP2 – Adequate Information</p> <p>There is evidence that CMMs have been developed that consider the target stock. Such CMMs are based on BASI. Evidence may come from FMPs, fishery regulations, and/or FMOA records of CMM formulation.</p>	
<p>EP3 – Status/Outcome</p> <p>When taken together, CMMs for the target stock (those cited in EP2) are sufficient to address: A. the structure and status of the target stock over its entire range; B. relevant biological attributes of the target stock, such as age of maturity and reproductive potential; and C. protection of spawners and, where appropriate, juveniles. Evidence may come from FMPs, fishery regulations, and/or FMOA records of CMM formulation, or other primary scientific sources (e.g., genetic or life-history studies).</p>	

--

CSI Requirement 3.2.2

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.2. Conservation and Management Measures
CSI Requirement No.	3.2.2
CSI Requirement	In addition to 3.2.1, CMMs shall be developed with consideration of potential adverse impacts of the fishery on: <ul style="list-style-type: none"> A. NT species; B. ETP species; C. Dependent predators; D. Habitats; and E. Ecosystem structure and function.
Relevant Definitions	Best Available Scientific Information (BASI) Conservation and Management Measure (CMM)
Scope of Application	All types of fisheries
Clarification	
<p>The intent of CSI Requirement 3.2.2 is to consider, in broad outline, how CMMs are developed to address fishery effects in line with CSI Management Themes: NT species (4.1); ETP species (4.2); DP species (4.4); habitats (4.3); and ecosystem structure and function (4.4). The assessment team will evaluate applicable CMMs in greater detail under their respective Management Themes.</p> <p>Note that DP species and key prey species are considered under Management Theme 4.4 as part of ecosystem structure and function.</p>	
EPs and Guidance	
EP1 – Management Process NA	
EP2 – Adequate Information There is evidence that CMMs have been developed to address effects of the fishery that go beyond impacts to the target stock (i.e., CMMs address NT species, ETP species, habitats, and ecosystem). Such CMMs are based on BASI. Evidence may come from FMPs, fishery regulations, and/or FMOA records of CMM formulation.	
EP3 – Status/Outcome The CMMs cited in EP2 are implemented to address effects of the fishery that go beyond direct impacts to the target stock. When taken together, CMMs for the fishery are considered sufficient to address: NT species (4.1); ETP species (4.2); DP species (4.4); habitats (4.3); and ecosystem structure and function (4.4). Evidence may come from FMPs, fishery regulations, and/or FMOA records of CMM formulation, or other sources such as primary scientific research.	

CSI Requirement 3.2.3

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.2. Conservation and Management Measures
CSI Requirement No.	3.2.3
CSI Requirement	<p>CMMs for the target stock shall be specified in laws, regulations and rules, and effective mechanisms shall be in place to verify implementation of those CMMs including, where appropriate, observer schemes or their proxies*, inspection programs, and/or vessel monitoring systems.</p> <p>* See clarification below regarding proxies.</p>
Relevant Definitions	<p>Conservation and Management Measure (CMM)</p> <p>Observer</p> <p>Observer program</p>
Scope of Application	All types of fisheries
Clarification	
<p>Proxy for Observer Scheme</p> <p>For an approach to be considered a useful proxy for an observer scheme, it should provide a means of verifying CMM implementation that is largely independent of the fishery itself. Such proxies may include, for example, vessel tracking information derived from satellite data.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is a process or system to verify CMM implementation. Evidence may come from FMOA policies or procedures for the review of CMM impacts, observer schemes or their proxies, inspection programs, and/or vessel monitoring systems (VMSs).</p>	
<p>EP2 – Adequate Information</p> <p>There is evidence that CMMs are specified in laws, regulations and rules. The assessment team should identify the relevant authoritative bodies and provide links to those laws, rules, and regulations with the greatest relevance to the fishery under assessment.</p>	
<p>EP3 – Status/Outcome</p> <p>CMMs are effectively implemented, or are likely to be effectively implemented, based on information from observer schemes or their proxies, inspection programs, and/or VMSs.</p>	

CSI Requirement 3.2.4

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.2. Conservation and Management Measures
CSI Requirement No.	3.2.4
CSI Requirement	CMMs shall be reviewed periodically to evaluate their effectiveness, identify possible interactions with other CMMs, and determine the need for revision or elimination.
Relevant Definitions	Conservation and Management Measure (CMM)
Scope of Application	All types of fisheries
Clarification	
In the context of CSI Requirement 3.2.4, “periodically” means that CMM reviews occur at a frequency which is sufficient for management purposes. Management purposes should include, among other things, evaluation of CMM effectiveness, examination of possible CMM interactions, and determination of the need for CMM revision or elimination. The FMOA may conduct CMM reviews on a continuous basis (i.e., ongoing) or reviews may be discontinuous with a frequency reflecting management needs.	
EPs and Guidance	
EP1 – Management Process	
There is a management process or system which ensures that CMMs are subjected to review, whether continuously or periodically. The scope of the review process shall extend to CMMs for the target stock as well as CMMs addressing potential adverse impacts of the fishery under consideration (e.g., effects on NT species, interactions with ETP species, impacts on the physical environment). Evidence may come from FMOA policies or procedures which stipulate that CMMs are subjected to review.	
EP2 – Adequate Information	
NA	
EP3 – Status/Outcome	
There is evidence that the FMOA has conducted reviews of CMMs in the past. The objective of previous reviews was to evaluate CMM effectiveness and to examine possible interactions between CMMs. Where indicated, the FMOA revised or eliminated CMMs as appropriate. Evidence may come from recent agency reports summarizing CMM reviews, revisions to fishery regulations, or relevant updates to FMPs.	

CSI Requirement 3.3.1

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.3. Monitoring and Enforcement
CSI Requirement No.	3.3.1
CSI Requirement	A legal and administrative framework for regulation of the fishery shall be established at local, national, and regional levels as appropriate. Compliance with the framework shall be ensured through effective mechanisms for monitoring and enforcement (M&E) ¹³ .
Relevant Definitions	Legal framework Monitoring and enforcement (M&E)
Scope of Application	All types of fisheries
Clarification	
<p>1. Voluntary Measures Taken by the UOC In assessing the framework for regulation of the fishery, the assessor may consider actions at a local level. For example, voluntary measures including those which may have been introduced by the UOC itself (e.g., policies and procedures of the fishing association or comparable instruments), may be considered supporting evidence.</p> <p>2. Fisheries Operating on the High Seas If the legal and administrative framework for a fishery on the high seas (i.e., an area beyond national jurisdiction) is not prescribed by a regional fisheries management organization or comparable authority, then the assessment team should assume that the provisions of the UNCLOS¹⁴ and the UNFSA¹⁵ are the <i>de facto</i> legal and administrative framework for regulation of the fishery.</p> <p>3. Relationship of 3.3.1 to 1.1.1 CSI Requirement 1.1.1 addresses the FMS broadly whereas 3.3.1 focuses narrowly on the framework of legal and administrative elements that support or enhance regulation of the fishery via monitoring and enforcement activities.</p> <p>4. Evidence that M&E is Effective at Promoting Compliance In evaluating EP3, M&E may be considered effective at promoting compliance if: - the mechanism covers the entire UOC; - monitoring and enforcement activities are coordinated (e.g., between agencies); - there is evidence that rules and regulations are consistently enforced; and - there is no evidence of frequent or widespread violation of fishery regulations within the UOC.</p>	
EPs and Guidance	
EP1 – Management Process	

¹³ See CSI Glossary of Terms.

¹⁴ United Nations Convention on the Law of the Sea

https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf

¹⁵ United Nations. 1995. Agreement for the implementation of the provisions of the United Nations Convention on the law of the sea of 10 December 1982 relating to the conservation and management of straddling fish stocks and highly migratory fish stocks. United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks. Sixth Session, New York., 24 July-4 August 1995. <https://www.un.org/oceancapacity/unfsa>

A process or mechanism is in place for M&E of the fishery. The process or mechanism should be appropriate to the S&I of the fishery and should extend to those local, national, and/or regional agencies having jurisdiction over UOC fishing operations. Evidence for such a mechanism may include, as appropriate, observer programs, inspection schemes, and/or VMSs.

EP2 – Adequate Information

The framework for regulation of the fishery is documented. It consists of legal and administrative elements. Evidence may come from laws, statutes, regulations, rules policies, procedures, or programmatic documentation associated with observer programs, inspection schemes, VMSs, fishery associations, and/or enforcement agencies.

EP3 – Status/Outcome

The framework is implemented and there is evidence that M&E is effective at promoting UOC compliance with the legal and administrative framework. Evidence may come from the observation of high levels of UOC compliance with fishery rules and regulations (per CSI Requirement 3.4.2). Evidence for effectiveness may come from actions or measures taken by the UOC. Traditional fisher/community approaches (e.g., promoted at the local level) may also be considered if those actions are independently verified.

CSI Requirement 3.3.2

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.3. Monitoring and Enforcement
CSI Requirement No.	3.3.2
CSI Requirement	The laws, rules, and regulations implementing CMMs shall be publicly available and effectively disseminated.
Relevant Definitions	Conservation and Management Measure (CMM)
Scope of Application	All types of fisheries
Clarification	
Intent of 3.3.2 The intent of CSI Requirement 3.3.2 is to recognize that the FMOA has an obligation to explain to stakeholders why the laws, rules, and regulations implementing CMMs are necessary and appropriate because this facilitates the uptake and support for implementation of such measures.	
EPs and Guidance	
EP1 – Management Process There is evidence for a system or process to disseminate information about laws, rules, and regulations implementing CMMs. Evidence for such a system or process may include FMOA policies or procedures for outreach and communications or statutory requirements for noticing of regulatory changes.	
EP2 – Adequate Information NA	
EP3 – Status/Outcome There is evidence that laws, rules and regulations applicable to the fishery under consideration are publicly available and effectively disseminated. UOC-specific evidence should be available to verify that relevant information is publicly available and effectively disseminated to participants in the fishery under assessment. Evidence may include agency websites, national registers, periodicals, agendas from public meetings, online platforms, or other types of publications.	

CSI Requirement 3.3.3

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.3. Monitoring and Enforcement
CSI Requirement No.	3.3.3
CSI Requirement	There shall be a system in place to prevent unauthorized vessels from fishing for the target stock.
References	CCRF 7.6.2; IRFM 2.3.2.1; CSC-RFM 10.2, 10.4
Relevant Definitions	Compliance
Scope of Application	All types of fisheries
Clarification	
For fisheries occurring on the high seas (i.e., areas beyond national jurisdiction or ABNJs), the system shall be consistent with relevant international law including the UNCLOS and the UNFSA. For exclusively domestic fisheries (those operating solely within the waters of one national jurisdiction), the system shall operate in conformity with applicable national legislation relevant to the authorization of fishing vessels.	
EPs and Guidance	
EP1 – Management Process	
There is a management process, program, or system in place to prevent unauthorized vessels from fishing for the target stock. The process may be evidenced by, for example, a program to maintain records of fishing authorizations, laws, or regulations pertaining to issuance of fishing authorizations or fishing licenses, at-sea inspection programs, programmatic documentation from responsible management authorities, legislative mandates, etc.	
EP2 – Adequate Information	
Information is sufficient to understand if unauthorized fishing is occurring on the target stock. Such information may come from agency databases of fishing authorizations (e.g., governmental records of fishing authorizations, registration logs). Alternatively, there may be information substantiating the deterrence value of enforcement processes in preventing unauthorized vessels from fishing on the target stock. Examples may include enforcement records, at sea boardings, vessel inspections, etc.	
EP3 – Status/Outcome	
The process, program, or system is effective at ensuring that unauthorized fishing vessels do not operate on the target stock. Effectiveness is evidenced by information which shows high levels of compliance and/or low levels of noncompliance with regulatory requirements (i.e., status). Alternatively, there is evidence showing that the system(s) in use, such as enforcement and/or inspection programs, have been effective based on prior experience and are likely to achieve high levels of compliance (e.g., outcome).	

CSI Requirement 3.3.4

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.3. Monitoring and Enforcement
CSI Requirement No.	3.3.4
CSI Requirement	Fishing gear shall be marked to enable identification of the owner.
Relevant Definitions	NA
Scope of Application	Fisheries using passive gear types
Clarification	
<p>Scope of Application</p> <p>CSI Requirement 3.3.4 applies to fixed gear types or “passive” gears¹⁶ like traps and pots. Mobile gear types or “active” gears, especially those with a very low probability of loss at sea, may be designated Not Applicable (NA) if properly justified by the assessment team. Such a justification should be given in the rationale for EP1. Note: where applicable laws and regulations do require the marking of active gears used by the UOC, compliance should be considered under CSI Requirement 3.4.2.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is a process to ensure that passive fishing gear is marked to enable identification of the owner. The process may be evidenced through a formal mechanism (e.g., statutory, regulatory) whereby management authorities regulate the marking of commercial fishing gear. Evidence for this process may come from published information sources such as commercial fishing regulations, national or local statutes, or other rules or laws. Such gear marking requirements should align with uniform and internationally recognized gear-marking systems. However, gear-marking practices may also be prescribed through informal mechanisms (e.g., association rules, codes of conduct) provided that doing so is in accordance with applicable laws and regulations.</p>	
<p>EP2 – Adequate Information</p> <p>Information is available to verify that the passive fishing gear of the UOC is marked to enable identification of the owner. Evidence may come from records of enforcement action, inspection reports, gear registration logs, attestations from enforcement officers or other agency officials, surveys, or related reports.</p>	
<p>EP3 – Status/Outcome</p> <p>The management process is effectively implemented (an outcome). For example, information about the level of compliance with gear-marking regulations is available for the UOC. Compliance with those regulations is considered high, indicating that a majority of, if not all, fishing gears of the UOC are marked to enable identification of the owner.</p>	

¹⁶ Bjordahl, A. (2002) Chapter 2. The Use of Technical Measures in Responsible Fisheries: Regulation of Fishing Gear. In: Cochrane, K.L. (ed.) A fishery manager’s guidebook. Management measures and their application. *FAO Fisheries Technical Paper*. No. 424. Rome, FAO. 2002. 231p.
<https://www.fao.org/4/y3427e/y3427e04.htm#TopOfPage>

CSI Requirement 3.4.1

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.4. Sanctions
CSI Requirement No.	3.4.1
CSI Requirement	The legal and regulatory framework shall provide for sanctions in response to violations and illegal activities. Sanctions shall be of adequate severity to support compliance and discourage violations.
Relevant Definitions	Compliance Legal framework
Scope of Application	All types of fisheries
Clarification	
<p>1. Severity of Sanctions In evaluating whether sanctions are of adequate severity to discourage violations (EP2), the assessment team should consider the financial implications of sanctions (e.g., penalties and fines) as well as the consequences of associated punitive actions (e.g., suspension or withdrawal of permission to fish or confiscation of catch, equipment or vessel). The team may also consider whether the system provides for the escalation of sanctions for repeated violations.</p> <p>2. Effectiveness of Sanctions In assessing the effectiveness of sanctions to support compliance and discourage violations (EP3), the assessment team may consider:</p> <ul style="list-style-type: none"> a) the rate of repeat violations; b) the number and severity of sanctions imposed vs. the total number of violations; c) trends in the observed rate of violations relative to rates of inspection/controls; and d) the views and experiences of fishers, fishery managers, enforcement officers, and other stakeholders in the fishery. 	
EPs and Guidance	
<p>EP1 – Management Process There is a process for issuing sanctions in response to violations and illegal activities. Evidence may be found in relevant fishery legislation, legal and regulatory framework documents or administrative procedures of the responsible authorities such as enforcement agencies.</p>	
<p>EP2 – Adequate Information Information is made publicly available on the nature and severity of sanctions in response to fishery violations and illegal activities. The severity of sanctions is proportionate to the type of violation such that substantial illegal activities prompt sanctions that are more severe and may affect an individual's authorization to fish and/or to serve as a master or officer of a fishing vessel. Evidence may come from descriptive accounts of sanctions as published in local, state, national, or international laws, rules and regulations (or public summaries thereof).</p>	
<p>EP3 – Status/Outcome There is evidence that sanctions are effective in supporting compliance of the fishery with applicable regulations and discouraging violations. In evaluating the effectiveness of sanctions, assessors should</p>	

look to sources of evidence that are associated with considerations (a) to (d) in the above clarification note for 3.4.1.

CSI Requirement 3.4.2

Core Tenet	3. Management effectively regulates, enforces, and monitors fishing operations.
Management Theme	3.4. Sanctions
CSI Requirement No.	3.4.2
CSI Requirement	There shall be evidence that the fishery, as defined in the UOC, operates in substantial compliance with the legal and regulatory framework. There shall be evidence of compliance with applicable technical measures for the target stock (e.g., restrictions on mesh size, gear type, closed seasons or areas).
Relevant Definitions	Compliance Conservation and Management Measure (CMM) Fishery technology Legal framework Scale and intensity (S&I) Technical measure
Scope of Application	All types of fisheries
Clarification	
<p>1. Evidence of UOC Compliance Levels In evaluating information about UOC compliance levels under EP2, the assessment team should document the general level and type of fisheries controls in place (e.g., number of vessel boardings or port inspections per year), and the observed level of non-compliance with fishery regulations within the UOC (e.g., % of UOC vessels with citations or number of regulatory violations per year).</p> <p>2. Substantial Compliance (EP3) In evaluating EP3, the assessment team should interpret the phrase “substantial compliance” to mean that the fishery, as defined by the UOC, generally operates in compliance with the legal and regulatory framework. Isolated instances of non-compliance may occur (e.g., occasional sanctions may have been issued). However, there shall not be evidence of frequent or widespread violations of fishery regulations within the UOC.</p> <p>3. Definition – Technical Measure A type of management measure aimed at restricting fishery technology. For example, the objective of a technical measure may be to protect juveniles and spawners of the target stock or non-target species by imposing restrictions on the use of certain gear types or the timing/location of fishing activities.</p>	
EPs and Guidance	
<p>EP1 – Management Process NA</p>	
<p>EP2 – Adequate Information There is adequate information about the fishery’s level of compliance with the legal and regulatory framework. Evidence may come from enforcement reports, inspection reports, observer reports, or data from other systems for monitoring regulatory compliance.</p>	

The assessment team should summarize information on UOC compliance. The rationale should describe the extent of control activities undertaken (e.g., average number of inspections per year or number of boardings per fishing season) and the observed level of non-compliance (e.g., average number of violations per year).

EP3 – Status/Outcome

A. There is evidence that the UOC operates in substantial compliance with the legal and regulatory framework. Evidence may come from records of control activities, numbers of sanctions issued, enforcement reports, inspection reports, observer reports, or other datasets on regulatory compliance.

AND

B. There is evidence that the UOC operates in compliance with applicable technical measures for the target stock (e.g., restrictions on mesh size, gear type, closed seasons or areas). Evidence may come from inspection or enforcement activities, observer records, and/or accounts from fishery participants and fishery managers. The quantity and quality of evidence needed to infer UOC compliance should reflect the S&I of the fishery.

Core Tenet 4. Management assesses and responds to fishery impacts on the ecosystem.

CSI Requirement 4.1.1

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.1. Non-Target Species
CSI Requirement No.	4.1.1
CSI Requirement	<p>The effects of fishing on non-target (NT) species shall be monitored. Information on catch and discards of NT species shall be collected to assess the risk of adverse impacts*.</p> <p>* An adverse impact on an NT species is one that threatens it with recruitment overfishing or another impact that is likely to be irreversible or very slowly reversible.</p>
Relevant Definitions	<p>Adverse impact</p> <p>Fishery data</p> <p>Non-target (NT) species</p>
Scope of Application	All types of fisheries
Clarification	
See Section D for NT species assessment method and guidance.	
EPs and Guidance	
EP1 – Management Process There is a management process or program in place to monitor the catch and discards of NT species in the fishery under consideration. Evidence for this process may come from operational descriptions or procedures from observer/inspection/logbook programs or from summaries of relevant programmatic activities.	
EP2 – Adequate Information There is adequate information about the collection of fishery data on catch and discards of NT species by the fishery under consideration. Evidence may come from annual program reports which summarize observer/inspector activities, sampling results, and/or logbook information.	
EP3 – Status/Outcome NA – see 4.1.2 and 4.1.3	

CSI Requirement 4.1.2

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.1. Non-Target Species
CSI Requirement No.	4.1.2
CSI Requirement	For the fishery under consideration, the <u>main</u> NT species are known and the risk of adverse impacts on them is assessed.
Relevant Definitions	Adverse impact Best Available Scientific Information (BASI) Bycatch Data-limited fishery (DLF) Discards Local and Traditional Fishery Knowledge (LTFK) Non-target (NT) species Recruitment overfishing Scale and intensity (S&I) Sufficient Information
Scope of Application	All types of fisheries including enhanced fisheries. Applies only to taxa categorized as main NT species.
Clarification	
<p>See Section D for NT species assessment method and guidance.</p> <p>1. Adverse Impact to NT Species For the purposes of assessing CSI Requirement 4.1.2 and 4.1.3, an adverse impact on an NT species is one that threatens that species with recruitment overfishing or another impact that is likely to be irreversible or very slowly reversible.</p> <p>2. DLF Tool The DLF Tool is available for situations where quantitative assessment of the status of NT species is unavailable or impractical.</p> <p>3. Main vs. Minor See Section D for method to categorize main and minor NT species.</p>	
EPs and Guidance	
<p>EP1 – Management Process NA – see CSI Requirement 4.1.1</p>	
<p>EP2 – Adequate Information There is sufficient information to quantify catches and discards of main NT species by the fishery under consideration. Information is based on BASI and may use verifiable LTFK. Evidence may come from observer reports, logbook datasets, fishery statistics databases, studies on bycatch, or other relevant research reports.</p> <p>If no main NT species are identified, then the rationale for EP2 should substantiate this determination and EP3 is NA.</p>	

EP3 – Status/Outcome

Status: The risk of adverse impacts of the fishery on main NT species is assessed. It takes into account the S&I of the fishery. Evidence comes from quantitative information sources for main NT species, including relevant fishery data, statistics, indices, indicators, or other biologically relevant information about main NT species. Alternatively, evidence comes from a formal risk assessment or a comparable analysis that documents the risk of adverse fishery impacts on main NT species.

Or

Outcome: In situations where risk assessment is unavailable or impractical for main NT species, the DLF Tool may be used to assess risk.

CSI Requirement 4.1.3

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.1. Non-Target Species
CSI Requirement No.	4.1.3
CSI Requirement	<p>For the fishery under consideration, the <u>minor</u> NT species* are known and sufficient information is available to assess the risk of adverse impacts on them.</p> <p>* Bait species, if applicable, are addressed as minor NT species under 4.1.3.</p>
Relevant Definitions	<p>Adverse impact</p> <p>Best Available Scientific Information (BASI)</p> <p>Bycatch</p> <p>Data-limited fishery (DLF)</p> <p>Discards</p> <p>Local and Traditional Fishery Knowledge (LTFK)</p> <p>Non-target (NT) species</p> <p>Recruitment overfishing</p> <p>Scale and Intensity (S&I)</p> <p>Sufficient Information</p>
Scope of Application	<p>All types of fisheries including enhanced fisheries.</p> <p>Applies only to taxa categorized as minor NT species.</p>
Clarification	
<p>See Section D for NT species assessment method and guidance.</p> <p>1. Adverse Impact to NT Species For the purposes of assessing CSI Requirement 4.1.2 and 4.1.3, an adverse impact on an NT species is one that threatens that species with recruitment overfishing or another impact that is likely to be irreversible or very slowly reversible.</p> <p>2. DLF Tool The DLF Tool is available for situations where quantitative assessment of the status of NT species is unavailable or impractical.</p> <p>3. Main vs Minor See Section D for method to categorize main and minor NT species.</p> <p>4. Bait If the fishery under consideration uses bait, those bait species are to be categorized as minor NT species for the purpose of evaluating EP2 of CSI Requirement 4.1.3. If the fishery does not use bait, then the team should report under EP2 that there are no bait species associated with the UOC. See Section D for additional guidance on bait species.</p>	
EPs and Guidance	
<p>EP1 – Management Process NA – see CSI Requirement 4.1.1 EP1</p>	

EP2 – Adequate Information: NT Species

There is sufficient information to provide a qualitative understanding of catches of minor NT species by the fishery under consideration. Information is based on BASI and may use verifiable LTFK. Evidence may come from observer reports, logbook datasets, fishery statistics databases, studies on bycatch, or other relevant research reports.

Bait: If bait is used by the UOC to capture the target stock, the bait species are not classified as ETP species. If a bait species used by the UOC has been designated as overfished, its utilization does not hinder recovery or rebuilding of that species.

If no minor NT species are identified, then the rationale for EP2 should substantiate this determination and EP3 is NA.

EP3 – Status/Outcome

Status: The risk of adverse impacts of the fishery on minor NT species is assessed analytically OR there is sufficient information (quantitative, qualitative and/or indicative sources) to support an assessment of risk if and when needed. The S&I of the fishery is taken into account. Evidence comes from quantitative information sources (see examples in 4.1.2, EP3) or qualitative/indicative information sources. Alternatively, evidence comes from a formal risk assessment or a comparable analysis which documents the risk of adverse fishery impacts on minor NT species.

Or

Outcome: In situations where risk assessment is unavailable or impractical for minor NT species and there is not sufficient information (quantitative, qualitative and/or indicative sources) to support a assessment of risk, the DLF Tool may be used to assess risk.

CSI Requirement 4.1.4

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.1. Non-Target Species
CSI Requirement No.	4.1.4
CSI Requirement	As appropriate, the FMOA shall take management action to reduce, minimize, or mitigate the risk of adverse impacts on main and minor NT species. There shall be evidence that actions are likely to be effective.
Relevant Definitions	Adverse impact Conservation and Management Measure (CMM) Management action Non-target (NT) species
Scope of Application	All types of fisheries. To include enhanced fisheries.
Clarification	
See Section D for NT species assessment method and guidance.	
<p>1. Management Action Management action is defined in the CSI Glossary of Terms. For the purposes of assessing CSI Requirement 4.1.4, actions to address the risk of adverse impacts on NT species may include formulating and implementing CMMs or gathering additional information to further analyze the identified risk.</p> <p>2. Effectiveness of Management Actions In the absence of UOC-specific information on the effectiveness of management action to reduce, minimize, or mitigate the risk of adverse impacts on main and minor NT species, the team may consider evidence based on the FMOA having had prior success with such actions in another situation (e.g., measures that were effective in a comparable fishery) or evidence that the action/measure aligns with best fishery management practice. However, if the risk to NT species is high, then there should be UOC-specific evidence to substantiate the effectiveness of management action.</p>	
EPs and Guidance	
<p>EP1 – Management Process There is a process or system in place by which the FMOA may take actions as necessary to reduce, minimize, or mitigate the risk of adverse impacts on main and minor NT species. The process or system may entail an immediate management response or further analysis of the identified risk. Evidence may come from FMOA policies and procedures relating to the enactment of CMMs, laws, regulations, or other management actions. Or there may be evidence that an identified risk was analyzed further (e.g., by commissioning relevant research).</p>	
<p>EP2 – Adequate Information: NT Species There is adequate information to substantiate that the FMOA takes management action as appropriate to reduce, minimize, or mitigate the risk of adverse impacts on NT species. Such action may include CMMs. Evidence may come from prior agency deliberations over CMMs, publication of CMMs in rules and regulations, stock assessments, research studies, or other relevant reports.</p>	

EP3 – Status/Outcome

Status: There is evidence that management action, including applicable CMMs, are or were effective at reducing, minimizing, or mitigating risks of adverse impacts on NT species.

Or

Outcome: If information on the effectiveness of management action is limited/absent, there is evidence that actions are likely to reduce, minimize, or mitigate the risk of adverse impacts on main and minor NT species. Evidence is based on prior success with such actions in another situation (e.g., measures that were effective in a comparable fishery), or there is evidence that actions/measures align with best fishery management practice.

CSI Requirement 4.1.5

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.1. Non-Target Species
CSI Requirement No.	4.1.5
CSI Requirement	If there is a high risk of adverse impacts on NT species, the selectivity of the fishing gear used by the UOC shall be studied with an aim towards minimizing the catch of NT species and safeguarding biodiversity.
Relevant Definitions	Adverse impact Fishery technology Non-target (NT) species
Scope of Application	Fisheries that pose a high risk of an adverse impact on one or more NT species.
Clarification	
<p>1. High Risk In the context of CSI Requirement 4.1.5, an adverse impact is “high risk” when the probability of its occurrence is judged to be likely (or more than likely), and the consequence of its effects are judged to be more than minimal and not temporary.</p> <p>Section D9 presents a test to determine if the fishery under consideration poses a high risk of adverse impact on NT species. If not, then 4.1.5 is NA.</p> <p>2. Selectivity of Fishing Gear Selectivity of a gear type may be driven by the configuration or material properties of the fishing gear, the method by which it is deployed, or some combination thereof (also see clarification in CSI Requirement 4.4.4 regarding fishery technology).</p>	
EPs and Guidance	
<p>EP1 – Management Process There is a process by which research can be initiated into the selectivity of fishing gears and fishing methods if and when needed. Evidence for the process may be UOC-specific, or it may come from previous instances where concerns about adverse impacts to NT species triggered research on gear selectivity in comparable fisheries (i.e., surrogate information).</p>	
<p>EP2(a) – Adequate Information If applicable, there is evidence that the FMOA, fishing industry groups, and/or relevant research institutions undertook research on the selectivity of the fishing gears/methods used by the UOC. Research considered how to minimize bycatch and to safeguard biodiversity. Evidence may come from independent or collaborative investigations, research papers, scientific publications, or other relevant reports.</p>	
<p>EP3 – Status/Outcome <u>Status</u>: If research into fishing gear selectivity (cited in EP2) was informative, there is evidence that management applies this knowledge to bycatch management in the fishery under consideration.</p>	

CSI Requirement 4.2.1

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.2. Endangered, Threatened, or Protected Species
CSI Requirement No.	4.2.1
CSI Requirement	The FMOA shall seek to protect endangered, threatened, or protected (ETP) species ¹⁷ from threat of extinction or another impact with limited reversibility ¹⁸ arising from interactions with the fishery.
Relevant Definitions	Adverse impact Conservation and Management Measure (CMM) Endangered, Threatened, or Protected (ETP) Species Sufficient Information
Scope of Application	All types of fisheries To include enhanced fisheries
Clarification	
Section C provides criteria and guidance for identification of ETP species.	
<p>1. Adverse Impact to ETP Species For the purposes of assessing CSI Requirement 4.2.1, an adverse impact on an ETP species is one that threatens that species with extinction, recruitment overfishing, or another impact that is likely to be irreversible or very slowly reversible.</p> <p>2. Management Objectives for ETP Species In assessing management objectives for ETP species under CSI Requirement 4.2.1, fulfilment of EP3 may be evidenced by a policy or plan for the management of ETP species and related CMMs. The policy or plan should be a formal, agreed document (i.e., with legal standing) that addresses long-term objectives for management of ETP species.</p>	
EPs and Guidance	
<p>EP1 – Management Process NA</p>	
<p>EP2 – Adequate Information There is sufficient information about how UOC interactions with ETP species are monitored. Evidence may come from descriptions of observer programs (e.g., annual program reports, observer protocols, procedures) and remote monitoring systems. Such data sources may be supplemented with logbook information.</p>	
<p>EP3 – Status/Outcome There is evidence that management objectives seek to protect ETP species from threat of extinction or another impact with limited reversibility arising from interactions with the fishery. Evidence may come from relevant FMOA policies, ETP management plans, and/or relevant CMMs.</p>	

¹⁷ See CSI Glossary of Terms. Species recognized as ETP in domestic legislation or in international agreements that are binding within the jurisdiction.

¹⁸ Recruitment overfishing or other impacts that are likely to be irreversible or very slowly reversible.

--

CSI Requirement 4.2.2

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.2. Endangered, Threatened, or Protected Species
CSI Requirement No.	4.2.2
CSI Requirement	<p>There shall be sufficient information* to assess the risk of the fishery having adverse impacts on ETP species.</p> <p>*See CSI Glossary of terms. Sufficient Information: Information that is judged to be appropriately reliable, relevant and current for its intended use given the scale and intensity of the fishery under consideration.</p>
Relevant Definitions	<p>Adverse impact</p> <p>Best Available Scientific Information (BASI)</p> <p>Data-limited fishery (DLF)</p> <p>Endangered, Threatened, or Protected (ETP) Species</p> <p>Local and Traditional Fishery Knowledge (LTFK)</p> <p>Sufficient information</p>
Scope of Application	<p>All types of fisheries</p> <p>To include enhanced fisheries</p>
Clarification	
<p>1. Adverse Impact to ETP Species</p> <p>For the purposes of assessing CSI Requirement 4.1.2, an adverse impact on an ETP species is one that threatens that species with extinction, recruitment overfishing, or another impact that is likely to be irreversible or very slowly reversible.</p> <p>2. DLF Tool</p> <p>The DLF Tool may be applied in situations where formal assessments of ETP species are unavailable or impractical.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>NA</p>	
<p>EP2 – Adequate Information</p> <p>There is evidence that the FMOA has adequate information to assess the most probable adverse impacts of the fishery on ETP species. Information includes BASI and may incorporate verifiable LTFK. Evidence may come from various stock and ecosystems assessment reports.</p>	
<p>EP3 – Status/Outcome</p> <p><u>Status</u>: The FMOA has assessed the effects of the fishery under consideration on ETP species, taking into account BASI and also verifiable LTFK if applicable. For each ETP species, the risk of adverse impact is low, or else management action is taken.</p> <p>Or</p>	

Outcome: In situations where formal assessments are unavailable or impractical for ETP species, the DLF Tool may be used. Results from applying the DLF Tool shall show that there is a low risk of adverse impacts on ETP species.

CSI Requirement 4.2.3

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.2. Endangered, Threatened, or Protected Species
CSI Requirement No.	4.2.3
CSI Requirement	Management action shall be taken as appropriate to minimize fishery interactions with ETP species or to otherwise reduce, minimize, or mitigate the risk of adverse impacts on ETP species. There shall be evidence that actions are likely to be effective.
Relevant Definitions	Adverse impact Conservation and Management Measure (CMM) Endangered, Threatened, or Protected (ETP) Species Management action
Scope of Application	All types of fisheries To include enhanced fisheries
Clarification	
<p>1. Management Action Management action is defined in the CSI Glossary of Terms. For the purposes of assessing CSI Requirement 4.2.3, actions to address the risk of adverse impacts on ETP species may include formulating and implementing CMMs or gathering additional information to further analyze the identified risk.</p> <p>2. Effectiveness of Management Actions In the absence of UOC-specific information on the effectiveness of management action to reduce, minimize, or mitigate the risk of adverse impacts on ETP species, the team may consider evidence based on the FMOA having had prior success with such actions in another situation (e.g., measures that were effective in a comparable fishery situation) or evidence that the action/measure aligns with best fishery management practice. However, if the risk to ETP species is high, then there should be UOC-specific evidence to substantiate the effectiveness of management action.</p>	
EPs and Guidance	
<p>EP1 – Management Process There is a process or system in place by which the FMOA may take actions as necessary to reduce, minimize or mitigate the risk of adverse impacts on ETP species. The process or system may entail an immediate management response or further analysis of the identified risk. Evidence may come from FMOA policies and procedures relating to the enactment of CMMs, laws, regulations, or other management actions. Or there may be evidence that an identified risk was analyzed further (e.g., by commissioning relevant research).</p>	
<p>EP2 – Adequate Information There is adequate information to substantiate that the FMOA takes management action as appropriate to reduce, minimize, or mitigate the risk of adverse impacts on ETP species. Evidence may come from prior agency deliberations over CMMs, publication of CMMs in rules and regulations, ETP stock assessments, research studies, or other relevant reports.</p>	
EP3 – Status/Outcome	

Status: There is evidence that management action, including applicable CMMs, are or were effective at reducing, minimizing, or mitigating risks of adverse impacts on ETP species.

Or

Outcome: If information on the effectiveness of management action is limited/absent, there is evidence that actions are likely to reduce, minimize, or mitigate the risk of adverse impacts on ETP species. Evidence may be based on prior success with such actions in another situation (e.g., measures that were effective in a comparable fishery situation) or the actions/measures align with best fishery management practice.

CSI Requirement 4.3.1

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.3. Habitat
CSI Requirement No.	4.3.1
CSI Requirement	The FMOA shall consider the effects of the fishery on habitats and shall seek to avoid, minimize, or mitigate the risk of adverse effects.
Relevant Definitions	Adverse effect Fishery-Relevant Habitat (FRH) Habitat Sufficient information
Scope of Application	All types of fisheries
Clarification	
<p>1. Scope: Fishery-Relevant Habitat Unlike CSI Requirements 4.3.2 and 4.3.3, which focus on Gear-Susceptible Habitats (GSHs), CSI Requirement 4.3.1 is scoped more broadly to consider all types of habitats that fall within the fishery footprint and with which the fishery has some potential for interaction (i.e., habitats categorized as FRH).</p> <p>2. Adverse Effect By definition, an adverse effect is one that has significant and widespread negative effects. In assessing whether the FMOA considers the effects of a fishery on habitats, the assessment team should verify that the FMOA accounts for the probability, extent (in relation to habitat range), and severity of such effects, including the likelihood that an effect is irreversible or very slowly reversible.</p> <p>3. Pelagic Fisheries Fisheries operating exclusively in the pelagic zone generally have little or no probability of having a direct effect on pelagic habitat¹⁹. If the assessment team judges the UOC to comprise an exclusively pelagic fishery – one with zero or nearly zero probability of direct effects on the pelagic habitat itself and adjoining habitats (e.g., benthic or supra-benthic habitats, littoral zone, shoreline, etc.) - then this conclusion should be clearly stated in the rationale for EP2 of CSI Requirement 4.3.1, and 4.3.2 and 4.3.3 are NA.</p> <p>See Section E for guidance on habitat assessment method.</p>	
EPs and Guidance	
<p>EP1 – Management Process There is a process or system in place to consider effects of the fishery on habitats (see Section E for additional guidance). Conformity may be evidenced by relevant policies, procedures, and/or legislation. Evidence may also come from prior FMOA risk assessments or deliberations over the effects of the fishery on habitats. In the latter case, evidence may not be UOC-specific but it should be of direct and current relevance to the fishery.</p>	
EP2 – Adequate Information	

¹⁹ Indirect effects of the fishery on the pelagic ecosystem, such as impacts associated with lost pelagic fishing gear, are addressed under Management Theme 4.4.

The FMOA has access to sufficient information to identify the most probable and most significant effect(s) of the fishery on habitats. Information represents BASI and may incorporate verifiable LTFK. Evidence may come from relevant scientific research, monitoring, and/or modeling studies of fishery effects on habitats.

In the absence of UOC-specific information about fishery effects on habitats, the FMOA may use surrogate information from a comparable fishery to infer the probability/significance of an adverse effect. However, the greater the risk of an adverse effect on habitat, the more UOC-specific the information should be.

EP3 – Status/Outcome

The FMOA sets out objectives which seek to avoid, minimize, or mitigate the risk of adverse effects of the fishery on habitats. Evidence may come from FMOA policies or procedures, relevant legislation, FMPs, records of FMOA deliberations over habitat impacts, or other documents demonstrating a record of management action to avoid, minimize, or mitigate adverse effects on habitats. As in EP1, evidence may or may not be UOC-specific.

CSI Requirement 4.3.2

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.3. Habitat
CSI Requirement No.	4.3.2
CSI Requirement	<p>The FMOA shall have sufficient information* about habitats that are susceptible to damage by gears used in the fishery (Gear-Susceptible Habitats or GSHs) to assess the risk of adverse effects.</p> <p>* See CSI Glossary of Terms</p>
Relevant Definitions	<p>Adverse Effect</p> <p>Best Available Scientific Information (BASI)</p> <p>Fishery-Relevant Habitat (FRH)</p> <p>Gear-Susceptible Habitat (GSH)</p> <p>Habitat</p> <p>Local and Traditional Fishery Knowledge (LTFK)</p> <p>Scale and Intensity (S&I)</p> <p>Sufficient information</p> <p>Susceptibility</p>
Scope of Application	<p>Fisheries that interact with GSHs.</p> <p>Pelagic fisheries may be excluded (see 4.3.1)</p>
Clarification	
<p>See Section E and Section F for guidance on habitat assessment method and GSH.</p> <p>1. Scope: GSH Unlike CSI Requirements 4.3.1, which is scoped broadly to consider FRH, CSI Requirements 4.3.2 and 4.3.3 focus specifically on GSH.</p> <p>2. Adverse Effect By definition, an adverse effect is one that has significant and widespread negative effects. In assessing whether the FMOA considers the effects of a fishery on habitats, the assessment team should verify that the FMOA accounts for the probability, extent (in relation to habitat range), and severity of such effects, including the likelihood that an effect is irreversible or very slowly reversible.</p> <p>3. Susceptibility Susceptibility is defined in the CSI Glossary of Terms as follows: The degree to which a biological system (population, community, habitat or ecosystem) is likely to be impacted by a disturbance. Susceptibility is a function of exposure, sensitivity, and resilience.</p> <p>Exposure: The spatial and temporal extent of a disturbance across a system. Sensitivity: The degree to which a system is affected by a disturbance. Resilience: The capacity of a system to adapt to or recover from the effects of a disturbance. “Recoverability” is a synonym.</p>	
EPs and Guidance	
EP1 – Management Process	

NA – see EP1 of CSI Requirement 4.3.1.
<p>EP2 – Adequate Information</p> <p>There is adequate information to assess the risk of the UOC having an adverse effect on GSHs. Information reflects BASI and may include verifiable LTFK. At a minimum, available information is sufficient to identify FRHs and to support application of the method to categorize habitat susceptibility described in Section E of the Guidance. Conformity may be evidenced by a risk assessment undertaken by the FMOA or by the availability of information necessary to categorize habitat susceptibility (per Section E) and/or to perform a risk assessment using the DLF Tool. Sources of information may include: habitat surveys; maps of habitat distributions; maps of seafloor structures or geomorphology; maps of fishing effort distribution; other geospatial analyses; observer data on distribution of benthic organisms; relevant research studies; and/or relevant scientific publications.</p>
<p>EP3 – Status/Outcome</p> <p><u>Status</u>: Evidence shows that GSHs are not at risk of adverse effects from fishery activities, or if they are, then management action is taken in line with CSI Requirement 4.3.3.</p> <p>Or</p> <p><u>Outcome</u>: There is a documented risk assessment of fishery effects on GSHs or the DLF Tool shows that there is a low risk of adverse effects from fishery activities.</p>

CSI Requirement 4.3.3

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.3. Habitat
CSI Requirement No.	4.3.3
CSI Requirement	The FMOA shall implement management actions to avoid, minimize, or mitigate the risk of adverse effects on GSHs as appropriate. There shall be evidence that actions are likely to be effective.
Relevant Definitions	Adverse effect Area-Based Fishery Management (ABFM) measure Fishery-Relevant Habitat (FRH) Gear-Susceptible Habitat (GSH) Habitat Management action Surrogate information
Scope of Application	Fisheries that interact with GSHs. Pelagic fisheries may be excluded (see 4.3.1).
Clarification	
See Section E and Section F for guidance on habitat assessment method and GSH.	
<p>1. Scope: GSH Unlike CSI Requirements 4.3.1, which is scoped broadly to consider FRH, CSI Requirements 4.3.2 and 4.3.3 focus specifically on GSH.</p> <p>2. Adverse Effect By definition, an adverse effect is one that has significant and widespread negative effects. In assessing whether the FMOA considers the effects of a fishery on habitats, the assessment team should verify that the FMOA accounts for the probability, extent (in relation to habitat range), and severity of such effects, including the likelihood that an effect is irreversible or very slowly reversible.</p> <p>3. Historically Disturbed Fishing Areas See guidance in Section E.</p> <p>4. Freezing the Fishery Footprint See guidance in Section E.</p>	
EPs and Guidance	
<p>EP1 – Management Process There is a process or system in place that provides for management actions to avoid, minimize, or mitigate the risk of adverse effects on GSH as appropriate. The existence of such a process or system may be evidenced by actions that have been taken previously, for example through area closures and related spatial protection measures (i.e., area-based fishery management (ABFM) measures that may include the establishment of marine protected areas or MPAs), gear modifications, application of</p>	

move on rules, and/or other relevant CMMs. For historically disturbed areas, evidence of action may include measures to “freeze” the footprint of the fishery²⁰.

EP2 – Adequate Information

There is evidence for FMOA implementation of management actions if and when necessary to avoid, minimize, or mitigate the risk of adverse effects on GSH. Depending on the nature of the action(s), evidence may come from habitat surveys and monitoring studies, investigations into the effectiveness of gear modifications, or information showing that area closures are respected/enforced.

EP3 – Status/Outcome

There is evidence for the effectiveness of FMOA actions if and when necessary to avoid, minimize, or mitigate the risk of adverse effects on GSH. The effectiveness of actions may be evidenced by positioning data (e.g., from VMS, automatic identification system or AIS) showing that fishing is effectively absent from GSH areas, external program reviews, follow-up studies, or some combination of these taken together with the evidence cited in EP1 and EP2 above. Surrogate information from comparable situations may also provide supporting evidence for the effectiveness of management actions.

²⁰ “Freezing the footprint” of a fishery is a common management approach for historically disturbed areas. It is also an acceptable way for the FMOA to demonstrate that it takes management actions if and when necessary to protect susceptible habitat. However, freezing a footprint may also impose unreasonable constraints on a fishery’s ability to respond to, for example, large-scale movements of stocks in response to environmental change. For this reason, freezing the footprint should not be considered the only acceptable management response.

CSI Requirement 4.3.4

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.4. Habitat
CSI Requirement No.	4.3.4
CSI Requirement	<p>The FMOA shall protect rare or unique habitats or ecosystems* through management actions that may include Area-Based Fishery Management (ABFM) measures where appropriate.</p> <p>* The phrase “rare or unique habitats or ecosystems” encompasses areas legally designated as Vulnerable Marine Ecosystems (VMEs), thermal vent structures, and areas with significant coral cover.</p>
Relevant Definitions	<p>Area-Based Fishery Management (ABFM) measure</p> <p>Habitat</p> <p>Marine Protected Area (MPA)</p> <p>Vulnerable Marine Ecosystem (VME)</p>
Scope of Application	All types of fisheries
Clarification	
<p>A Note on the Scope of 4.3.4</p> <p>Requirement 4.3.4 focuses on whether rare or unique habitats or ecosystems are protected. ABFM measures are an example of one form of protection. When the FMOA implements an ABFM measure to achieve a different objective (e.g., ensuring the sustainability of fish stocks, protecting marine biodiversity or critical habitats, increasing resilience to climate and other environmental changes), the assessment team may nonetheless consider how such a measure may serve to protect rare or unique habitats.</p> <p>The scope of 4.3.4 comprises the FMOA jurisdiction (i.e., scope may extend beyond the fishery footprint). If no rare or unique habitats or ecosystems are known to occur within the jurisdiction of the FMOA, then CSI Requirement 4.3.4 is NA. Justification should be given in the rationale for EP1.</p> <p>See guidance in Section E.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is a management process or system in place to consider protection of rare or unique habitats or ecosystems through management actions that may include the use of ABFM measures. Evidence may include, for example, prior FMOA deliberations over the enactment of area closures or stakeholder consultations regarding the establishment of MPAs.</p>	
<p>EP2 – Adequate Information</p> <p>In jurisdictions where designated VMEs are afforded legal protection such as area closures or gear restrictions, there is evidence that the UOC complies with applicable laws and regulations (see guidance in Section E). Compliance may be evidenced by, for example, VMS or AIS tracking</p>	

information that shows fishing by the UOC is effectively absent from within the boundaries of legally protected VME areas.

EP3 – Status/Outcome

Status: There is evidence that the FMOA has implemented measures as appropriate to protect rare or unique habitats or ecosystems. The current condition of rare or unique habitats or ecosystems (i.e., status) provides evidence that such measures have been effective at protecting such habitats/ecosystems. Evidence may include documents relating to the establishment of ABFM measures (e.g., regulatory descriptions of an area closure), research reports (e.g., studies of MPA effectiveness), or other relevant reports from responsible agencies.

Or

Outcome: There is evidence that measures are effective at protecting rare or unique habitats or ecosystems, or that such measures are likely to be effective based on prior experience with comparable measures.

CSI Requirement 4.3.5

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.4. Habitat
CSI Requirement No.	4.3.5
CSI Requirement	<p>The FMOA shall consider essential habitats* for the target stock. If essential habitats are present in the fishing area, the susceptibility of such habitats to the gear used by the fishery shall be evaluated and management actions shall be taken as appropriate to avoid, minimize or mitigate adverse effects.</p> <p>* Essential habitats may include but are not limited to spawning grounds or nursery areas of the target stock.</p>
Relevant Definitions	<p>Adverse effect</p> <p>Area-Based Fishery Management (ABFM) measure</p> <p>Best Available Scientific Information (BASI)</p> <p>Habitat</p> <p>Local and Traditional Fishery Knowledge (LTFK)</p> <p>Susceptibility</p>
Scope of Application	Fisheries that overlap with essential habitat for the target stock.
Clarification	
<p>A Note on the Scope of 4.3.5</p> <p>The scope of CSI Requirement 4.3.5 is restricted to essential habitats for the target stock (e.g., spawning grounds, nursery areas) that fall within the footprint of the fishery. Habitats that fall outside of the fishery footprint are not subject to evaluation under 4.3.5.</p> <p>If no essential habitats for the target stock are known to occur within the fishery footprint, then CSI Requirement 4.3.5 is NA. Justification should be given in the rationale for EP1.</p> <p>See guidance in Section E.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>If it is known or if it should become known that essential habitats for the target stock occur within the area of fishery operations, then there is a mechanism by which the FMOA evaluates the susceptibility of those habitats to the gear type used by the UOC. The mechanism may be the same process or system cited in EP1 of Requirement 4.3.1 or it may be evidenced by another procedure that is specific to the evaluation and protection of essential habitats.</p>	
<p>EP2 – Adequate Information</p> <p>If essential habitats for the target stock (e.g., spawning grounds, nursery areas) are known to occur within the area of the fishery, there is evidence the FMOA has a good understanding of the spatial distribution of those essential habitats. Understanding is based on BASI and may incorporate verifiable</p>	

LTFK. Evidence may come from investigations into the biology of the target stock, its life history, habitat associations, or other relevant research.

EP3 – Status/Outcome

There is evidence that the FMOA takes management actions as appropriate to avoid, minimize, or mitigate adverse effects of the fishery on essential habitats of the target stock. Such actions may include ABFM measures or other measures to protect essential habitats of the target stock from the adverse effects of fishing. There is evidence that these measures are effective at protecting essential habitats of the target stock (e.g., spawning grounds, nursery areas) or that the measures are likely to be effective based on prior experience with comparable measures.

CSI Requirement 4.4.1

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.4. Ecosystem Structure and Function
CSI Requirement No.	4.4.1
CSI Requirement	The FMOA shall have a good understanding of the role of the target stock in the ecosystem.
Relevant Definitions	Ecosystem Local and Traditional Fishery Knowledge (LTFK) Key prey species Forage species
Scope of Application	All types of fisheries
Clarification	
See Section G for ecosystem assessment method and guidance.	
EPs and Guidance	
EP1 – Management Process NA	
EP2 – Adequate Information The FMOA has good information on the role of the target stock or stocks in the ecosystem. Minimally, there is a good understanding of the ecology of the target stock, including its trophic level and the main food web interactions of the target stock with predators and prey species. Evidence for relevant information may come from ecological studies, scientific publications, ecosystem modelling ²¹ , ecosystem monitoring or assessment reports, and/or dedicated studies. Evidence may include verifiable LTFK.	
EP3 – Status/Outcome The FMOA shall have sufficient information to determine whether the target stock should be, for assessment purposes, designated as: <ul style="list-style-type: none"> - A key prey species; - A forage species; or - Both. The assessment team shall confirm whether the target stock is a key prey species, and if so, the team shall also evaluate CSI Requirement 4.4.3.	

²¹ Ecosystem modelling (e.g., Ecopath with Ecosim) is a common and acceptable way to show evidence of conformity with EP2. However, CSI does not require ecosystem modelling; other approaches are acceptable as well. See Section F for further information.

CSI Requirement 4.4.2

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.4. Ecosystem Structure and Function
CSI Requirement No.	4.4.2
CSI Requirement	<p>The FMOA shall:</p> <ul style="list-style-type: none"> A. Consider the effects of the fishery on the ecosystem* with an aim to minimize adverse effects; B. Have sufficient information** to assess the risk of adverse effects on ecosystem structure and function***; and C. As appropriate, take actions to reduce, minimize, or mitigate the most probable adverse effects on ecosystem structure and function. There shall be evidence that such actions are likely to be effective. <p>*For forage species, trophic role of the target stock is an explicit ecosystem consideration.</p> <p>**See CSI Glossary of Terms. “Sufficient information” is information that is judged to be adequate, reliable, and current given the scale and intensity of the fishery under consideration.</p> <p>***In line with the precautionary approach, a suitable method of risk management may be used to address scientific uncertainty about fishery effects on ecosystem structure and function.</p>
Relevant Definitions	<p>Adverse Effect</p> <p>Best Available Scientific Information (BASI)</p> <p>Ecosystem</p> <p>Ecosystem Function</p> <p>Ecosystem Structure</p> <p>Forage Species</p> <p>Impacts with Limited Reversibility</p> <p>Irreversible or Very Slowly Reversible</p> <p>Local and Traditional Fishery Knowledge (LTFK)</p> <p>Sufficient Information</p>
Scope of Application	All types of fisheries
Clarification	
See Section G for ecosystem assessment method and guidance.	
<p>1. A Note on the Scope of 4.4.2</p> <p>Note: CSI Requirement 1.2.4 also addresses ecosystem impacts. However, 1.2.4 is focused on substantiating the <u>plan</u> while 4.4.2 is concerned with verifying details of <u>implementation</u>.</p>	
<p>2. Ecosystem: Threshold for “Adverse Effect”</p> <p>Observed effects of fishing on the ecosystem should be characterized as being adverse effects when they have “irreversible or very slowly reversible” effects. CSI defines <i>irreversible or very slowly</i></p>	

reversible as the quality of being impossible or difficult to return to, or to restore to, a former condition.

EPs and Guidance

EP1 – Management Process

There is a process to consider the effects of the fishery on the ecosystem with an aim to minimize adverse effects. The process may entail an immediate management response or further analysis of the effect. Evidence may come from previous reviews of fishing effects on ecosystems or ecosystem assessment reports. In the absence of UOC-specific evidence for a process, policy-level commitments or examples of previous action by managers under analogous circumstances may be considered evidence for a process. See Section G for guidance on ecosystem methods.

EP2 – Adequate Information

The FMOA has sufficient information about the effects of the fishery to assess the risk of an adverse effect on ecosystem structure and function. Relevant considerations are undertaken. BASI is used, and verifiable LTFK may also be used. Fishery S&I should be considered. Surrogate information may be used. See Section G for assessment method and guidance.

EP3 – Status/Outcome

If a putative adverse effect is identified, then action is taken as appropriate to reduce, minimize, or mitigate the most probable adverse effect on ecosystem structure and function. The action is known or likely to be effective. See Section G for assessment method and guidance.

If no adverse effect is identified, then EP3 is NA.

CSI Requirement 4.4.3

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.4. Ecosystem Structure and Function
CSI Requirement No.	4.4.3
CSI Requirement	<p>If the target stock is a key prey species*, the FMOA shall:</p> <ul style="list-style-type: none"> A. Account for significant effects of the fishery on dependent predator species; B. Have sufficient information** to assess the risk of adverse impacts on dependent predator species; and C. As appropriate, take actions to reduce, minimize, or mitigate the most probable adverse impacts on dependent predator species. There shall be evidence that such actions are likely to be effective. <p>* See CSI Glossary of Terms. Key prey species: A species within the food web which is heavily depended on by a predator as a food item.</p> <p>** See CSI Glossary of Terms. Sufficient Information: Information that is judged to be appropriately reliable, relevant and current for its intended use given the scale and intensity of the fishery under consideration.</p>
Relevant Definitions	<p>Adverse Impact Best Available Scientific Information (BASI) Dependent Predator (DP) Species Key prey species Local and Traditional Fishery Knowledge (LTFK) Scale and Intensity (S&I) Sufficient Information</p>
Scope of Application	Applies only to fisheries with a target stock that is a key prey species
Clarification	
<p>See Section C for guidance on identification of key prey species and DP species.</p> <p>1. Significant Effect In the context of CSI Requirement 4.4.3, a significant effect of a fishery is one that has or is likely to have a severe adverse impact on a DP species. Significant effects include impacts that threaten a DP species with recruitment impairment or impeding its rebuilding.</p> <p>2. Guidance for 4.4.3 A key prey species is defined as a species within the food web that is heavily depended on by a predator as a food item. Many key prey species are forage fish (i.e., low trophic level, small-bodied schooling species), which are important food items for fish and other vertebrate predators, especially seabirds and marine mammals.</p> <p>It should be noted that CSI Requirement 4.4.3 addresses fishery effects on DP species - a separate issue from the aim of CSI Requirement 4.4.2 which addresses fishery effects on the wider ecosystem. The latter is focused on, among other things, adverse impacts on the food web (see Section G).</p>	

If evidence about the ecological role of the target stock (see 4.4.1) supports the conclusion that the target stock is not a key prey species in the ecosystem, then the assessment team should substantiate this determination in the rationale for EP2 of 4.4.3, and EP1 and EP3 are NA.

EPs and Guidance

EP1 – Management Process

There is evidence of a management process to account for significant effects of the fishery on DP species. The process may be evidenced by procedures that are specific to the UOC, higher-level management policies, or a prior history of the FMOA having taken account of significant effects of the fishery on DP species.

EP2 – Adequate Information

There is a good understanding of predators on the target stock, and there is sufficient information to assess the risk of the fishery having an adverse impact on DP species. Information should include BASI and may incorporate verifiable LTFK. In evaluating risk, fishery S&I should be considered. Evidence may come from investigations into predator-prey relationships involving the target stock, studies of predator feeding behaviors/diets, food web modeling, or other relevant research.

EP3 – Status/Outcome

If there is a risk of the fishery having adverse impacts on DP species, then action is taken as appropriate to reduce, minimize, or mitigate the most probable adverse impact. For example, management may seek to minimize the adverse effects of limitations of prey availability on DP species by setting harvest rates for the target stock at a level below that which would provide long-term maximum yield. There is evidence the action is effective or is likely to be effective.

If the risk of adverse impacts is low (i.e., improbable), then this determination should be substantiated in the rationale for EP3.

CSI Requirement 4.4.4

Core Tenet	4. Management assesses and responds to fishery impacts on the ecosystem.
Management Theme	4.4. Ecosystem Structure and Function
CSI Requirement No.	4.4.4
CSI Requirement	The FMOA shall have information on the extent of lost fishing gear and shall implement measures as appropriate to minimize gear loss and/or to reduce ghost fishing by lost or abandoned gear.
Relevant Definitions	Fishery technology Ghost fishing Scale and intensity (S&I) Sufficient information
Scope of Application	All types of fisheries
Clarification	
<p>1. Definition - Ghost Fishing The accidental capture of aquatic organisms by fishing gear (usually gill nets, traps, or pots) that has been lost or discarded at sea and that continues to entangle or trap aquatic animals.</p> <p>2. Definition - Fishery Technology The equipment and practices used for finding, harvesting, handling, processing, and distributing aquatic resources and their products.</p> <p>3. Measures to Reduce Ghost Fishing by Lost or Abandoned Gear (EP3) For the purposes of assessing conformity with EP3, the assessment team should focus on the use of fishery technologies relating to harvest (e.g., the composition and configuration of fishing gears used by the UOC) and practices (e.g., the specific fishing methods employed by the UOC) insofar as they may act to either minimize or exacerbate:</p> <ul style="list-style-type: none"> a. gear loss; and b. the potential for ghost fishing by lost or abandoned gear. 	
EPs and Guidance	
<p>EP1 – Management Process There is evidence for a process to minimize fishing gear loss or abandonment. Evidence may come from measures implemented by the FMOA, such as regulations that restrict the selection, use, and/or disposal of fishing gears. Evidence may also come from the specific fishing technologies adopted by the UOC, such as operational methods to reduce the risk of gear losses or the selection of gears that are not prone to be lost.</p>	
<p>EP2 – Adequate Information There is information on the extent of lost fishing gear in the fishery. The information is judged to be sufficient for the S&I of the fishery. Evidence may come from logbooks, gear registries, studies of gear loss, fisher surveys, or relevant research reports.</p> <p>If the evidence reviewed in EP2 shows that gear loss rates within the UOC are not appreciable relative to the scale and intensity of the fishery, then EP3 is NA.</p>	

EP3 – Status/Outcome

There is evidence the FMOA implements measures as appropriate to reduce the ghost fishing effects of lost or abandoned gear. Measures are known or likely to be effective. Evidence may come from relevant regulations, studies of the effects of lost or abandoned fishing gear, or other relevant investigations.

If the type of gear used by the UOC has no capacity or only a limited capacity to ghost fish, then corroborating evidence should be provided to support this conclusion.

Part III. EPs and Guidance for the Enhanced Fishery Module

Table EFM-1. Summary of EFM requirements, scope categories, and EP numbers.

No.	Brief Description	Scope	EP1	EP2	EP3	Total
Management and Transboundary Considerations						
E1.1	Enhancement plan for rational, sustainable use of TS	All EFs	-	1	1	2
E1.2	FMOA promotes best practice in fishery enhancement	All EFs	1	-	1	2
E1.3	Cooperation on EF planning for transboundary systems	All EFs	1	-	1	2
E1.4	Enhancement plan for rational, sustainable use of TS	All EFs	1	1	1	3
E1.5	Enhancement does not impede traditional use or access	All EFs	1	1	1	3
Target Stock						
E2.1	Stock assessment separates natural and enhanced components	EF-S	1	-	1	2
E2.2	Fishery Statistics: timely, reliable and complete	EF-S	1	1	1	3
E2.3	Fishery data collection: meets int'l norms or best practice	EF-S	1	1	-	2
E2.4	Measures avoid negative impacts to natural component	EF-S	1	1	-	2
E2.5	The natural reproductive component is not overfished	EF-S	1	1	1	3
E2.6	The natural component has not been displaced	EF-S	-	1	1	2
E2.7	Transfer activities do not deplete source populations	EF-T	1	1	1	3
E2.8	Conserve the genetic diversity of the natural component	All EFs	1	1	1	3
Environmental Impacts						
E3.1	Environmental impacts of enhancement are monitored	All EFs	1	-	1	2
E3.2	FMOA evaluates potential adverse impacts on ecosystem	All EFs	1	1	1	3
E3.3	Effects on habitat are reversible and minimal on ecosystem	EF-H	1	1	1	3
E3.4	Target, NT and ETP species are protected from disease	All EFs	1	1	1	3

Management Theme E1 – Management and Transboundary Considerations

CSI Requirement E1.1

Core Tenet	Enhanced Fishery Module
Management Theme	E1 Management and Transboundary Considerations
CSI Requirement No.	E1.1
CSI Requirement	There shall be a fishery enhancement plan or strategy which aims for rational and sustainable use of the target stock.
References	CCRF 9.1.3; CSC-RFM 13.2
Relevant Definitions	Enhanced Fishery (EF) Enhanced target stock Fishery Management Plan (FMP)
Scope of Application	All EFs (all forms of enhancement activity)
Clarification	
Fishery Enhancement Plan or Strategy CSI Requirement E1.1 specifies the existence of a fishery enhancement plan or strategy applicable to the target stock. Such a plan or strategy may be contained in a single document or it may be dispersed across separate documents. Alternatively, the plan or strategy be integrated into a larger, more comprehensive document – for example an FMP for the target stock or a National Enhancement Strategy/Policy that applies to multiple species. A key diagnostic feature is whether the plan or strategy sets out long-term objectives for the management of enhancement activities as they relate to the target stock.	
EPs and Guidance	
EP1 – Management Process NA	
EP2 – Adequate Information Information is sufficient to substantiate that the FMOA has elaborated a fishery enhancement plan or strategy which aims for rational and sustainable use of the target stock. Evidence may come from FMPs, fishery development plans, fishery enhancement plans, and/or federal or territorial enhancement strategies/policies.	
EP3 – Status/Outcome There is evidence for implementation of a fishery enhancement plan or strategy which aims for rational and sustainable use of the enhanced target stock. Implementation may be evidenced by CMMs, laws, regulations or procedures pursuant to the plans, strategies or related documents identified in EP2.	

CSI Requirement E1.2

Core Tenet	Enhanced Fishery Module
Management Theme	E1 Management and Transboundary Considerations
CSI Requirement No.	E1.2
CSI Requirement	The FMOA shall promote best practice in fishery enhancement by elaborating appropriate policies or procedures or by aligning with relevant international standards or codes of conduct.
References	CCRF 9.3.2, 9.3.3, 9.3.4; CSC-RFM 13.12, 13.13
Relevant Definitions	Enhanced Fishery (EF)
Scope of Application	All EFs (all forms of enhancement activity)
Clarification	
For enhanced fisheries, the relevant international standards or codes of conduct are: <ul style="list-style-type: none"> - FAO (1995) Code of Conduct for Responsible Fisheries - FAO (2011) Ecolabeling Guidelines for Inland Fisheries 	
EPs and Guidance	
EP1 – Management Process There is a process to promote best practice in the management of enhanced fisheries. This process may be evidenced by FMOA elaboration of appropriate local/national policies and procedures for fishery enhancement, or alignment of those local/national strategies, policies or procedures with relevant international standards or codes of conduct.	
EP2 – Adequate Information NA	
EP3 – Status/Outcome The FMOA has introduced some aspects of best practice into its management of fishery enhancement activities for the target stock. Implementation may be evidenced by CMMs, rules, regulations or processes relating to enhancement of the target stock which reflect best practice as set out in relevant local/national strategies, policies and/or procedures or in relevant international standards or codes of conduct.	

CSI Requirement E1.3

Core Tenet	Enhanced Fishery Module
Management Theme	E1 Management and Transboundary Considerations
CSI Requirement No.	E1.3
CSI Requirement	As appropriate, the FMOA shall cooperate with relevant local, State or regional partners on planning the development of enhanced fisheries.
References	CCRF 9.2.4; CSC-RFM 13.11
Relevant Definitions	Enhanced Fishery (EF)
Scope of Application	All EFs (all forms of enhancement activity)
Clarification	
Evidence for Cooperation In the context of E1.3, 'cooperation' may be evidenced indirectly by, for example, the existence of mechanisms which facilitate coordination among the relevant authorities. The latter may include tools such as common databases or networks for sharing information related to fishery enhancement activities.	
EPs and Guidance	
EP1 – Management Process There is evidence of a process for cooperation among relevant local, State or regional partners on planning the development of enhanced fisheries. Evidence may come from interagency, regional, bi-lateral or multi-lateral agreements/plans/strategies or related commitments for the coordinated development of enhanced fisheries.	
EP2 – Adequate Information NA	
EP3 – Status/Outcome <u>Status:</u> The FMOA participates in joint planning efforts with relevant local, State or regional partners regarding planning for enhanced fishery development. This may be evidenced by prior FMOA participation in interagency, regional, bi-lateral or multi-lateral meetings related to the development of plans or strategies (see E1.1) for enhanced fisheries. Or <u>Outcome:</u> There is evidence that appropriate mechanisms are in place to facilitate cooperative planning for development of enhanced fisheries at regional/international levels. Evidence may come from standing intergovernmental committees, networks for information dissemination, or shared/publicly available databases.	

CSI Requirement E1.4

Core Tenet	Enhanced Fishery Module
Management Theme	E1 Management and Transboundary Considerations
CSI Requirement No.	E1.4
CSI Requirement	In accordance with international law, the FMOA shall consider the effects of fishery enhancement activities on transboundary aquatic ecosystems when selecting species, sites, and management arrangements for the target stock.
References	CCRF 9.2.2; CSC-RFM 13.9
Relevant Definitions	Enhanced Fishery (EF)
Scope of Application	All EFs (all forms of enhancement activity)
Clarification	
<p>A Note on the Scope of E3.4</p> <p>CSI Requirement E1.4 applies to fishery enhancement activities that have at least some potential to impact upon a transboundary aquatic ecosystem (e.g., an ecosystem that straddles the territorial waters of neighboring coastal states). If the UOC's enhancement activities have no appreciable potential to impact upon the aquatic ecosystem of a neighboring State, then CSI Requirement E1.4 is NA. Justification should be given in the rationale for EP1.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>The process of selecting species, sites, and management arrangements for fishery enhancements considers the potential for enhancement activities to impact the aquatic ecosystems of neighboring States. Evidence may come from management review processes (agency, interagency, and/or intergovernmental). The process may also be evidenced by publications listed in EP3.</p>	
<p>EP2 – Adequate Information</p> <p>There is sufficient information to substantiate that the FMOA's selection of species, sites and management arrangements for fishery enhancement is consistent with applicable international laws. Evidence may come from legal reviews or treaty provisions relating to shared (i.e., transboundary) aquatic ecosystems. Alternatively, the absence of ongoing legal disputes between States over enhancement activities may be taken as de facto evidence for compliance with applicable international laws.</p>	
<p>EP3 – Status/Outcome</p> <p>With respect to enhancement of the target stock, the FMOA considers the potential for enhancement activities to impact on aquatic ecosystems shared with neighboring States. As applicable, the FMOA makes responsible choices²² regarding the selection of species, sites and management arrangements. Evidence may come from management decisions pursuant to documented environmental reviews (assessment reports, environmental impact statements) or similar studies relating to enhancement of the target stock.</p>	

²² The CCRF refers to “responsible choice” of species, siting and management (9.2.2).

CSI Requirement E1.5

Core Tenet	Enhanced Fishery Module
Management Theme	E1 Management and Transboundary Considerations
CSI Requirement No.	E1.5
CSI Requirement	The FMOA shall ensure that enhancement activities do not impede access to traditional fishing grounds or otherwise negatively impact the livelihoods of local fishing communities.
References	CCRF 9.1.4; CSC-RFM 13.2.1
Relevant Definitions	Enhanced Fishery (EF)
Scope of Application	All EFs (all forms of enhancement activity)
Clarification	
Clarification on Negative Impact <p>There may be circumstances where economic tradeoffs may be required to improve overall community benefit²³. In cases where it is not possible to entirely eliminate a negative impact arising from enhancement activities, there should be evidence the effect has been minimized or mitigated with respect to its impacts on the livelihoods of local fishing communities and/or their access to traditional fishing grounds.</p>	
EPs and Guidance	
EP1 – Management Process <p>There is a process by which the impacts of enhancement activities on local fishing communities and access to traditional fishing grounds are evaluated. Evidence may come from a program to monitor or evaluate the impacts of enhancement activities on local communities or from a process involving consultation with affected communities. Alternatively, evidence may be inferred from the elaboration of defined management objectives that seek to minimize the negative impacts of enhancement activities on the livelihoods of local fishing communities and their access to traditional fishing grounds.</p>	
EP2 – Adequate Information <p>There is sufficient information to substantiate that the FMOA takes into account the potential for enhancement activities to impede access to traditional fishing grounds or otherwise negatively impact the livelihoods of local fishing communities. Examples may include various regulations, data, stakeholder consultations, and/or assessment reports.</p>	
EP3 – Status/Outcome <p>Enhancement activities associated with the target stock do not impede access to traditional fishing grounds or otherwise negatively impact the livelihoods of local fishing communities. Evidence may come from the implementation of measures, regulations, procedures and/or policies that act to ensure that enhancement activities associated with the target stock do not impede access to traditional fishing grounds or otherwise negatively impact the livelihoods of local fishing communities. Also see forms of evidence cited in EP1 and EP2 (above).</p>	

²³ EP3, clause 13.2.1, CSI RFM Standard v2.2

Management Theme E2 – Target Stock

CSI Requirement E2.1

Core Tenet	Enhanced Fishery Module
Management Theme	E2 Target Stock
CSI Requirement No.	E2.1
CSI Requirement	The enhanced fishery shall have a stock assessment that treats separately the contribution of the enhanced component from that of the natural reproductive component.
References	I-ECOL 43; CSC-RFM 13.4
Relevant Definitions	Enhanced Fishery (EF) Enhanced target stock Natural reproductive component Stock Assessment
Scope of Application	EF-S (fishery enhancement involving the stocking of cultured individuals)
Clarification	
-	
EPs and Guidance	
EP1 – Management Process Stock assessors have a mechanism or approach by which they may treat separately the relative contributions of enhanced and natural reproductive components to the productivity of the target stock. Evidence may come from methodological descriptions found in stock assessment reports or associated materials and/or from interviews with stock assessment experts.	
EP2 – Adequate Information NA	
EP3 – Status/Outcome The current or most recent assessment of the target stock considered the separate contributions of enhancement and natural production on stock productivity. Evidence may come from recent stock assessments reports or associated materials.	

CSI Requirement E2.2

Core Tenet	Enhanced Fishery Module
Management Theme	E2 Target Stock
CSI Requirement No.	E2.2
CSI Requirement	Timely, complete, and reliable fishery statistics shall be compiled for the enhanced component and the natural reproductive component of the target stock.
References	CCRF 9.1.2; I-ECOL 41; CSC-RFM 13.1
Relevant Definitions	Best Available Scientific Information (BASI) Enhanced fishery (EF) Enhanced target stock Fishery data Fishery statistics Local and Traditional Fishery Knowledge (LTFK) Natural reproductive component Scale and Intensity (S&I) Stock assessment
Scope of Application	EF-S (fishery enhancement involving the stocking of cultured individuals)
Clarification	
<p>Clarification</p> <p>CSI Requirement E2.2 expands on and extends the requirements set out in CSI Requirement 1.3.2 and associated EPs. Similar to 1.3.2, the guidance below clarifies how the terms “timely” (EP1), “reliable” (EP2), and “complete” (EP3) should be applied to the evaluation parameters for E2.2.</p> <p><u>Timely</u></p> <p>Fishery statistics are compiled in a <u>timely</u> manner for the enhanced component and natural reproductive component of the enhanced target stock. Here, “timely” means that the production, maintenance, or updating of fishery statistics occurs on a timescale that supports decision-making by management authorities (e.g., annual stock assessments in support of setting seasonal catch limits). Periodicity of fishery statistics compilation (e.g., twice per year, annually, every two years, etc.) is appropriate to the scale and intensity of the fishery and the biology of the enhanced target stock.</p> <p><u>Reliable</u></p> <p>Here, “reliable” means there is evidence the statistics are accurate. In evaluating whether fishery statistics are reliable, assessors should consider potential sources of bias introduced through fishery data collection procedures. One key consideration is the potential for fishery-dependent information to introduce a source of bias into fishery statistics. Fishery-independent information can provide a valuable way to check for bias in fishery-dependent data sets.</p> <p><u>Complete</u></p> <p>Here, “complete” means the compilation of fishery data is broad enough in scope to fulfill its intended purpose for conservation and management of the enhanced target stock.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is a process or system in place to compile fishery statistics for the enhanced component and the natural reproductive component of the target stock. Compilation is <u>timely</u>. The process may be</p>	

evidenced by a past history of compiling statistics for the target stock. Timeliness of the process may be evidenced by the regularity (e.g., annual) of updates of fishery statistics for the target stock.

EP2 – Adequate Information

Fishery statistics compiled for the enhanced target stock are considered reliable. Compilation of statistics should integrate BASI or consider BASI in subsequent stages of analysis. If applicable, compilation of fishery statistics may also incorporate verifiable LTFK. Reliability of fishery statistics may be evidenced by an internal or external expert review process (e.g., peer review, independent panel review), attestation from qualified professionals, or another means of system appraisal²⁴.

EP3 – Status/Outcome

Fishery statistics compiled for the enhanced target stock are considered complete. Evidence as in EP2.

In jurisdictions where laws, rules or regulations define minimum quality objectives for fishery statistics, assessors may consider such minima to be evidence of conformity with EP3.

²⁴ Section 8.4.7, FAO Guidelines for routine collection of capture fishery data.

CSI Requirement E2.3

Core Tenet	Enhanced Fishery Module
Management Theme	E2 Target Stock
CSI Requirement No.	E2.3
CSI Requirement	<p>The FMOA shall collect fishery data for the natural reproductive component of the target stock in line with international standards* and/or best practice for the sector.</p> <p>* For example, FAO. 1999. Guidelines for the routine collection of capture fishery data. FAO Fisheries Technical Paper. No. 382. Rome, FAO. 1999. 113 p. https://www.fao.org/3/x2465e/x2465e.pdf</p>
References	CCRF 9.1.2; I-ECOL 41; CSC-RFM 13.1, 13.1.1
Relevant Definitions	<p>Enhanced target stock</p> <p>Fishery data</p> <p>Fishery statistics</p> <p>Natural reproductive component</p>
Scope of Application	EF-S (fishery enhancement involving the stocking of cultured individuals)
Clarification	
<p>Clarification</p> <p>CSI Requirement E2.3 is similar to CSI Requirement 1.3.1 (and associated EPs) but the scope of E1.3 is expanded to explicitly encompass the natural reproductive component of the target stock.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is a process or system in place to collect relevant fishery data for the natural reproductive component of the target stock. The process or system may be evidenced by FMS protocols or procedures for fishery data collection which identify or distinguish the natural reproductive component. Alternatively, the process or system may be evidenced by statistical databases that are generated from fishery data collections (e.g., computer-based data management systems) or summaries of those databases which separates the contribution of the natural reproductive component from that of the enhanced component.</p>	
<p>EP2 – Adequate Information</p> <p>There is evidence that the system for collection of fishery statistics for the natural reproductive component of the target stock (as identified in EP1) is aligned with relevant international standards and/or best practice for the sector. Alignment may be evidenced in relation to:</p> <ul style="list-style-type: none"> - The <i>FAO Guidelines for the routine collection of capture fishery data</i>²⁵; - The <i>FAO Coordinating Working Party on Fishery Statistics Handbook of Fishery Statistical Standards</i>²⁶; - UN Fish Stocks Agreement²⁷, Annex 1, Article 3 – Basic Fishery Data; - another applicable international standard for the collection of fishery data; or - alignment to documented best practice for the sector. 	

²⁵ <https://www.fao.org/3/x2465e/x2465e.pdf>

²⁶ <https://www.fao.org/cwp-on-fishery-statistics/handbook/general-concepts/en/>

²⁷ <https://www.un.org/oceancapacity/UNFSA>

EP3 – Status/Outcome NA

CSI Requirement E2.4

Core Tenet	Enhanced Fishery Module
Management Theme	E2 Target Stock
CSI Requirement No.	E2.4
CSI Requirement	The FMOA shall manage fishery enhancement activities to avoid adverse impacts to the natural reproductive component of the target stock.
References	I-ECOL 39; CSC-RFM 13.6
Relevant Definitions	Adverse impact Enhanced Fishery (EF) Enhanced target stock Natural reproductive component
Scope of Application	EF-S (fishery enhancement involving the stocking of cultured individuals)
Clarification	
-	
EPs and Guidance	
EP1 – Management Process There is a process in place to manage enhancement activities to avoid adverse impacts on the natural reproductive component of the target stock. Processes may be evidenced by policy objectives, procedures, CMMs or other processes associated with actions taken to avoid, minimize or mitigate adverse impacts such as overfishing or displacement of the natural reproductive component of the target stock.	
EP2 – Adequate Information There is adequate information to substantiate that the FMOA manages fishery enhancement activities to avoid adverse impacts on the natural reproductive component of the target stock. Evidence may come from prior management actions (CMMs or other actions) intended to avoid, minimize or mitigate adverse impacts such as overfishing on (see E2.5) or displacement of (see E2.6) the natural reproductive component of the target stock.	
EP3 – Status/Outcome NA. See CSI Requirements E2.5 and E1.6.	

CSI Requirement E2.5

Core Tenet	Enhanced Fishery Module
Management Theme	E2 Target Stock
CSI Requirement No.	E2.5
CSI Requirement	The FMOA shall implement measures to ensure the natural reproductive component of the target stock is not overfished.
References	I-ECOL 39; CSC-RFM 13.6
Relevant Definitions	Conservation and Management Measure (CMM) Enhanced Fishery (EF) Enhanced target stock Limit Reference Point (LRP) Management action Natural reproductive component Overfished Remedial action Stock Assessment Target Reference Point (TRP)
Scope of Application	EF-S (fishery enhancement involving the stocking of cultured individuals)
Clarification	
Depleted stocks See CSI Requirements 2.2.5 and 2.2.6 for a further discussion of overfished stocks, remedial actions, and reasonable timeframes to rebuild depleted stocks.	
EPs and Guidance	
EP1 – Management Process There is a process in place to implement remedial actions if the natural reproductive component of a target stock should approach or exceed its LRP or is otherwise be identified as depleted. Evidence for such a process may come from previous management actions or from existing HCRs or responsive procedures.	
EP2 – Adequate Information Measures are in place to ensure the natural reproductive component of the target stock is not overfished. Evidence may come from regulations, CMMs, or other management actions that control harvest levels to avoid overfishing of the natural reproductive component of the target stock.	
EP3 – Status/Outcome Option 1. The natural reproductive component of the target stock is not overfished. There is evidence that the level of fishing (exploitation rate) is appropriate relative to current stock status and environmental conditions. Evidence may come from stock assessment reports. Option 2. Should the natural reproductive component of the target stock be overfished or otherwise identified as depleted: <u>Status:</u> In response to depletion of the natural reproductive component of the target stock, the FMOA has implemented remedial actions to rebuild the stock. There is evidence that remedial actions are likely to be effective and should rebuild the stock to the TRP within a reasonable timeframe.	

Or

Outcome: Based on prior experience managing other depleted stocks, the remedial actions taken by the FMOA are likely to achieve rebuilding of the natural reproductive component of the target stock within a reasonable timeframe.

CSI Requirement E2.6

Core Tenet	Enhanced Fishery Module
Management Theme	E2 Target Stock
CSI Requirement No.	E2.6
CSI Requirement	The natural reproductive component of the target stock shall not be displaced by the enhanced component below the target reference point (or proxy) for the stock.
References	I-ECOL 39; CSC-RFM 13.6
Relevant Definitions	Displacement Enhanced Fishery (EF) Enhanced target stock Natural reproductive component Stock Assessment Target Reference Point (TRP)
Scope of Application	EF-S (fishery enhancement involving the stocking of cultured individuals)
Clarification	
EPs and Guidance	
EP1 – Management Process	
NA	
EP2 – Adequate Information	
There is sufficient information for managers to evaluate whether enhancement activities may contribute to the natural reproductive component of the target stock falling below its TRP because of displacement by the enhanced component(s). Evidence may come from stock assessment reports, scientific studies, or related information sources.	
EP3 – Status/Outcome	
<p><u>Status:</u> Available evidence does not indicate that enhancement activities have led to displacement of the natural reproductive component of the target stock below its TRP. Evidence may come from recent stock assessment reports or other studies showing the status of the natural reproductive component in relation its TRP (or proxy) or in relation to enhanced components.</p> <p>Or</p> <p><u>Outcome:</u> There is evidence that displacement of the natural reproductive component is unlikely. Evidence may come from recent stock assessment reports or modeling studies showing the likelihood of displacement of the natural reproductive component below its TRP (or proxy) by the enhanced components.</p>	

CSI Requirement E2.7

Core Tenet	Enhanced Fishery Module
Management Theme	E2 Target Stock
CSI Requirement No.	E2.7
CSI Requirement	<p>For enhanced fisheries that draw organisms from the wild for the purpose of transfer or translocation*, such activities shall not have significant negative impacts on source populations.</p> <p>* See CSI Glossary of Terms.</p>
References	CCRF 9.3.1; I-ECOL 41; CSC-RFM 13.1.1
Relevant Definitions	<p>Enhanced Fishery (EF)</p> <p>Enhanced target stock</p> <p>Limit Reference Point (LRP)</p> <p>Stocking</p> <p>Transfer</p> <p>Translocation</p>
Scope of Application	EF-T (enhancement involving transfer or translocation of the target stock)
Clarification	
<p>Transfer or Translocation vs. Stocking</p> <p>Unlike stocking programs, which release organisms that have been maintained in a culture facility, programs involving transfer and translocation take organisms from the wild and move them to a new location without maintaining them in culture. Note, however, that the two approaches are not mutually exclusive - some enhanced fisheries may use a combination of stocking and transfer/translocation. For such fisheries, the evaluation of E2.7 should focus only on UOC activities that involve transfer or translocation, not stocking.</p>	
EPs and Guidance	
<p>EP1 – Management Process</p> <p>There is a process by which the FMOA considers the potential for transfer or translocation activities to have an adverse impact on source populations. Evidence for this process may come from prior agency deliberations over suitable methods for drawing organisms from the wild, consultation with affected stakeholders over the utilization of source populations, environmental impact studies/assessments, or other relevant investigations.</p>	
<p>EP2 – Adequate Information</p> <p>Sufficient information is available to evaluate the impact of transfer or translocation activities on source populations. For example, managers may treat transfers as fishery removals in the stock assessment process for the source population. Evidence may come from stock assessment reports, modeling studies, or other research reports on the effects of transfer on source populations.</p>	
<p>EP3 – Status/Outcome</p> <p>There is evidence that the FMOA's transfer or translocation of organisms drawn from the wild does not have a significant negative impact on the source population(s).</p> <p><u>Status:</u> The status of source population(s) is known and there is evidence that the stock is not negatively impacted. For example, the source population is above its LRP.</p>	

Or

Outcome: There is evidence that management has evaluated the potential for significant negative impacts on source populations (e.g., via risk assessment). Management has either determined that significant negative impacts are unlikely or management has taken actions as necessary to reduce, minimize, or mitigate such impacts.

CSI Requirement E2.8

Core Tenet	Enhanced Fishery Module
Management Theme	E2 Target Stock
CSI Requirement No.	E2.8
CSI Requirement	The FMOA shall take actions to minimize adverse effects on the genetic diversity of the target stock.
References	CCRF 9.3.1; I-ECOL 40; CSC-RFM 13.7.1, 13.7.2, 13.13
Relevant Definitions	Enhanced Fishery (EF) Enhanced target stock Genetically modified organisms (GMOs)
Scope of Application	All EFs (all forms of enhancement activity)
Clarification	
<p>Guidance: Best Practice for Conservation of Genetic Diversity</p> <p>The FAO encourages fishery management organizations to conserve the genetic diversity of stocks and aquatic ecosystems (CCRF 9.3.1). More specifically, FAO recommends that States try to “...minimize the harmful effects of introducing non-native species or genetically altered stocks used for aquaculture including culture-based fisheries into waters, especially where there is a significant potential for the spread of such non-native species or genetically altered stocks into waters under the jurisdiction of other States as well as waters under the jurisdiction of the State of origin. States should, whenever possible, promote steps to minimize adverse genetic, disease and other effects of escaped farmed fish on wild stocks.”</p> <p>CSI Requirement E2.8 reflects FAO’s mandate that States should strive to conserve the genetic diversity of the target stock as part of their obligation to responsibly manage enhanced fisheries. In evaluating whether an FMOA takes appropriate actions to minimize adverse effects on the genetic diversity of wild stocks, the assessors may consider whether the fishery enhancement activities align with best practice. The following list gives examples of best practice for the conservation of genetic diversity in enhanced fisheries²⁸:</p> <ul style="list-style-type: none"> - Avoiding or minimizing the movement of genotypes or species between catchment areas/rivers/lake systems; - Reducing the risk of contamination of local wild genotypes by cultured animals; - Ensuring that efforts to improve broodstock genetics are only undertaken in conditions which pose minimal risks to wild populations; - Eliminating or reducing the risk of introduction of genetically altered organisms (i.e., GMOs) whether from enhancement activities or from escaped farmed fish; - Establishing appropriate procedures for the selection, production, sale, and transport of broodstock, eggs, larvae, and fry; and - Developing codes of conduct, practices or procedures to address the abovementioned concerns. <p>Note that this list of best practices is not comprehensive. Alternative approaches may be more appropriate for specific fishery situations. In such cases, the assessor should look for a clear link between the rationale for putting the practice into place and the specific objective of conserving genetic diversity.</p>	
EPs and Guidance	

²⁸ CSI RFM Standard v2.2, Clause 13.13

EP1 – Management Process

There is a process to consider the potential for adverse effects of enhancement activities on the genetic diversity of the target stock. Evidence for such a process may come from prior FMOA reviews, technical consultations, or scientific studies on potential sources of impact to genetic diversity. With respect to escapes of farmed fish, evidence may come from processes limiting the importation or use of non-native species or genetically modified organism (GMOs) in aquaculture operations or hatchery facilities, or other mechanisms put in place to minimize or eliminate the escape or spread of non-native species, genetically altered stocks, and GMOs, or related information.

EP2 – Adequate Information

There is adequate information to substantiate that management actions are in place to address adverse impacts on the genetic diversity of the target stock. Actions may be directed at those impacts arising from UOC enhancement activities or impacts arising from aquaculture operations in the surrounding area (or both). Evidence may come from procedures, policies or regulations addressing the importation or use of non-native species or genetically modified organism (GMOs) in aquaculture operations or hatchery facilities, the mechanisms in place to minimize or eliminate the escape or spread of non-native species and GMOs, or related information.

EP3 – Status/Outcome

There is evidence that management actions are effective or are likely to be effective at minimizing adverse effects on the genetic diversity of the target stock. Evidence as in EP1 and EP2.

Management Theme E3 – Environmental Impacts

CSI Requirement E3.1

Core Tenet	Enhanced Fishery Module
Management Theme	E3 Environmental Impacts
CSI Requirement No.	E3.1
CSI Requirement	The FMOA shall have a system for monitoring and assessing the environmental impacts arising from its fishery enhancement activities.
References	CCRF 9.1.5, 9.2.5; CSC-RFM 3.13
Relevant Definitions	Adverse impact Ecosystem structure and function Enhanced Fishery (EF) Scale and Intensity (S&I)
Scope of Application	All EFs (all forms of enhancement activity)
Clarification	
EPs and Guidance	
EP1 – Management Process There is a process for monitoring and assessing the environmental impacts arising from fishery enhancement activities. Ongoing monitoring and assessment is undertaken at a scale appropriate to the scale of enhancement activities and the risk of environmental impact. Evidence may come from laws, regulatory requirements, or permitting processes pertaining to the specific type(s) of fishery enhancement activities associated with the UOC.	
EP2 – Adequate Information NA – see EP1	
EP3 – Status/Outcome Monitoring and assessment of the environmental impacts arising from fishery enhancement activities is undertaken at a level appropriate to the scale of enhancement activities and the risk of environmental impact. Evidence may come from monitoring and/or assessment reports associated with the specific types of fishery enhancement activities under consideration.	

CSI Requirement E3.2

Core Tenet	Enhanced Fishery Module
Management Theme	E3 Environmental Impacts
CSI Requirement No.	E3.2
CSI Requirement	<p>The FMOA shall:</p> <ul style="list-style-type: none"> A. Consider the effects of fishery enhancement activities on the ecosystem with an aim to minimize adverse effects; B. Have sufficient information to assess the risk of adverse effects on ecosystem structure and function*; and C. As appropriate, take actions to reduce, minimize, or mitigate the most probable adverse effects on ecosystem structure and function. <p>* In line with the precautionary approach, a suitable method of risk management may be used to address scientific uncertainty about the impact of enhancement activities on ecosystem structure and function.</p>
References	FAO CCRF 9.1.2; I-ECOL 41; CSC-RFM 13.1
Relevant Definitions	<p>Adverse effect</p> <p>Best available scientific information (BASI)</p> <p>Ecosystem structure and function</p> <p>Enhanced Fishery (EF)</p> <p>Irreversible or very slowly reversible</p> <p>Local and Traditional Fishery Knowledge (LTFK)</p> <p>Management action</p> <p>Precautionary Approach (PA)</p> <p>Scale and Intensity (S&I)</p> <p>Sufficient information</p> <p>Uncertainty</p>
Scope of Application	All EFs (all forms of enhancement activity)
Clarification	
<p>A Note on the Scope of E3.2</p> <p>For non-enhanced fisheries, assessors evaluate ecosystems effects only once under CSI Management Theme 4.4. For enhanced fisheries, assessors evaluate 4.4 and also evaluate CSI requirement E3.2 (in other words, ecosystem effects are evaluated twice). However, E3.2 has a narrower scope being restricted to the evaluation of effects arising from enhancement activities. For example, evaluation of E3.2 may focus on the question of whether the practice of stocking hatchery-reared fish in the wild has an adverse effect on ecosystem structure and function – a separate consideration from the harvest-related effects of a fishery on the ecosystem.</p> <p>Uncertainty</p> <p>Significant uncertainty is to be expected in assessing possible adverse ecosystem impacts of fisheries, including fishery enhancement activities. The FMOA may address this uncertainty by taking a risk assessment/risk management approach²⁹.</p> <p>Threshold for Adverse Effect</p>	

²⁹ Paragraph 41, FAO (2011) Ecolabelling Guidelines for Inland Fisheries

Observed effects of fishery enhancement activities on ecosystem structure and function should be characterized as being adverse effects if they are “irreversible or very slowly reversible.” CSI defines *irreversible or very slowly reversible* as the quality of being impossible or difficult to return to, or to restore to, a former condition.

EPs and Guidance

EP1 – Management Process

There is a process by which the FMOA considers the effects of fishery enhancement activities on the ecosystem. The process may entail an immediate management response or further analysis of the effect. Evidence of the process may come from previous management reviews or studies on the effects of fishery enhancement on ecosystems, programs for ecosystem monitoring, or the use of surrogate information (from an analogous fishery situation) to infer the most probable effects.

EP2 – Adequate Information

The FMOA has sufficient information to identify the most probable effects of enhancement activities on ecosystem structure and function. In line with the precautionary approach, a suitable method of risk management may be used to address scientific uncertainty about adverse effects of enhancement activities on ecosystem structure and function³⁰. BASI is used and verifiable LTFK may also be used as applicable. The quality and/or adequacy of information is proportionate to the scale of fishery enhancement activities and the risk of those activities having adverse effects on ecosystem structure and function. Evidence may come from ecosystem assessment or monitoring reports, ecosystem modeling studies, ecosystem risk assessments, environmental impact statements, or comparable forms of ecosystem evaluation. Surrogate information may be used.

EP3 – Status/Outcome

If the FMOA’s risk assessment (see EP1 and EP2) identifies putative adverse effects of fishery enhancement activities on ecosystem structure or function, then there is evidence that action is taken as appropriate, to reduce, minimize, or mitigate the most probable adverse effects. If no such adverse effects are identified, then this outcome should be briefly summarized here.

³⁰ Paragraph 41, FAO (2011) Ecolabelling Guidelines for Inland Fisheries

CSI Requirement E3.3

Core Tenet	Enhanced Fishery Module
Management Theme	E3 Environmental Impacts
CSI Requirement No.	E3.3
CSI Requirement	<p>The FMOA shall:</p> <ul style="list-style-type: none"> A. Consider the environmental impacts of habitat enhancement activities*; B. Have sufficient information to assess the reversibility of the main effects of habitat enhancement³¹; and C. As appropriate, take actions to reduce, minimize, or mitigate the effects of enhancement on habitat that may have limited reversibility. <p>* For example, habitat modification may be undertaken for the purpose of enhancing target stock abundance or for increasing the availability of the target stock to the fishery.</p>
References	CCRF 8.11.1-4; I-ECOL 41; CSC-RFM 13.7, 8.13
Relevant Definitions	<p>Adverse effect</p> <p>Best available scientific information (BASI)</p> <p>Enhanced Fishery (EF)</p> <p>Habitat</p> <p>Habitat enhancement</p> <p>Impacts with limited reversibility</p> <p>Irreversible or very slowly reversible</p> <p>Local and Traditional Fishery Knowledge (LTFK)</p> <p>Management action</p> <p>Precautionary approach</p> <p>Scale and intensity (S&I)</p> <p>Sufficient information</p> <p>Uncertainty</p>
Scope of Application	EF-H (fishery enhancements involving habitat modification)
Clarification	
<p>1. Definition – Habitat Enhancement</p> <p>A fishery enhancement activity that involves the modification of habitat to increase production of a desirable species. Examples of habitat enhancements include artificial reefs, salmon spawning channels, lobster casitas, fish attracting devices (FADs), and mussel ropes.</p> <p>2. Definition – Irreversible or very slowly reversible</p> <p>The quality of being impossible or difficult to return to, or to restore to, a former condition.</p> <p>3. Habitat Enhancement vs. Habitat Restoration</p> <p>By definition, the purpose of habitat enhancement is to increase production of the target stock by modifying habitat. Habitat restoration, on the other hand, seeks to rebuild and restore depleted stocks</p>	

³¹ In line with the precautionary approach, a suitable method of risk management may be used to address scientific uncertainty about fishery impacts to ecosystem structure and function.

by improving degraded habitats. Such work, although integral to conservation efforts, generally falls outside the scope of E3.3.

EPs and Guidance

EP1 – Management Process

There is a process by which the FMOA considers the environmental impacts of habitat enhancement activities. Evidence for such a process may come from management review procedures, permitting requirements, monitoring systems, or other programs involved in reviewing the effects of habitat enhancement.

EP2 – Adequate Information

The FMOA has sufficient information to assess the reversibility of the main effects of habitat enhancement. In line with the PA, a suitable method of risk management may be used to address scientific uncertainty about the effects of habitat enhancement. BASI is used and verifiable LTFK may also be used if applicable. The quality and/or adequacy of information is proportionate to the S&I of habitat enhancement activities and the risk of those activities having an effect with limited reversibility. Evidence may come from impact assessment or monitoring reports, modeling studies, risk assessments, environmental impact statements, or comparable forms of evaluation of habitat modifications.

EP3 – Status/Outcome

There is evidence that the main effects of habitat enhancement are assessed. If main effects with limited reversibility are identified, there is evidence that the FMOA takes action, as appropriate, to reduce, minimize, or mitigate those effects. Actions may be evidenced by the promulgation of relevant CMMs, regulations, laws, or other measures to mitigate the effects of habitat enhancement. If no such main effects are identified, then this outcome should be briefly summarized here.

CSI Requirement E3.4

Core Tenet	Enhanced Fishery Module
Management Theme	E3 Environmental Impacts
CSI Requirement No.	E3.4
CSI Requirement	The FMOA shall take actions protect the target stock, NT species, and ETP species from the adverse effects of disease or parasites that may be associated with enhancement activities.
References	CCRF 9.3.1, 9.3.2, 9.3.3; I-ECOL 40; CSC-RFM 13.1.1, 13.7.2, 13.13
Relevant Definitions	Enhanced Fishery (EF) Adverse impacts Enhanced target stock
Scope of Application	All EFs (all forms of enhancement activity)
Clarification	
Policies and Procedures for Aquaculture In relation to aquaculture and culture-based fisheries, the FAO recommends that States should “...promote steps to minimize adverse genetic, disease, and other effects of escaped farmed fish on wild stocks” (CCRF 9.3.1). Full-cycle aquaculture clearly falls outside the scope of the CSI certification scheme. Nonetheless, assessors may need to consider policies and procedures drawn from the aquaculture sector if they impinge on how the FMOA manages fishery enhancement activities. For example, broad aquaculture policies or regulations may govern how all hatcheries operate within a given jurisdiction, regardless of whether those hatcheries support aquaculture or stocking programs. The assessor should evaluate on a case-by-case basis whether aquaculture policies are relevant to the fishery enhancements under assessment, and to the question of how the FMOA manages disease.	
EPs and Guidance	
EP1 – Management Process There is a process to protect the target stock, non-target species, and ETP species from the adverse effects of disease or parasites that may be associated with enhancement activities. Evidence for such a process may include a mechanism to assess and monitor the risk of disease transfer and/or other adverse effects on wild stocks. Evidence may also come from prior FMOA reviews of disease incidence, hatchery facility permitting or inspection processes, and technical consultations or scientific studies relating to the introduction or spread of diseases or parasites.	
EP2 – Adequate Information There is adequate information to substantiate that the FMOA has taken measures to protect the target stock, non-target species, and ETP species from the adverse effects of disease or parasites that may be associated with enhancement activities. Such measures may be evidenced by procedures, policies, regulations, risk assessments, or codes of conduct which address the management of disease in fishery enhancement activities. Note: evidence may also come from the aquaculture sector insofar as it overlaps with FMOA management of disease and parasitism in enhanced fisheries.	
EP3 – Status/Outcome The actions taken by the FMOA are effective or are likely to be effective at protecting the target stock, non-target species, and ETP species from the adverse effects of diseases or parasites that may be associated with enhancement activities. Evidence as in EP1 and EP2.	

Part IV. Methods and Guidance

Section A. Guidance on Reference Points and Proxies

A0 Scope

When direct estimation of reference points (RPs) is precluded by limitations of fishery data, proxies³² for the productive capacity of the stock may be used. Suitable proxies may include, for example, standardized CPUE as a proxy for biomass, or specific levels of fishing mortality and biomass, which have proven useful in other fisheries and can be used with a reasonable degree of confidence in the absence of better-defined levels. However, use of proxies may introduce additional uncertainty and so should trigger extra precaution in setting biological RPs.

A1 Approach

A1.1 In evaluating proxies and RPs, the assessment team should, as a general approach, aim to do the following:

- a. ensure that all relevant terms are clearly defined;
- b. explain in non-technical language the relationship between the proxy and RP;
- c. describe how use of a proxy is precautionary; and
- d. give examples to illustrate appropriate use of the proxy.

A1.2 The assessment team should clearly articulate the basis on which proxies are evaluated. Technical terms should be clearly defined and their relation to RPs (LRP and/or TRP) should be firmly established. Table A1 gives examples of definitions of some common proxies.

Table A1. RPs and proxies: description and guidance from RFM Standard V2.2

RP or Proxy	Description/Guidance
B	Spawning stock biomass. B should be above B_{lim} .
B_{MSY}	The biomass that is associated with MSY.
B_{35} and B_{40}	Spawning stock biomass at 35% and 40% of unfished level. May be a TRP.
$B_{17.5}$	Spawning stock biomass at 17.5% of unfished level. May be an LRP.
B_{lim}	The level of B_{lim} should be set on the basis of historical information, applying an appropriate level of precaution according to the reliability of that information.
F	Fishing mortality rate.

³² Scoring Guidance, CSC RFM Standard Version 2.2

F_{MSY}	F that is associated with MSY.
$F_{35\%}$ and $F_{40\%}$	Fishing mortality at a spawning stock biomass of 35% and 40% of unfished level.
F_{lim}	The fishing mortality rate that, if sustained, would drive biomass down to the B_{lim} level. F should be below F_{lim} . Note: F_{lim} should not be set to exceed F_{msy} .
Escapement Goal	Management objective for minimum level of escapement.
MSST	Minimum stock size threshold. May be defined as $\frac{1}{2} B_{MSY}$.

A2 Evaluation: Escapement Goal as a Proxy for LRP

A2.1 In evaluating whether an escapement goal may be a suitable proxy for LRP, the assessment team should confirm that the proxy meets three criteria:

- a. Performance: Information is available on the status of the target stock relative to its escapement goal for a period of at least one generation time³³;
- b. Remedial action: Information is available on the management action(s) that are taken to return underperforming stocks (those not meeting escapement goals) to safe biological levels; and
- c. Status designation: Information is available on how management formally designates the status of an underperforming target stock (e.g., overfished, subject to overfishing or an equivalent designation).

A2.2 As applicable, the assessment team should briefly summarize the results of their review of escapement goal performance (A2.1a), remedial action (A2.1b), and status designation (A2.1c) in the rationales for CSI Requirements 2.2.3, 2.2.4, and 2.2.5, respectively.

³³ For most salmonid species, the minimum period for review of escapement goal performance is 4-5 years. Shorter time periods of evaluation may be acceptable for target stocks with shorter generation times (e.g., some squids or small pelagic stocks).

Section B. Guidance on HCRs

This section gives assessors additional guidance on how to evaluate Harvest Control Rules (HCRs) presented under CSI Requirements 3.1.1 and 3.1.2.

HCRs should clearly specify the management actions to be taken in the event that the status of the target stock drops below levels consistent with achieving management objectives. Usually, the management objective will be represented by a TRP, although HCRs may utilize other thresholds to represent desired outcomes/operational targets.

In addition, HCRs should provide for the restoration of the stock when it falls below a limit threshold. Usually, the limit threshold is represented by an LRP, although HCRs may utilize other thresholds to represent undesirable outcomes. In any event, management actions should aim to restore depleted stocks to desirable levels within a reasonable time frame.

An important function of the HCR is to reduce the exploitation rate as the LRP is approached. Reduction of exploitation may be achieved through a linear response (see Example B1), as a step function (e.g., via fishery closure), or through another management action such one involving a dynamic management response. The latter may entail actions that serve to reduce catch or effort on selected subcomponents of the stock (e.g., size, age, sex, or area).

Example B1.

Fishery A has an HCR with two defined thresholds or trigger points:

B30	30% of the level defined as unfished biomass
B20	20% of the level defined as unfished biomass

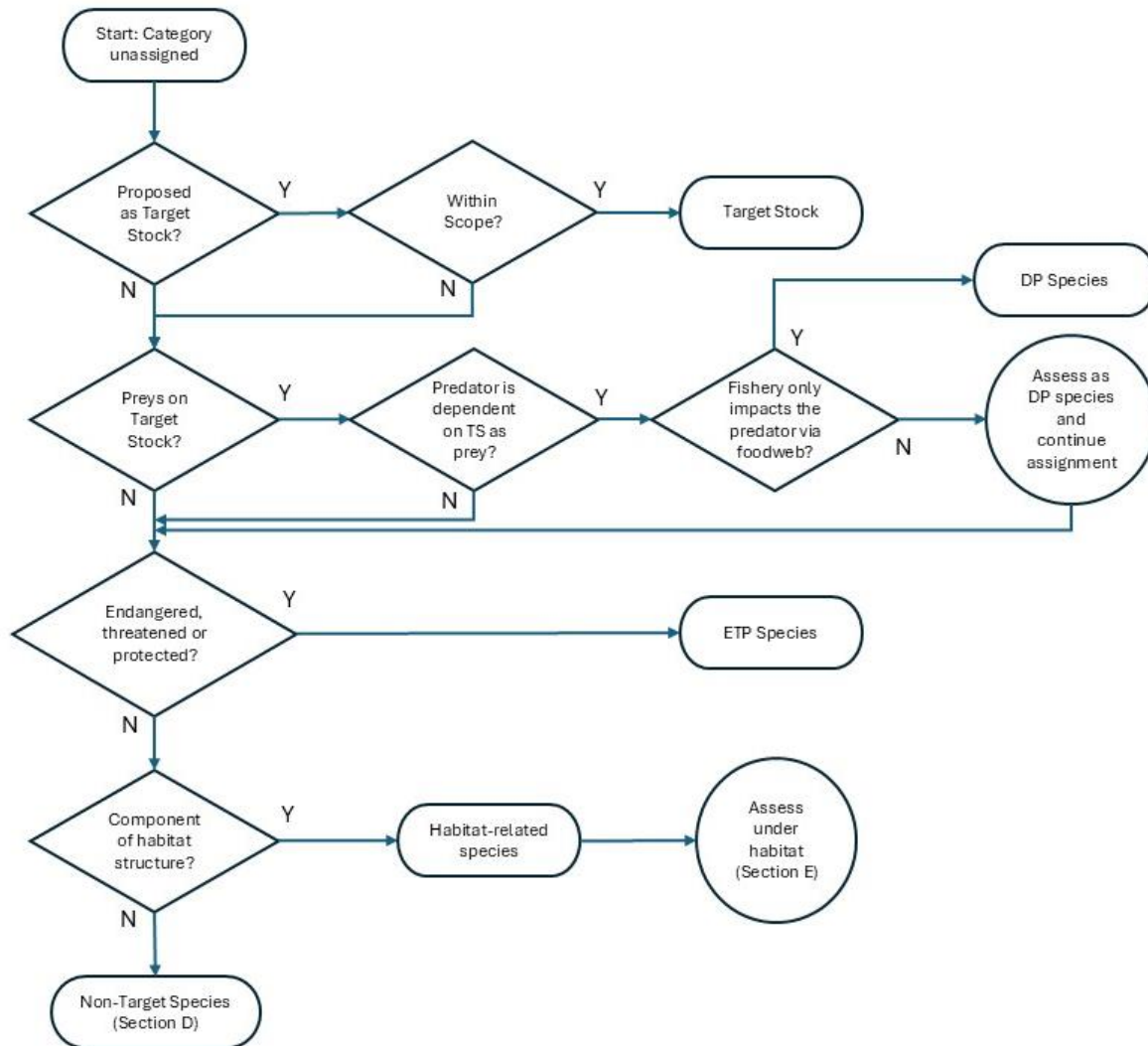
The harvest policy of Fishery A is to harvest 20% of the coastwide exploitable biomass of the target stock when the stock is estimated to be above B30. The harvest policy sets a control rule that the harvest rate is linearly decreased towards a rate of zero as the stock approaches B20. Fishing ceases completely if the stock is below B20.

Section C. Method to Assign Species to Categories for Assessment

C0 Scope

The CSI fishery assessment process should extend to all species with potential to be adversely impacted by a fishery. The assessment team organizes the taxa into five categories: target stock; NT species; ETP species; habitat-related species (species comprising structural elements of habitat); and DP species. Taxa are assigned to a single category with the exception of DP species, which may be co-assigned to NT, ETP, or HR species categories when appropriate. A decision tree for categorization is shown in Figure C1.

Figure C1. Decision tree for assigning species to categories for assessment.



C1 Target Stock

- C1.1 The assessment team should confirm that any taxon put forward as a target stock is not an amphibian, reptile, bird, or mammal.

C2 DP Species

- C2.1 The category of DP species is used for taxa that are or may be affected by the fishery via removals of one or a few key prey species.

Key Prey Species, DP Species, and Forage Species

A key prey species is a species within the food web that is heavily depended on by a predator as a food item

A DP species is a predator within a food web that is heavily dependent on the consumption of one or a few “key” prey species for maintenance and growth.

A forage species is a low-trophic level species used as prey by a predator for its food. Forage species are typically small-bodied, schooling species that may serve as prey for larger commercially and recreationally important fish, as well as for marine mammals and seabirds. Anchovies, herring, sprat, krill, and sardines are some common forage species.

While many forage species are heavily preyed upon and thus represent key prey species in their respective food webs, it is not the case that every key prey species is a low-trophic level species.

- C2.2 The degree to which a predator depends on a prey species may be inferred from the species composition of the predator’s diet. Table C1 indicates when a target stock should be designated as a key prey species using the level of predator dependence inferred from guideline values for dietary composition.

Table C1. Level of predator dependence based on % contribution of the target stock to diet³⁴.

% of Prey Species in Diet of Predator Species	Level of Dependence of Predator Species	Target Stock Designation	Predator Species Designation
≥ 75%	Very High	Key Prey Species	DP Species
≥ 50% to 75%	High	Key Prey Species	DP Species
≥ 20% to 50%	Intermediate	(evaluate further)	(evaluate further)
< 20%	Low	-	

- C2.3 When guideline values indicate the predator may have an intermediate dependence on the target stock (i.e., when the prey species comprises more than 20% of a predator’s diet but less than 50%), the relationship should be evaluated further. It may be necessary to consider factors that would increase or decrease a predator’s dependence on or sensitivity to limitations in abundance of the target stock. Such factors may include:

³⁴ Thresholds (20%, 50% and 75%) are from the following references: Pikitch et al. 2012 http://www.lenfestocean.org/~media/legacy/lenfest/pdfs/littlefishbigimpact_revised_12june12.pdf?la=en, Engelhard et al. 2014 <https://doi.org/10.1093/icesjms/fst087>, and Hillborn et al. 2017 <https://doi.org/10.1016/j.fishres.2017.01.008>

- a. Spatial or temporal restrictions on the ability of the predator to forage (e.g., Do seasonal aggregations like seabirds breeding colonies create a distributional constraint?);
- b. Energetics considerations (e.g., Does the prey species contribute disproportionately to the caloric requirements of the predator?); or
- c. Ecological considerations (e.g., Are certain predatory taxa more specialized to forage on the target stock such that they have limited ability to switch to other prey species?).

NOTE: A DP species may also be assigned to a second category (NT species, ETP species, Habitat-related species) if the assessment team determines that it is appropriate to do so.

Example: Co-Assignment to DP and ETP Species Categories

The assessment team is evaluating a salmon fishery that operates in an area where sea lions occur. The salmon species (and target stock) is a key prey item for sea lions, representing > 50% of dietary composition by weight. The assessment team therefore categorizes salmon as a key prey species and categorizes sea lion as a DP species. In addition, national legislation designates the sea lion as an endangered species. Because there are records of UOC interactions with the sea lion via entanglement in UOC fishing gear, the assessment team also categorizes the sea lion as an ETP species.

C3 ETP Species: Criteria

C3.1 A species shall be categorized as ETP if that species is:

- A. Listed in Appendix 1 of CITES³⁵;
- B. Designated in national legislation as endangered or threatened with extinction, or protected under national legislation because of threat of extinction or a clearly related conservation concern;
- C. A taxon³⁶ listed as critically endangered (CR) by IUCN³⁷; or
- D. A chondrichthyan (i.e., a shark, skate, ray or ratfish), amphibian, reptile, bird or mammal listed as endangered (EN) by IUCN.

C4 ETP Species: Clarification and Exceptions

³⁵ CSI recognizes Appendix 1 of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES; <https://cites.org/eng>) as a binding international agreement.

³⁶ Encompasses all assessed species on the IUCN Red List including but not limited to: fungi, algae, plants, sharks and rays, bony fishes, amphibians, birds, reptiles and mammals.

³⁷ International Union for Conservation of Nature (IUCN) red list; <https://www.iucnredlist.org/>

- C4.1 Where the FMOA establishes protections for the commercial harvest of a species, such legislation is not evidence of “...legislation because of threat of extinction or a clearly related conservation concern” (Criterion B). Such species are to be categorized as NT species.

Clarification: National Legislation not Meeting Criterion B

The mere existence of protective national legislation should not be considered prima facie evidence that a species should be categorized as ETP. Criterion B is properly focused on national legislation which clearly relates to threat of extinction. It does not cover routine measures to protect commercially harvested species (e.g., legislation that is aimed at addressing resource allocation issues, regulations that promote the recovery of a stock to BMSY).

- C4.2 An exception to the C3.1 is that Criterion C and D do not apply if the UOC’s interaction with the species in question is restricted to populations whose status is not CR or ER according to the IUCN Red List.

Guidance on C3.2: Global vs. Regional IUCN Assessments

The IUCN has developed Red List categories and criteria for assessing extinction risk at a global level. However, IUCN also prepares a series of Red Lists applicable at regional levels. It is therefore possible for a single species to have a global IUCN conservation status that differs from its regional status. When such a discrepancy occurs, the assessment team should evaluate which IUCN assessment has greater relevance to the UOC. In general, local information is more relevant to a CSI fishery assessment and so the applicable regional assessment should be given priority over a global IUCN assessment.

- C4.3 A second exception to C3.1 is that if a species is categorized as ETP according to Criterion D but not Criterion B, then the assessment team reviews the basis for this discrepancy and uses their expert judgement to arrive at a final decision after having considered three factors:

C4.3.1 Demonstrated capacity of the FMOA to protect endangered species;

C4.3.2 Reliability of the IUCN assessment that led to conservation status designation; and

C4.3.3 Which of the above information sources is more likely to provide an accurate picture of the status of the local population (i.e., stock-specific information).

- C4.4 Decisions arising from C4.3 shall be recorded in the Fishery Assessment Report.

Guidance on C4.3: When Criterion B and D yield different ETP Categories

The IUCN Red List is an important tool for inventorying the conservation status and extinction risk of species. Nonetheless, there are known limitations with applying IUCN categories directly to issues of fishery management. Key concerns with IUCN risk assessment include the presence of information gaps in many primary data sets, irregular or inconsistent processes to review and update risk assessments, and, perhaps most importantly, a frequent lack of stock-specific information. Concerns over the quality of IUCN assessments may limit their usefulness in CSI fishery assessments.

Clause C4.3. is meant to address a specific situation where IUCN has categorized the conservation status of a species one way and the regional/national authority has categorized it another. When such a discrepancy arises, assessment teams are given discretion to explore its root cause and then use their

expert judgement to reach a final determination about categorization. Teams may find it useful to frame their evaluation around three questions.

1) Has the FMOA demonstrated the capacity to protect endangered species?

Indicators may include: an established legal framework for the protection of endangered species; an effective program for monitoring and enforcement; collection of information relevant to endangered species; and a record of past performance protecting endangered species (for more detail, see requirements under CSI Management Theme 4.2).

2) How reliable is the IUCN assessment?

Indicators of reliability may include: assessment conclusions that rely on stock-specific information; a level of assessment that is relevant to the spatial scale of the UOC (e.g., local, national or regional); assessment information that is current and/or has been updated within the last 10 years; and the assessment has no significant gaps in coverage.

3) Which source is more likely to accurately reflect the status of the local population?

The team should weigh their findings about an FMOA's demonstrated capacity to protect endangered species against the reliability of the IUCN assessment. Where the IUCN status designation is found to be reliable, the species should be categorized according to Criterion D. On the other hand, where the reliability of the IUCN designation is only weakly supported and there is strong evidence for FMOA capacity to protect endangered species, then the assessment team may opt to categorize the species based on the latter source (i.e., in line with Criterion B).

C4 Habitat-Related Species

C4.1 The category "habitat-related species" should be used for taxa that represent a biotic component of habitat structure. Relevant considerations:

- A. Is the species sessile rather than motile?;
- B. Is the species benthic, attached and/or infaunal?
- C. Is the species a habitat engineer (i.e., contributes to formation of habitat structure)?

Section D. Non-Target Species Assessment Method

D0 Scope

The category “NT species” is meant to encompass the catch of species other than the target stock. It includes most of the taxa represented in bycatch and discards with the exception of ETP species and habitat-related species (e.g., benthic organisms) which are treated separately. The NT category is subdivided into “main” and “minor” NT species according to thresholds described below. Taxa falling below defined thresholds are considered negligible and are not assessed further.

Commercially Valuable NT Species

CSI’s distinction between target stocks and NT species does not prevent the assessment of multi-species fisheries, nor does this distinction imply that NT species have less commercial value than target stocks. In fact, some fisheries have substantial levels of bycatch of commercially valuable species. Salmon fisheries in Alaska, for example, may target a particular species of interest (the target stock), but they have incidental catches of other commercially valuable salmon species (which would be designated as NT species). Since commercially valuable stocks are usually managed at higher levels than bycatch species (i.e., management typically accounts for all sources of fishing mortality including bycatch in other fisheries), the distinction between target and non-target is unlikely to be determinative in a fishery assessment. Nonetheless, CSI makes provisions for depleted stocks (see 4.1.2) to ensure that risks associated with small catches of commercially valuable species are adequately considered during the fishery assessment.

D1 Monitoring Catch of NT Species (4.1.1)

- D1.1 In evaluating the adequacy of information for EP2 of Requirement 4.1.1, the assessment team should verify that the monitoring data set captures the relevant time frame and/or parameters needed to categorize NT species (as described below). Minimally, the data set should:
- Cover a minimum period of three (3) years; and
 - Provide an estimate for the abundance of each taxon in the catch by weight.

Common Features of Monitoring Data Sets: Counts and Taxonomic Uncertainty

The assessment team may find that a strict application of D1.1b is complicated by two common features of monitoring data sets: 1) the abundance of non-target organisms may be captured with counts or frequencies rather than weights; and 2) the biological composition of catch may be reported using groupings that introduce taxonomic uncertainty. Neither of these issues represents a data limitation per se provided that they can be addressed as described below.

For monitoring data that is recorded as counts or frequencies, the assessment team may apply species-specific conversion factors to calculate each taxon’s contribution to catch. If such conversions are not practical, then the assessment team may solicit additional information from fishery managers/scientists

in order to improve estimates of the abundance of the taxon in the catch. A brief description of the conversion method and/or information source should be given in the assessment report.

For situations where catch composition is reported using bulk reporting categories (e.g., when organisms are identified to the level of genus or family), the assessment team should solicit additional information from fishery scientists/managers with an aim to establish the most probable species composition of the bulk category. The team should be confident that the level of taxonomic uncertainty is unlikely to affect how the team assigns taxa to main/minor NT species or to negligible species in line with Section D. A brief explanation should be given in the assessment report.

D2 Assignment of the UOC to a Fishery Size Category

D2.1 The assessment team should determine the size of the fishery based on average annual landings of the target stock by the UOC over the most recent three-year period for which reliable catch information is available.

D2.1.2 For a multi-species fishery, the combined weight of target stocks should be used to determine the size category of the fishery.

D2.2 The annual landings (from D2.1) are used to assign the UOC to a fishery size category according to the thresholds given in Table D1.

Table D1. Thresholds for fishery size category.

Fishery Size Category	Annual Average Landings of Target Stock (average in metric tonnes, mt)
Small	< 25,000 mt
Medium	≥ 25,000 mt and < 100,000 mt
Large	≥ 100,000 mt

D3 Identification of NT Species and Ranking their Contribution to Total Catch

D3.1 The assessment team should compile information on the taxonomic composition of total catch UOC (all taxa including the target stock and ETPs) by the UOC over the most recent three year period for which reliable information is available.

D3.2 For each taxon observed, the assessment team determines % contribution to total catch by weight. Taxa are then ranked from high to low according to overall contribution.

D3.3 The assessment team should follow Guidance in Section C to assign each taxon to one of the following four categories:

- a. Target stock;
- b. ETP species;
- c. Habitat-related species; or

d. NT species³⁸.

D3.4 Only NT species are considered further below

D3.5 For assessment and reporting purposes, the team should identify all NT species that are taken in appreciable quantities - usually those taxa representing $\geq 0.1\%$ of total catch by weight.

D4 Formal Risk Assessment (4.1.2, EP3)

D4.1 In evaluating EP3 of Requirement 4.1.2, the assessment team should determine if a formal RA has been done to evaluate the likelihood of the fishery having an adverse impact on NT species.

D4.1.1 If a formal RA is available, the assessment team should use that RA as the basis for evaluation of conformity of the UOC with CSI requirements following the steps described below.

D4.1.2 If a formal RA is unavailable, the assessment team may use other relevant sources of information for evaluation of conformity of the UOC with CSI requirements following the steps described below, or the team may apply the DLF Tool.

D4 Assignment of NT Species to Main and Minor Categories

D4.1 The team should use the values in Table D2 to determine the applicable thresholds for designation of main and minor NT species according to fishery size category.

Table D2. Thresholds levels for main, minor, and negligible NT species by fishery size category.

Fishery Size Category	Main	Minor	Negligible*
Small	> 1,000 mt or > 8%	> 250 mt or > 2%	< 250 mt and < 2%
Medium	> 2,000 mt or > 4%	> 500 mt or > 1%	< 500 mt and < 1%
Large	> 4,000 mt or > 2%	> 1,000 mt or > 0.5%	< 1,000 mt and < 0.5%

*Negligible species are those taxa falling below the threshold for minor NT species.

D4.2 The thresholds for NT species designations given in Table D2 are intended to be applied so that they reflect the S&I of the fishery (see Figure D1).

³⁸ NT species that are dual categorized as DP species are to be treated as NT species for analyses given in Section D.

Guidance: Fishery Size Category and NT Threshold Levels

It is generally assumed that a fishery's impact on NT species will increase as the scale and intensity of a fishery increases. To reflect this, rather than adopting a static criterion to distinguish between main and minor NT species, CSI uses thresholds that become more restrictive as fishery size increases (Table D2).

CSI uses two thresholds for each category designation: weight and percentage. This is done to ensure that the fishery-NT species interaction is considered both in absolute terms (by weight) and in relative terms (by %). The relationship between NT thresholds is illustrated in Figure D1 for different fishery sizes.

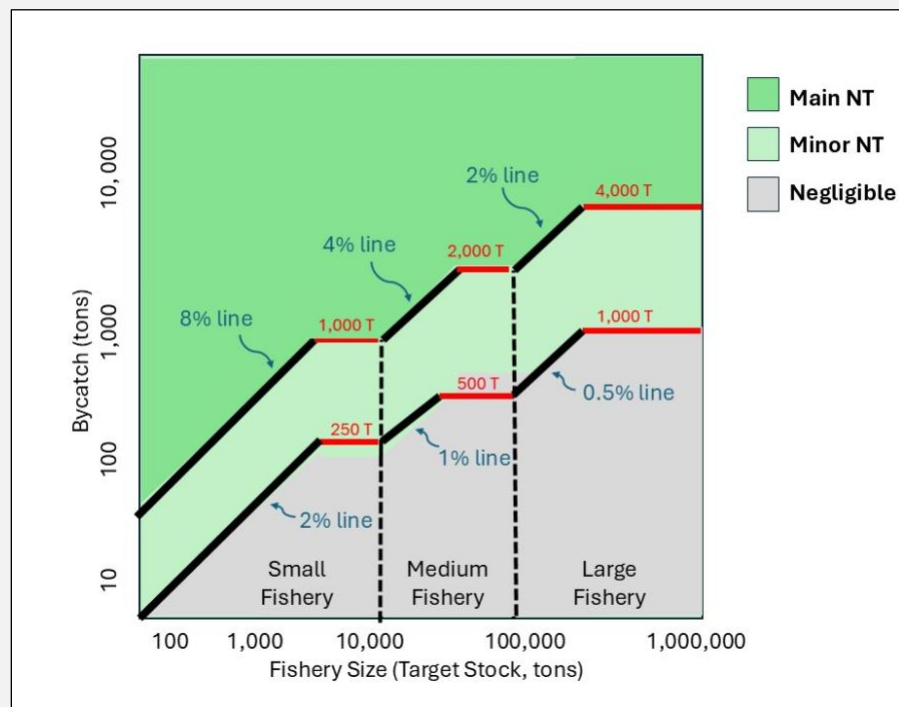


Figure D1. Illustration of NT species thresholds in relation to fishery size.

In practice, assessors always apply the threshold representing the lesser value (i.e., the more conservative one) when designating taxa to NT species categories. This is illustrated with an example of a hypothetical fishery (Figure D2). In this example, note that beaked redfish is designated as a main NT species because it exceeds the 2000 mt (weight threshold) despite falling below the percentage threshold. Similarly, Greenland halibut is designated a minor NT species because it exceeds the 500 mt.

Figure D2. Example: Designation of main and minor NT species in a hypothetical Atlantic cod fishery.

Total Catch Weight (t)	88,940 mt (based on 3 year avg)			
Fishery Size Category	Medium			
Threshold, Main NT Species	> 2,000 mt or > 4%			
Threshold, Minor NT Species	> 500 mt or > 1%			
Species	Weight (mt)	% of	Rank	Designation
		Total Catch	(H to L)	(Main, Minor, Negligible)
Atlantic Cod	66,490	74.8%	NA	Target Stock
Saithe	9,500	10.7%	1	Main
Haddock	7,148	8.0%	2	Main
Beaked Redfish	2,956	3.3%	3	Main
Golden Redfish	1,542	1.7%	4	Minor
Greenland Halibut	872	0.98%	5	Minor
Spotted Wolffish	406	0.46%	6	Neglig
Atlantic Wolffish	5	0.01%	7	Neglig
All other species combined (19 spp.)	21	0.02%	> 7	Neglig
Total =	88,940	100%		

D4.3 The assessment team may use their discretion to elevate the designation of an NT species from minor to main in only two situations:

- The taxon's life history traits make it highly vulnerable to overexploitation (e.g., long-lived species with low reproductive output and slow growth rates, such as sharks, skates and rays, and some rockfish species); or
- The taxon has been designated by the relevant authorities as a depleted species or stock, and it is presently under a formal recovery/rebuilding plan.

D4.4 Main NT species are evaluated against CSI Requirement 4.1.2 as described below.

D4.5 Minor NT species are evaluated against CSI Requirement 4.1.3 as described below.

How do the Requirements for Main and Minor NT Species Differ?

CSI requirements for main NT species are elaborated in 4.1.2. The intent of 4.1.2 is to ensure that managers take into account the effects of catches of main NT species. Assessment of the risk of adverse impacts on main NT species should be analytical, and it should be based on relevant biological information (e.g., status relative to defined RPs, fishing mortality rates). If there is a risk of recruitment

overfishing or another impact that is likely to be irreversible or very slowly reversible, then management action is taken in accordance with 4.1.4.

CSI requirements for minor NT species are elaborated in 4.1.3. Similar to 4.1.2, the intent of 4.1.3 is to ensure that managers take into account the effects of catches of minor NT species. However, unlike 4.1.2, assessment of risk may be based on qualitative information (or a combination of qualitative and quantitative information). In addition, risk may be assessed using indicative sources of information (e.g., population trajectories). If such indicators show that a minor NT species is at increased risk of recruitment overfishing or another impact that is likely to be irreversible or very slowly reversible, then management action is taken in accordance with 4.1.4.

Table D3. Key differences in requirements for main and minor NT species.

	Main NT species	Minor NT species
EP2 – Adequate information	Quantitative information is available	Quantitative information is available
		Or information may come from qualitative/indicative sources
EP3 – Status/ Outcome	Risk is evaluated based on analytical assessments which rely on relevant biological information	Risk is evaluated based on analytical assessments which rely on relevant biological information
		Or evaluation may use indicative information sources

D5 Assessment of Adverse Impacts on Main NT Species (4.1.2)

D5.1 In evaluating EP2 of Requirement 4.1.2, the assessment team should confirm that quantitative information is available for each main NT species and that it is of sufficient quality for the purpose of assessing the risk³⁹ of adverse impacts.

D5.1.1 If no main NT species are identified, then the assessment team provides a rationale under EP2 to substantiate this determination and EP3 is NA.

D5.2 BASI should be used to infer the risk of adverse impacts of the fishery on main NT species, and verifiable LTFK may be used as well.

D5.3 In evaluating EP3 of Requirement 4.1.2, the assessment team should confirm that there is an assessment of the risk of the fishery having an adverse impact on NT species.

³⁹ If quantitative information is unavailable or insufficient, the team may elect to use the DLF Tool.

Risk Assessment - Examples

RAs should rely heavily on biological information about the affected species. For example, it may be possible to establish stock status in relation to defined RPs (e.g., $B_{SSB} > B_{lim}$) for some main NT species. For others, estimates of fishing mortality rate (F) may be available. In such cases, F_{Total} (fishing mortality from all sources) should be below F_{MSY} , or if not then the fishery's marginal contribution to F for the main NT species should not exceed 30%.

D6 Assessment of Adverse Impacts on Minor NT Species (4.1.3)

D6.1 In evaluating EP2 of Requirement 4.1.3, the assessment team should verify that BASI is used to assess or infer the risk of adverse impacts of the fishery on minor NT species, and verifiable LTFK may be used as well.

D6.1.1 If no minor NT species are identified, then the assessment team provides a rationale under EP2 to substantiate this determination and EP3 is NA.

D6.2 In evaluating EP3 of Requirement 4.1.3, the assessment team should take into account the S&I of the fishery such that the evaluation of the RA is both reasonable and proportionate to the scope of fishing operations.

Accounting for Fishery Scale and Intensity

CSI uses progressive thresholds for main and minor NT species as a way to compensate for the S&I of the fishery (see Figure D1). In evaluating the RA under EP3 of 4.1.3, the assessment team may also consider how S&I impacts upon the data needs of management. For large-scale fishing operations, managers should have access to quantitative or semi-quantitative evidence to support a conclusion that adverse impacts on NT species are unlikely (e.g., time-series monitoring datasets for ecosystems or ecosystem modeling studies). On the other hand, for small-scale fishing operations, managers may rely more heavily on qualitative information, indicative information, alignment with best practice, or previous examples from comparable circumstances (i.e., surrogate information).

D7. Bait Species (4.1.3, EP2)

D7.1 If the fishery under consideration uses bait, then for the purpose of evaluating EP2 of CSI Requirement 4.1.3, all such bait species are to be categorized as minor NT species.

D7.2 If the fishery does not use bait, then the assessment team should report under EP2 that there are no bait species associated with the UOC.

D7.3 Prior to evaluating bait species as minor NT species, the assessment team should confirm the following:

- a. None of the bait species used by the UOC are classified as ETP species; and

- b. If any bait species used by the UOC has been designated as overfished, its utilization by the UOC does not hinder⁴⁰ recovery or rebuilding of that species.

D9 Research on Gear Selectivity (4.1.5)

D9.1 To decide whether CSI Requirement 4.1.5 is applicable to the fishery under consideration, the assessment team should apply the following test (D9.2–D9.4) to determine if there is a high risk of the fishery having an adverse impact on one or more NT species.

D9.2 The assessment team should review the list of main NT species (CSI Requirement 4.1.2) and minor NT species (CSI Requirement 4.1.3) associated with the fishery, and identify which of those species, if any, are at risk of adverse impact from the fishery under consideration.

D9.2.1 If none of the species in D9.2 were found to be at risk, then the fishery under consideration is not high risk and CSI Requirement 4.1.5 is NA.

D9.3 For the species in D9.2, the assessment team should refer to their evaluation of CSI Requirement 4.1.4 to determine if management actions to reduce, minimize, or mitigate the risk of adverse impact were found to be effective.

D9.3.1 If the management actions in D9.3 were found to be effective, then the fishery under consideration is not high risk and CSI Requirement 4.1.5 is NA.

D9.4 If management actions in D9.3 were not found to be effective, then CSI Requirement 4.1.5 does apply to the fishery under consideration.

D9.5 For the purposes of evaluating CSI Requirement 4.1.5, the risk of an adverse impact is considered “high” when:

- a. the probability of its occurrence is judged to be likely (or more probable); and
- b. the consequence of its effects is judged to be more than minimal and not temporary.

⁴⁰ Recovery can be considered “not hindered” if the relevant management authority has accounted for the harvesting as bait and determines that such harvests are not likely to substantially impede recovery/rebuilding of the bait species.

Section E. Habitat Assessment Method

E0 Scope

Under Management Theme 4.3, the assessment team evaluates how fishery managers address the effects of fishing on habitats. The five CSI Requirements presented under Management Theme 4.3 are scoped for defined habitat categories (Table E1). Section E describes the process for categorizing habitats and provides assessors with additional guidance on how to evaluate conformity with CSI's habitat requirements.

Table E1. CSI Requirements for habitat, applicable habitat categories, and defining category attributes.

CSI Requirement	4.3.1	4.3.2	4.3.3	4.3.4	4.3.5
Habitat Category Name	Fishery-Relevant Habitat	Gear-Susceptible Habitat		Rare or Unique Habitat	Essential Habitat
Habitat Category Acronym	FRH	GSH		-	-
Defining Category Attribute(s)	Habitat falls within the fishery footprint.	1. Habitat falls within the fishery footprint, and 2. Habitat is susceptible to damage by the UOC's fishing gear.		Habitat is rare or unique. Category includes legally designated VMEs.	1. Habitat falls within the fishery footprint, and 2. Habitat is essential to the target stock.

CSI Requirement 4.3.1 is scoped broadly to consider all types of habitats that fall within the fishery footprint and with which the fishery has some potential for interaction. This habitat category is Fishery-Relevant Habitat (FRH). See Figure E1

CSI Requirements 4.3.2 and 4.3.3 are scoped more narrowly than 4.3.1 and focus specifically on habitats that are susceptible to damage by the gear used by the UOC. This habitat category is Gear-Susceptible Habitat (GSH). GSH is, by definition, always a subset of FRH (i.e., $GSH \subseteq FRH$). This relationship is shown on the righthand side of Figure E1.

CSI Requirement 4.3.5 considers habitats that are essential for the target stock and that fall within the fishery footprint. This is the category of essential habitat. By definition, essential habitat is always a subset of FRH (i.e., $EH \subseteq FRH$). This relationship is shown on the lefthand side of Figure E1.

CSI Requirement 4.3.4 focuses on the use of ABFM measures to protect rare or unique habitats or ecosystems. The scope of 4.3.4 includes VMEs as defined by FAO in those jurisdictions where legislative protection extends to such areas. Unlike 4.3.1-3 and 4.3.5, the scope of 4.3.4 is bounded by fishery jurisdiction. Thus, a habitat or ecosystem may be categorized as rare or unique whether it falls within the fishery footprint or not. This relationship is shown at the bottom center of Figure E1.

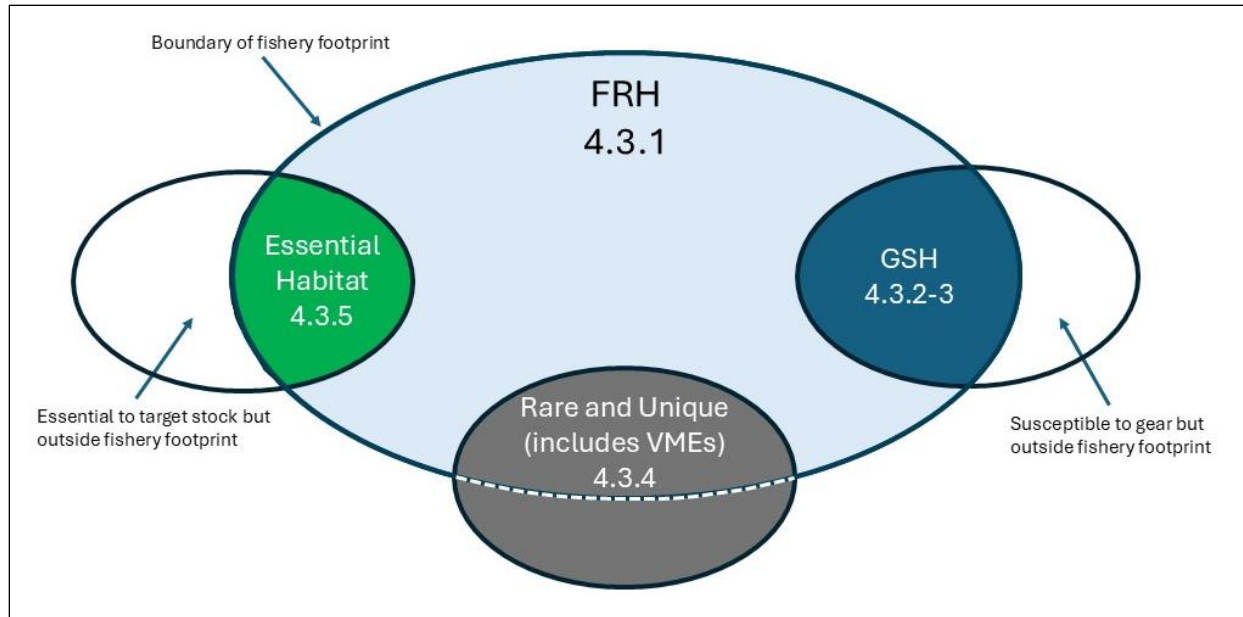


Figure E1. Diagram illustrating the relationship between fishery footprint and CSI habitat categories: Fishery-Relevant Habitat (FRH); Gear-Susceptible Habitat (GSH); rare or unique habitat or ecosystem; and essential habitat. Applicable CSI Requirements are indicated.

Guidance: Relationships between CSI Habitat Categories

The boundary of the fishery footprint is an important determinate of CSI habitat categories. It delineates all Fishery-Relevant Habitats (FRHs) for a UOC (Figure E1) while also setting an outer bounds on GSH and essential habitats. On the other hand, rare or unique habitats or ecosystems are largely independent of the fishery footprint because they are bounded by jurisdiction.

In practice, CSI habitat categories may overlap with one another such that one habitat type may be placed into two or more categories. For example, if a fishery's footprint were to contain an essential nursery habitat for the target stock that is also susceptible to damage by the UOC's fishing gear, then it would be categorized as both, and it would be assessed under CSI requirements 4.3.5 and 4.3.2-3, respectively.

E1 Fishery Effects on Habitats: System or Process (4.3.1)

E1.1 In reviewing evidence for a system or process to consider effects of the fishery on habitats (EP1 of 4.3.1), the assessment team should note that:

- a. The system or process should reflect the FMOA's long-term objectives for habitat;
- b. FMOA may use a risk-based approach⁴¹;

⁴¹ § 31, FAO Ecolabeling Guidelines (2009)

- c. The system or process may involve an immediate management response or further analysis of the identified effect⁴²; and
- d. The extent of development of a process or system should be proportionate to the S&I of the fishery under consideration.

E1.2 In evaluating EP3 of CSI Requirement 4.3.1, the assessment team may rely on the evidence developed in line with Section E (described below) showing that the FMOA holds as an objective the aim of avoiding, minimizing, or mitigating the risk of adverse effects of the fishery on habitats.

E2 Fishery Effects on Habitats: Assessment of Risk (4.3.2, EP2)

E2.1 In evaluating EP2 of CSI Requirement 4.3.2, the assessment team determines whether the FMOA uses a risk-based approach to assess fishery effects on habitats.

E2.1.1 If the FMOA uses a risk-based approach, then the team may use this information as an evidence base for the evaluation of conformity with 4.3.2 provided that:

- a. The scope of the risk assessment addresses habitat effects of the UOC; and
- b. The risk assessment encompasses all habitat types that are likely to be categorized as GSH for the fishery under consideration.

E2.1.2 If the FMOA does not follow a risk-based approach, then the team may evaluate conformity with 4.3.2 by either:

- a. Applying the method for categorization of habitats based on their susceptibility to damage by fishing gear (Section F);
- b. Applying the DLF Tool for habitats⁴³; or
- c. Showing how the FMOA addresses in an equivalent way the risk of the UOC having an adverse effect on GSHs (4.3.2, EP2).

Note: Further information about the DLF Tool may be found [here](#).

E3 Status of GSHs

E3.1` If risk assessment, DLF Tool, and/or GSH status relative to T1 (see F11.4) indicate that a GSH is adversely impacted, then the team looks for evidence of FMOA action(s) to avoid, reduce or mitigate potential adverse effects in line with CSI Requirement 4.3.3.

⁴² § 31, FAO Ecolabeling Guidelines (2009)

⁴³ The DLF Tool for habitats is under development.

E4 Identify Actions to Avoid, Reduce, or Mitigate Adverse Effects (4.3.3)

E4.1 The assessment team identifies relevant CMMs and other management actions taken by the FMOA to avoid, reduce, or mitigate potential adverse effects of the fishery on GSHs.

E4.1.1 Actions may involve a variety of different responses, including area closures and related spatial protection measures (i.e., ABFM measures), freezing the fishery footprint, gear modifications such as flying doors or elevated footropes, application of move-on rules, reduction in fishing effort, stock surveys aligned with TACs to minimise bottom contact, better seabed mapping initiatives to allow better targeting of fishing effort, and/or other relevant CMMs.

E4.2 The team verifies that measures in E4.1 are implemented and are subject to M&E.

Guidance: Freezing the Fishery Footprint

In areas historically disturbed by fishing activity, FMOAs often implement measures to “freeze” the footprint of the fishery so that any future impacts to habitats will be restricted to areas that have already been adversely affected. This approach, also known as “ringfencing”, is acceptable as one form of evidence that managers take action to avoid, minimize, or mitigate adverse effects of a fishery on GSHs (see EP1 of CSI requirement 4.3.3).

E5 Evaluate the Effectiveness of Management Action (4.3.3)

E5.1 The assessment team evaluates the effectiveness of management actions to mitigate potential negative effects of the fishery on GSHs.

E5.2 In evaluating the appropriateness of management measures, the team should interpret the nature and scope of actions in the context of the S&I of the fishery (e.g., fleet size, gear type, fishery location).

E6 VMEs as Rare or Unique Habitats of Ecosystems (4.3.4, EP2)

E6.1 In assessing 4.3.4, the assessment team may consider measures taken by the FMOA to protect VMEs as one line of evidence of conformity provided that such areas:

- a) Meet the FAO definition of VME (CSI Glossary of Terms); and
- b) Are formally established through a legislative process (i.e., legal designation).

Guidance: VMEs as Rare or Unique Habitats or Ecosystems

VMes that are protected in line with E6.1 are likely to represent rare or unique ecosystems. For assessment purposes, the team should assume by default that such VMEs are rare or unique ecosystems unless there is good justification for doing otherwise.

E6.2 For those VMEs identified in E6.1, the assessment team should determine which if any fall within the fishery footprint.

E6.2.1 For VMEs falling within the fishery footprint: the assessment team evaluates EP2 of CSI Requirement 4.3.4. If no VMEs fall within the fishery footprint, then EP2 is NA.

E6.2.2 For VMEs falling outside the fishery footprint: In evaluating EP1 and EP3 of 4.3.4, the assessment team may consider VME-related information as one line of evidence of management actions to protect rare or unique habitats or ecosystems.

Guidance: Distinction between GSH and VME

GSH is defined by a habitat's susceptibility to damage by fishing gear used by the UOC. VMEs have been defined by FAO and they are implemented via a legislative process. Although the concepts may overlap, GSH distribution is fishery-dependent and dynamic (it will change with different gears types and may change with shifts in fishing area), while VME distribution is fishery-independent and is largely static.

It should be noted that CSI requires the UOC to demonstrate compliance with applicable legal protections that may be afforded to VMEs within the fishing jurisdiction (4.3.4, EP2).

E7 Evaluation of Essential Habitats for the Target Stock (4.3.5)

E7.1 In evaluating EP1, the assessment team reviews information from the FMOA to confirm which, if any, essential habitats for the target stock fall within the fishery footprint.

E7.2 For essential habitats identified in E7.1, the assessment team reviews gear susceptibility scores (calculated for the evaluation of 4.3.2; see Section F) to confirm that either:

- a. Essential habitats are susceptible to damage by the gear used by the fishery and therefore the team provides evidence for status/outcome of applicable management actions under EP3; or
- b. Essential habitats are not susceptible to damage by the gear used by the fishery and therefore EP3 is NA.

Section F. Habitat Categorization by Susceptibility to Gear

F0 Scope

Section F describes the method for categorization of habitats based on their susceptibility to damage by fishing gear. Section F expands upon the guidance in Section E by providing more detail about how to distinguish gear-susceptible habitats (GSHs) from those that are less susceptible or not susceptible.

CSI has developed a rapid and qualitative approach to categorize the susceptibility of habitats to the effects of fishing gears and methods used by a UOC. This approach is intended for use in CSI fishery assessments. It is not meant to replace quantitative risk-based analyses (Williams et al., 2011⁴⁴; Hobday et al., 2011⁴⁵) used by fishery managers.

Using CSI's approach, assessors calculate a gear susceptibility score for each type of habitat that is relevant to the fishery under consideration. Scoring is based on qualitative information about habitat exposure (E), sensitivity (S), and resilience (R). Once gear susceptibility is estimated, status can be assessed relative to a prescribed threshold. The most susceptible habitats (GSHs) are then evaluated under CSI Requirement 4.3.2 and, as appropriate, 4.3.3 (see Section E).

F1 Information Needs for Categorization

F1.1 Before proceeding with categorization of habitat susceptibility to gear, the assessment team should review the steps outlined in Table F1 to ensure that relevant information is available.

Table F1. Habitat categorization by susceptibility to fishing gear: Summary of steps involved and information needed.

No.	Step	Description
1	Determine Area of Fishery Footprint	Determine the spatial extent of the footprint of the fishery (total area in km ² or nm ²).
2	Identify Fishery-Relevant Habitats (FRHs)	Identify habitats falling within the footprint that the fishery is likely to interact with. These are the Fishery-Relevant Habitats (FRHs). Habitats that do not occur within the fishery footprint are not considered further in this sequence.
3	Determine Range and Total Area	For each FRH, identify its range and total area. Range may extend well beyond the footprint of the fishery and the fishery jurisdiction.

⁴⁴ Williams, A., Dowdney, J., Smith, A.D.M., Hobday, A.J., and Fuller, M. 2011. Evaluating impacts of fishing on benthic habitats: A risk assessment framework applied to Australian fisheries. Fisheries Res. 112(3):154-167. <https://www.sciencedirect.com/science/article/abs/pii/S0165783611000488>

⁴⁵ Hobday, A. J., Bulman, C., Williams, A., Fuller, M. (2011). Ecological risk assessment for effects of fishing on habitats and communities FRDC report 2009/029. <https://www.frdc.com.au/sites/default/files/products/2009-029-DLD.pdf>

4	Estimate Exposure	For each FRH, determine the percentage of habitat range that overlaps with the fishery footprint.
5	Estimate Sensitivity	For each FRH, assess the sensitivity of the habitat to the fishing gear.
6	Estimate Resilience	For each FRH, account for the resilience (recoverability and adaptive capacity) of the habitat. Levels of natural disturbance may be used as a proxy for adaptive capacity (low, medium, high).
7	Calculate Susceptibility Score	For each FRH, determine the gear susceptibility score based on exposure (step 4), sensitivity (step 5), and resilience (step 6).
8	Categorize as GSH or not	Habitats with high gear susceptibility scores are categorized as GSH and are evaluated under CSI requirement 4.3.2 and 4.3.3. Habitats with low gear susceptibility scores are not GSHs and they are not evaluated under CSI Requirement 4.3.2 and 4.3.3 although they should still be evaluated under CSI Requirement 4.3.1.
9	Estimate GSH Managed Range	For each GSH, identify the extent of the range that falls within the jurisdiction of the FMOA. This is the “managed” range. It may extend beyond the footprint of the fishery, but it should not encompass GSHs that fall outside FMOA’s jurisdictional authority.
10	Assess GSH against Threshold	Habitat status is currently > 80% of the unimpacted state. For example, the impacted area of a GSH is $\leq$ 20% of the total managed area.

F1.2 If the assessment team is not satisfied that there is sufficient information to categorize habitats by gear susceptibility, the team may opt to use the DLF Tool for habitats⁴⁶.

F2 Step 1. Determine Fishery Footprint

F2.1 The team compiles information on the spatial footprint of the fishery to calculate its total area (e.g., in hectares or km²).

F2.1.1 The estimate may be based on maps of fishing-effort distribution, vessel-tracking information, or other geospatial data.

F3 Step 2. Identify Fishery-Relevant Habitats (FRHs)

F3.1 The team compiles a table of FRHs for the UOC (i.e., those habitats that fall within the fishery footprint and with which the fishery has some potential for interaction).

F3.1.1 From the table of FRHs in F3.1, the team designates those for which there is no appreciable UOC interaction as “not relevant.”

⁴⁶ The DLF Tool for Habitats is under development.

Guidance: Designation of Habitats as Not Relevant

Some habitat types occur within the footprint of a fishery and yet the UOC may have no interaction with them. This can happen when the habitats are isolated from fishing activities owing to practical constraints (e.g., habitats occur beyond fishable depths) or operational practices (e.g., fishers avoid certain benthic features). Such habitats should be designated “not relevant” and excluded from subsequent steps.

F4 Step 3. Determine Habitat Range and Total Area

F4.1 For each FRH tabulated in F3.1, determine its range of distribution and estimate the total area occupied (e.g., km²) within that range.

F4.1.1 Habitat range should encompass areas designated for fishing (e.g., areas within a frozen footprint), as applicable, and may also include:

- a. Areas that are affected and unaffected by the spatial footprint of the fishery;
- b. Areas that are closed to fishing or where usage may be otherwise restricted for conservation purposes (e.g., MPAs); and
- c. Areas that extend beyond the footprint of the UOC and the jurisdictional boundary of the FMOA.

Guidance: Historically Disturbed Fishing Areas

A UOC may encompass habitat areas that are markedly altered by historic fishing activity. For example, some traditional fishing grounds in the North Sea have been subjected to intensive bottom trawling for decades. In such cases, it may not be possible to reliably assign to the area a habitat category that reflect its pre-disturbance state. To use an agricultural analogy, these areas may be viewed as “plowed fields” that have been converted to production.

Historically disturbed fishing areas may be excluded from the calculation of habitat range when it can be shown that:

- 1) habitat structure and composition have been altered to a point where the original habitat types are no longer reliably recognized; and
- 2) the environmental impacts in 1 were substantially in place before 1995 – the year FAO released the Code of Conduct for Responsible Fisheries and one year after UNCLOS came into force.

Note: “Ringfencing” or “freezing the fishery footprint” is a separate issue that is addressed by CSI Requirements 4.3.3 (Management Actions) and CSI Requirement 4.3.4 (ABFM measures).

F5 Step 4. Estimate Exposure to Fishing Gear

F5.1 The level of exposure of each FRH is estimated qualitatively as low (1), intermediate (2), or high (3) using guidance provided in Table F2.

Table F2. Exposure: Guidance for assigning qualitative values to exposure attributes of FRHs .

	Exposure Level and Qualitative Value		
	Low	Intermediate	High
Exposure Attribute ⁴⁷	Value = 1	Value = 2	Value = 3
Spatial Overlap ⁴⁸ (% of habitat area overlapped by the footprint of the fishery)	≤ 30%	> 30 to ≤ 75%	> 75%
Probability of Encounter ⁴⁹ (likelihood that the UOC's fishing gear will interact with the habitat type)	Infrequent ≤ 30%	Intermediate > 30 to ≤ 75%	Frequent > 75%
Gear-Specific Exposure Attributes	Hand collection, handline, trap, pot	Bottom set gill net, entangling net, Danish seine	Demersal trawl, dredge

F5.2 For each FRH, calculate an exposure score as the average of the three (3) qualitative attribute values rounded to the nearest whole number.

F6 Step 5. Estimate Sensitivity to Fishing Gear

F6.1 The level of sensitivity of each FRH is estimated qualitatively as low (1), intermediate (2), or high (3) using guidance provided in Table F3.

Note: The two sensitivity attributes “biota” and “substrate permanence” contain multiple subcategories. Assign the FRH to the subcategory within each attribute that is most appropriate.

Table F3. Sensitivity: guidance for assigning qualitative values to resilience attributes of FRHs.

		Sensitivity Level and Qualitative Value		
		Low	Intermediate	High
Sensitivity Attribute ⁵⁰		Value = 1	Value = 2	Value = 3
Biota (select one subcategory)	Low, robust, small (<5 cm), smooth, or flexible biota OR robust, deep-burrowing biota	Hand collection, demersal longline, handline, trap, bottom gill net or other entangling net, Danish seine, demersal trawl	-	Dredge

⁴⁷ Adapted from: Williams, A., Dowdney, J., Smith, A.D.M., Hobday, A.J., and Fuller, M. 2011. Evaluating impacts of fishing on benthic habitats: A risk assessment framework applied to Australian fisheries. Fisheries Res. 112(3):154-167. <https://www.sciencedirect.com/science/article/abs/pii/S0165783611000488>

⁴⁸ Percent spatial overlap is calculated using total habitat range – not managed habitat range – as the denominator.

⁴⁹ Value should take into account whether the type of gear or the way it is fished affects the probability of gear-habitat interaction. For example, this may involve considering how fishing gear is deployed across a habitat's depth distribution.

⁵⁰ Adapted from: Williams, A., Dowdney, J., Smith, A.D.M., Hobday, A.J., and Fuller, M. 2011. Evaluating impacts of fishing on benthic habitats: A risk assessment framework applied to Australian fisheries. Fisheries Res. 112(3):154-167. <https://www.sciencedirect.com/science/article/abs/pii/S0165783611000488>

	Erect, medium (<30 cm), moderately rugose, or inflexible biota OR moderately robust, shallow-burrowing biota	Hand collection, demersal longline, handline	Trap, bottom gill net or other entangling net, Danish seine	Demersal trawl, dredge
	Tall, delicate, large (>30 cm high), rugose, or inflexible biota OR delicate, shallow-burrowing biota	Hand collection	Demersal longline, handline, trap	Bottom gill net or other entangling net, Danish seine, demersal trawl, dredge
Substrate Permanence (select one subcategory)	Immovable (bedrock and boulders >3 m)	(all gear types)	-	-
	Transferable (<6 cm)	Hand collection, demersal longline, handline, trap, bottom gill net or other entangling net	Danish seine	Demersal trawl, dredge
	Removable (6 cm - 3 m)	Demersal longline, handline, trap, bottom gill net or other entangling net	Hand collection	Danish seine, demersal trawl, dredge

F6.2 For each FRH, calculate a sensitivity score as the average of the two (2) qualitative attribute values rounded to the nearest whole number.

F7 Step 6. Estimate Resilience

F7.1 The level of resilience of each FRH should be estimated qualitatively as low (1), intermediate (2), or high (3) using guidance provided in Table F4.

Table F4. Resilience: Guidance for assigning qualitative values to resilience attributes of FRHs.

	Resilience Level and Qualitative Value		
	Low	Intermediate	High
Resilience Attribute ⁵¹	Value = 1	Value = 2	Value = 3
Recoverability (rate of regeneration of biota)	Slow or very slow; > 10 years	Intermediate; 10 years	Rapid; < 1 year
Adaptive Capacity (frequency of and/or response to natural disturbance)	Infrequent natural disturbance	Intermediate frequencies and/or levels of disturbance	Frequent and/or intense levels of natural disturbances
Depth (level of disturbance as inferred from seafloor zone)	> 200 m (continental slope, abyssal plain)	> 60 to < 200 m (continental shelf)	< 60 m (coast, inner shelf)

F7.1.1 Note that resilience incorporates two related concepts⁵²:

⁵¹ Adapted from: Williams, A., Dowdney, J., Smith, A.D.M., Hobday, A.J., and Fuller, M. 2011. Evaluating impacts of fishing on benthic habitats: A risk assessment framework applied to Australian fisheries. Fisheries Res. 112(3):154-167. <https://www.sciencedirect.com/science/article/abs/pii/S0165783611000488>

⁵² See the definition of susceptibility in the CSI Glossary of Terms.

- a. The ability of the habitat to recover from perturbation; and
- b. The capacity of the habitat to withstand (i.e., to adapt to) repeated perturbation.

F7.2 For each FRH, calculate a resilience score as the average of the three qualitative resilience values rounded to the nearest whole number.

F8 Step 7. Calculate the Habitat's Gear Susceptibility Score

F8.1 A gear susceptibility score is calculated for each FRH using the formula:

$$G = (E \times S) / R$$

Where

- G: gear susceptibility score
- E: exposure (qualitative score value 1, 2, or 3)
- S: sensitivity (qualitative score value 1, 2, or 3)
- R: resilience (qualitative score value 1, 2, or 3)

F8.2 The gear susceptibility score is used to assign a rank to each FRH per Table F5.

Table F5. Gear susceptibility score and categorization.

Gear Susceptibility Score (Range)	Rank	Categorization
0.33 to 2.9	Low	Not GSH
3.0 to 9.0	High	GSH

F9 Step 8. Categorize as GSH or not

F9.1 Using the gear susceptibility score assigned in F8.2, each FRH is categorized as either a GSH or not.

F9.1.1 FRHs with a high susceptibility scores are categorized as GSH. They are evaluated under CSI requirement 4.3.2 and, as applicable, 4.3.3 (Section E).

F9.1.2 FRHs with a low susceptibility scores are not categorized as GSH. They are not evaluated under CSI Requirements 4.3.2 and 4.3.3, although they should still be evaluated under CSI Requirement 4.3.1.

F10 Step 9. Estimate Managed Range of GSHs

F10.1 For each GSH, estimate the habitat area that falls within the fishery jurisdiction. This area is the "managed range" of the GSH.

F10.1.1 The managed range of a GSH includes areas that fall within MPAs or are otherwise protected through ABFM measures.

Guidance on Habitat Area: Total Range vs. Managed Range

CSI uses two range estimates for habitat: total range; and managed range. They serve different purposes.

Total range:

The entire spatial extent of a habitat's distribution. Total range may extend well beyond the relevant fishery jurisdiction.

When calculating habitat exposure (step 4), total range is the denominator. This is meant to account for the potentially mitigating effect of broad habitat distribution on the localized effects of fishing.

Managed range:

The spatial extent of a habitat within the relevant fishery jurisdiction.

When calculating habitat status (step 10), managed range is the denominator. This is meant to reflect the FMOA's responsibility to steward habitats within its own jurisdiction while also recognizing the FMOA's limited ability to influence habitat outcomes beyond its own jurisdiction.

F11 Step 10. Assess GSHs against Threshold T1

F11.1 For each GSH, evaluate status relative to threshold T1:

T1. The current status of the habitat is at or above 80% of its unimpacted state when calculated over the managed range (i.e., < 20% of the habitat that falls within the jurisdiction of the relevant FMOA is impacted).

F11.3 If all GSHs associated with the UOC meet or exceed the T1, then the fishery is in conformity, and the assessment team cites this as evidence under EP3 of CSI Requirement 4.3.2.

F11.4 If one or more of the GSHs associated with the UOC do not meet or exceed the T1, then the assessment team evaluates the situation further under CSI Requirement 4.3.3 to verify that management action is taken to avoid, minimize, or mitigate the risk of adverse effects on GSHs.

Section G. Ecosystem Assessment Method

G0 Scope

Section G presents an assessment method and guidance for the evaluation of fishery effects on the wider ecosystem. The scope of Management Theme 4.4, and more specifically Section G, does not encompass NT species (Management Theme 4.1), ETP species (Management Theme 4.2) and habitats (Management Theme 4.3), which are addressed elsewhere in the Standard.

G1 Role of Target Stock in the Ecosystem (4.4.1)

G1.2 In evaluating EP3 of Requirement 4.4.1, the assessment team should determine if the target stock should be, for assessment purposes, designated as:

- a) A key prey species;
- b) A forage species; or
- c) Both.

Forage Species and Key Prey Species

CSI definitions:

Key prey species – A species within the food web that is depended on heavily as a prey item by one or more predator species.

Forage species – A low-trophic level species used as prey by a predator for its food. Forage species are typically small-bodied, schooling species that may serve as prey for larger commercially and recreationally important fish, as well as for marine mammals and seabirds. Anchovies, herring, sprat, krill, and sardines are some common forage species.

CSI distinguishes key prey species from forage species so that, for the purposes of assessment, the impacts to DP species (CSI Requirement 4.4.3) can be treated separately from the question of the ecological effects of forage species removals on the wider ecosystem (CSI Requirement 4.4.2). Nonetheless, a forage species may be designated as a key prey species and vice versa.

G1.2 If the target stock is a key prey species, the team shall also evaluate Requirement 4.4.3.

G1.3 If the target stock is a forage species, the team shall explicitly consider its role in the ecosystem as described below (see G3.8).

G2 Consideration of the Effects of the Fishery on the Ecosystem (4.4.2A)

G2.1 In evaluating EP1 of Requirement 4.4.2, the assessment team looks for evidence of a process whereby management considers the effects of the fishery on the ecosystem.

- G2.2 In the absence of UOC-specific evidence to substantiate that a process is in place, the assessment team may evaluate other lines of evidence showing that the FMOA has committed to a process for evaluating fishery effects on ecosystems (e.g., policy-level process documentation).
- G2.3 The process referred to above may involve an immediate management response or further analysis of the identified effect⁵³.

G3 Assessment of Adverse Effects on the Ecosystem (4.4.2B)

- G3.1 In evaluating EP2 of Requirement 4.4.2, the assessment team determines if a formal RA⁵⁴ has been done to evaluate the likelihood of the fishery having an adverse effect on the ecosystem.
- G3.1.1 If a formal RA is available for the fishery, the assessment team uses that RA as the basis for evaluation of conformity of the UOC with CSI Requirement 4.4.2 following the steps described below.
- G3.1.2 If a formal RA is unavailable, the assessment team may utilize other relevant sources of information to evaluate conformity of the UOC with CSI Requirement 4.4.2 following the steps described below.
- G3.2 For assessment and reporting purposes, the assessment team compiles a descriptive overview of the ecosystem of the target stock that identifies the key elements (see G3.6) of ecosystem.
- G3.3 Surrogate information may be used to infer the risk of adverse effects of the fishery on the ecosystem.

Surrogate Information

In the absence of UOC-specific information, surrogate information (i.e., generic information from a similar fishery situation) may be used to make inferences about the risk of a fishery having an adverse effect on ecosystem structure and function. However, reliance on surrogate information should only be done when there is a low risk that the subject fishery will have adverse effects. The greater the risk, the more that information should be specific to the UOC.

- G3.4 BASI should be used to infer the risk of adverse effects of the fishery on the ecosystem, and verifiable LTFK may be used as well.
- G3.5 Greater scientific uncertainty is to be expected when assessing the risk of adverse ecosystem effects than would be expected when assessing the state of the target stock⁵⁵.
- G3.6 Evaluation of fishery effects on the ecosystem should consider the “key elements” of the ecosystem which includes:

⁵³ § 31, FAO Ecolabeling Guidelines (2009)

⁵⁴ FAO Ecolabeling Guidelines recommend that scientific uncertainty in relation to possible adverse ecosystem impacts may be addressed by taking a “risk assessment/risk management approach.”

⁵⁵ § 31, FAO Ecolabeling Guidelines (2009)

G3.6.1 Ecosystem structure; and

G3.6.2 Ecosystem function.

Key Elements of the Ecosystem

An ecosystem is an organizational unit consisting of populations and communities of interacting organisms and their physical environment. Ecosystems tend to have characteristic structures (e.g., species diversity, trophic levels, functional group compositions) and processes (e.g., cycling of mass, energy and nutrients among the groups, food web interactions). For fishery assessment purposes, structure and function represent the key elements of an ecosystem.

G3.7 Consideration of ecosystem structure may, among other things, extend to:

- a) Species diversity;
- b) Trophic structure; and
- c) Composition of functional groups.

G3.8 Consideration of ecosystem function may, among other things, extend to:

- a) Energy transfer processes;
- b) Food web interactions; and
- c) Ecosystem services.

Considerations: Ecosystem Structure or Function

This list of considerations is intended as a guide. It is not expected that the FMOA will address every consideration listed here nor should it prevent the FMOA from pursuing an alternative consideration if more relevant to the fishery under consideration.

Structure:

Species diversity, trophic structure, and functional group composition are structural elements of the ecosystem. Relevant datasets may include indices of species richness and diversity (e.g., Shannon index), quantitative studies of trophic structure, or qualitative descriptions of functional group composition. Monitoring data may be useful to establish the range of natural variability and provide a baseline against which to evaluate changes to ecosystem structure. Time series data may indicate that fishery effects do not contribute to adverse effects on the ecosystem. Historic information may help to substantiate that significant adverse effects (e.g., trophic cascades, shifts in biodiversity) have not occurred previously.

Function:

Energy transfer processes, food web interactions, and ecosystem services are functional elements of the ecosystem. Relevant datasets may include monitoring of the fishery's contribution to discards and offal production, studies to reduce waste or improve efficiency of resource utilization, modeling of food web

interactions, dietary studies, or monitoring of the ecosystem's capacity to deliver relevant ecosystem services. Additionally, investigations may provide evidence that discards and offal production do not adversely affect ecosystem function of the ecosystem in terms of biomass, respiration, production, or energy cycling. Monitoring datasets may help establish the range of natural variability against which to evaluate observed changes to ecosystem function.

G3.9 Regardless of which ecosystem considerations are addressed in G3.6-G3.8, there shall be an explicit evaluation of the effect of target stock removals on the ecosystem, with due consideration given to the ecological role of the target stock in the ecosystem.

G3.9.1 If the target stock is a key prey species, the rationale for CSI Requirement 4.4.2 should cross-reference the rationale provided for CSI Requirement 4.4.3.

G3.9.2 If the target stock is a forage species, the rationale for EP2 shall explicitly address how management considers the ecological role of the target stock in the ecosystem.

G3.9.3 If the target stock is neither a key prey species nor a forage species, this determination shall be stated in the rationale for EP3 of CSI Requirement 4.4.1.

Ecological Role of the Target Stock in the Ecosystem

Management shall consider the ecological role of the target stock in the ecosystem. If the target stock is a forage species, then there shall be evidence that management takes appropriate action. For example, harvesting of stocks of forage species may be managed with an additional measure of precaution so as to avoid adverse effects on the ecosystem through food web interactions, such as loss of species diversity or loss of functional diversity (groups of predators, prey, or keystone species)⁵⁶. Evaluation of ecological role may be based on existing information, modeling studies, or directed research initiatives.

G4. Management Action to Address Adverse Effects on the Ecosystem (4.4.2C)

G4.1 In evaluating EP3 of CSI Requirement 4.4.2, the assessment team should determine if the foregoing steps identify a putatively adverse effect of the fishery on the ecosystem.

G4.1.1 If evaluation identifies a putatively adverse effect of the fishery on the ecosystem, the assessment team should evaluate conformity of the UOC with Requirement 4.4.2C.

G4.1.2 If no such putative adverse effects are identified, then 4.4.2C should be marked NA.

Examples of Adverse Effects on the Ecosystem

Adverse effects on the ecosystem may include trophic cascades, a permanent reduction in biodiversity, or a diminished capacity to provide valuable ecosystem services.

⁵⁶ See Lenfest Report for additional management considerations for fisheries on forage fish species: https://www.lenfestocean.org/%7E/media/legacy/lenfest/pdfs/littlefishbigimpact_revised_12june12.pdf?la=en

- G4.2 The probability of occurrence of the putatively adverse effect should be considered, and the most probable impacts should be evaluated further.
- G4.3 In evaluating the putatively adverse effect, the S&I of the fishery should be taken into account so that an estimation of impact is reasonable and proportionate to the scope of fishing operations.

Accounting for Fishery Scale and Intensity

The level of evidence required to demonstrate conformity with EP3 should be proportionate to the S&I of the fishery. For large-scale fishing operations, managers may be expected to have access to quantitative or semi-quantitative information as supporting evidence that adverse effects on the ecosystem are improbable (e.g., time-series monitoring datasets for ecosystems, ecosystem modeling studies). On the other hand, for small-scale fishing operations, managers may rely on qualitative information as evidence. Such evidence may include inferences made from surrogate information or examples of management actions drawn from comparable circumstances where an adverse effect on the ecosystem was effectively reduced, minimized, or mitigated.

- G4.3 In evaluating EP3 of 4.4.2, the assessment team should look for evidence that the action(s) taken by management was effective in reducing, minimizing, or mitigating the adverse effect.
- G4.4 In evaluating EP3 of 4.4.2, the assessment team may consider spatiotemporal management actions taken to address adverse effects on ecosystems, including ABFM measures.

Spatiotemporal Management and ABFM Measures

Spatiotemporal management of fisheries is an effective, precautionary way to address concerns about adverse effects on ecosystems. Managers may, for example, implement measures to disperse the fishery in space and time to meet the needs of predators, protect spawning grounds through temporary area closures, prevent localized depletions through spatial restrictions on the concentration of fishing effort, or protect important foraging areas for predators of the target stock. Such measures may provide supporting evidence for fulfillment of EP3.

The assessment team may consider ABFM measures to be a special category of spatiotemporal management. Although ABFM measures are often implemented for reasons unrelated to wider ecosystem concerns (e.g., in order to protect certain habitat types), such measures may nonetheless serve as an effective mitigation measure for adverse effects on ecosystems. The assessment team may refer to ABFM measures as evidence for fulfillment of EP3. However, habitat-protective functions should not be restated under 4.4.2 as this feature of ABFM measures is already considered under CSI Requirement 4.3.3.

Appendices

Appendix 1. List of acronyms

ABFM	Area-Based Fishery Management
AIS	Automatic Identification System
BASI	Best Available Scientific Information
CAP	Corrective Action Plan
CB	Certification Body
CCRF	Code of Conduct for Responsible Fisheries
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMM	Conservation and Management Measure
COC	Chain of Custody
CSC	Certified Seafood Collaborative
CSI	Certified Seafood International
DLF	Data-limited fishery
DP	Dependent predator
EF	Enhanced fishery
EFM	Enhanced Fishery Module
EP	Evaluation Parameter
ETP	Endangered, Threatened, or Protected
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organization of the United Nations
FMO	Fishery Management Organization
FMOA	Fishery Management Organization or Arrangement
FMP	Fishery Management Plan
FMS	Fishery Management System
GSH	Gear-Susceptible Habitat
GSSI	Global Sustainable Seafood Initiative
HCR	Harvest Control Rule
IEC	International Electrotechnical Commission
IRFF	Iceland Responsible Fisheries Foundation
IRFM	Iceland Responsible Fisheries Management
ISO	International Organization for Standardization
IUU	Illegal, Unreported and Unregulated
LRP	Limit Reference Point
LTFK	Local and Traditional Fishery Knowledge
M&E	Monitoring and Enforcement
MPA	Marine Protected Area
MSY	Maximum Sustainable Yield
NA	Not Applicable
NC	Non-conformity
NT	Non-Target
PA	Precautionary Approach
PRI	Point of Recruitment Impairment
RA	Risk Assessment
RFM	Responsible Fisheries Management
RFMO	Regional Fisheries Management Organization

S&I	Scale and Intensity
TAC	Total Allowable Catch
TRP	Target Reference Point
UOC	Unit of Certification
VME	Vulnerable Marine Ecosystem
VMS	Vessel Monitoring System