

# MARINTRUST MULTI-SPECIES ASSESSMENT Guidance

Version 2.1 – Issued October 2022

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## 1. Background

The aim of this document is to provide guidance on the assessment of multi-species/multi-gear fisheries (referred to as multi-species fisheries in the rest of this document) for MarinTrust to assess whether the marine ingredients used for aquafeed and land animal feed, as well as for human consumption, are responsibly sourced and produced from these fisheries. This multi-species assessment is part of a multi-species pilot, the aim of which is to develop a credible and recognised assessment framework to evaluate multi-species fisheries. The assessment will be considered as one of the requirements for acceptance onto the MarinTrust Improver Programme (IP) and will, over time, work towards full MarinTrust approval.

To date, the MarinTrust assessments have been based on single-species assessments and management approaches<sup>1 2</sup> that assessed (i) management frameworks, (ii) catch, (iii) endangered, threatened and protected species (ETPs), (iv) habitats and (v) ecosystem impacts. The assessment of catch is based on the dichotomy of 'target' and 'bycatch species' and constructed around single species concepts, such as maintaining all species at the maximum sustainable yield (MSY) and assessing single stock biomass/fishing mortality reference points.

However, the vast majority of fisheries in the world are not single-species fisheries that capture just one or two species – they are multi-species in nature. These range from fisheries that target a relatively small number of species with a single gear to fisheries that catch hundreds of species using a number of different gear types. By adapting the existing MarinTrust criteria to multi-species fisheries, especially tropical multi-species fisheries in developing countries, some important attributes of multi-species fisheries need to be recognised. These include:

- The number of species caught, and the range of gears used is usually large. This often means that there are too many species and gear interactions for a traditional stock assessment approach. Multi-species fisheries need different assessment approaches (e.g. ecosystem modelling, aggregate modelling, indicator species and indicators).
- The fishery resource cannot be divided neatly into target and non-target groups.
- It is not possible, and probably not desirable, to manage all species at MSY.
- There is often full utilisation of everything that is caught. A lot of so-called low value/trash fish are utilised as a marine ingredient, rather than being discarded.
- Multi-species can be more resilient to fishing because there are many different species and markets available as ecosystem structure and function change.
- The issues regarding impacts on habitats and ETPs are the same as for single species fisheries and do not require different treatment, although, because of the increased number of fishing gears, interactions are more likely.
- Governance is more difficult in multi-species fisheries, especially in developing countries. Lack of good governance is often the main cause of management failure.

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<sup>1</sup> MarinTrust RS V2.2 Whole Fish Fishery Assessment Report Template <https://www.marin-trust.com/sites/marintrust/files/2022-08/FISH1%20-%20MarinTrust%20Wholefish%20fishery%20assessment%20template%20V2.2.pdf>

<sup>2</sup> MarinTrust RS V2.2 Whole Fish Fishery Assessment Interpretation & Guidance Document <https://www.marin-trust.com/resource-centre/library/quality-management-system> [ID3]

## 2. Approach

The assessment builds on the existing MarinTrust Global Standard for Responsible Supply of Marine Ingredients Fishery Assessment Methodology. As with the MarinTrust single-species assessment, the multi-species assessment begins with the assumption that an unmanaged but fully developed fishery would represent a very high risk to the following four categories:

- The species caught in the fishery (the catch) [Section 2: A, B and C]
- ETP species with which the fishery interacts [Section 2: T]
- The critical habitats within which the fishery occurs [Section 2: H]
- The ecosystems within which the fishery occurs [Section 2: E]

Towards mitigating the risk, in the multi-species assessment there is an overarching set of criteria that assesses the:

- Management/governance frameworks [Section 1: M1, M2 and M3]

For the catch, the assessment covers:

- Setting of management objectives and reference points
- Monitoring of key indicators through regular data collection and analysis
- Regular assessment of the status of the fishery resources
- Application of effective management measures
- Regular evaluation and reporting of management performance

For the ETPs, habitats and ecosystem impacts, the assessment covers:

- Identification of ETPs and critical habitats
- Consideration of the potential impacts on ETPs, critical habitats and the ecosystem
- Information on impacts
- Application of effective management measures, where appropriate

The Fishery Risk Rating sections of the multi-species assessment seek to characterise the current status of the fishery and guide future development; there is no requirement for a unit of assessment (UoA) to meet a particular minimum score against any individual Fishery Risk Rating question or any Fishery Risk Rating section.

The assessment criteria assume that the UoA is not managed as a straddling stock or across state jurisdictions. If this is not the case, extra criteria will need to be developed.

## 3. International norms and guidance

The multi-species assessment is based on best-practice fisheries management as specified in international norms and guidance including:

- The 1982 Convention of the Law of the Sea (UNCLOS)
- The 1992 Convention on Biological Diversity (CBD)
- The 1995 Food and Agriculture Organisation of the UN (FAO) Code of Conduct for Responsible Fisheries (CCRF)<sup>3</sup> (and its associated Technical Guidelines)

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<sup>3</sup> FAO Code of Conduct <http://www.fao.org/3/a-v9878e.pdf>

- The 2006 regionalisation of the code for Southeast Asia (Southeast Asia Regional CCRF)<sup>4</sup>; and additional guidance, especially relating to stocks within ‘safe biological limits’, obtained from the 1995 UN Agreement on Straddling Fish Stocks and Highly Migratory Stocks<sup>5</sup>

The FAO CCRF is a voluntary code that sets out principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity. The Southeast Asia Regional CCRF was developed to expand the principles to cover multi-species fisheries in the ASEAN region. It is important to note that, as requested by the FAO Governing Bodies, the CCRF was formulated in such a way as to be consistent with the 1982 UNCLOS so that, by default, UNCLOS standards apply.

The following criteria are designed to assess the extent to which the key goals of fisheries management are being achieved in the UoA based on the principles of the FAO CCRF. Comparisons of the multi-species criteria with the MarinTrust V2.2 whole fish fishery assessment, the FAO CCRF, the Marine Stewardship Council (MSC) Standard, Version 2.01, August 2018 and the Global Sustainability Seafood Initiative (GSSI) Global Benchmark Tool, Version 1, October 2015 are included in Annex 1.

#### 4. Management framework and management cycle

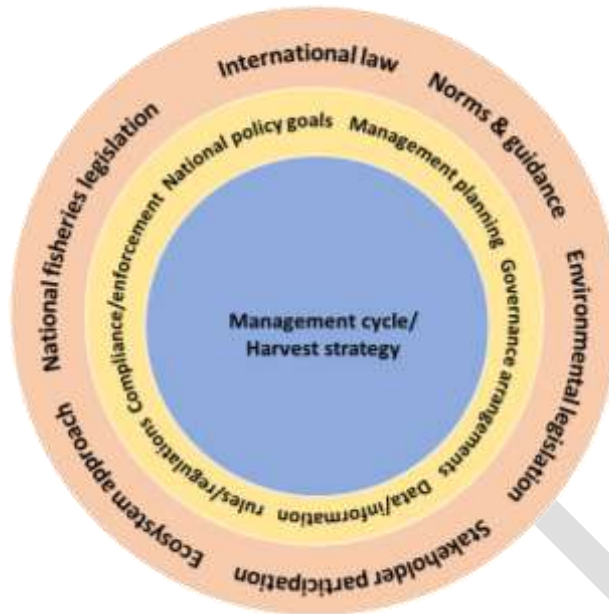
The management/governance framework (see figure below) can be described in three layers. The outer layer includes influences outside of the UoA: (i) international law and norms, (ii) the principles of the ecosystem approach and stakeholder participation (co-management), and (iii) national fisheries and environmental legislation that empowers management. The second layer involves the (i) national policy goals, and the influences on the UoA itself, including (i) the management planning process, (ii) governance arrangements, (iii) data and information that informs decision making, (iv) rules and regulations (both formal and informal) and (v) compliance and enforcement of the laws and regulations. The inner layer is the management cycle/harvest strategy that affects the catch, ETPs, habitats and ecosystem (see below). Section 1 of this multi-species assessment covers the two outer layers, while section 2 is based on the management cycle/harvest strategy.

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<sup>4</sup> SEAFDEC Regional Guidelines for Responsible Fisheries in Southeast Asia: Fisheries Management <http://repository.seafdec.org/bitstream/handle/20.500.12066/1079/RCCRF%20FM.pdf?sequence=1&isAllowed=y>

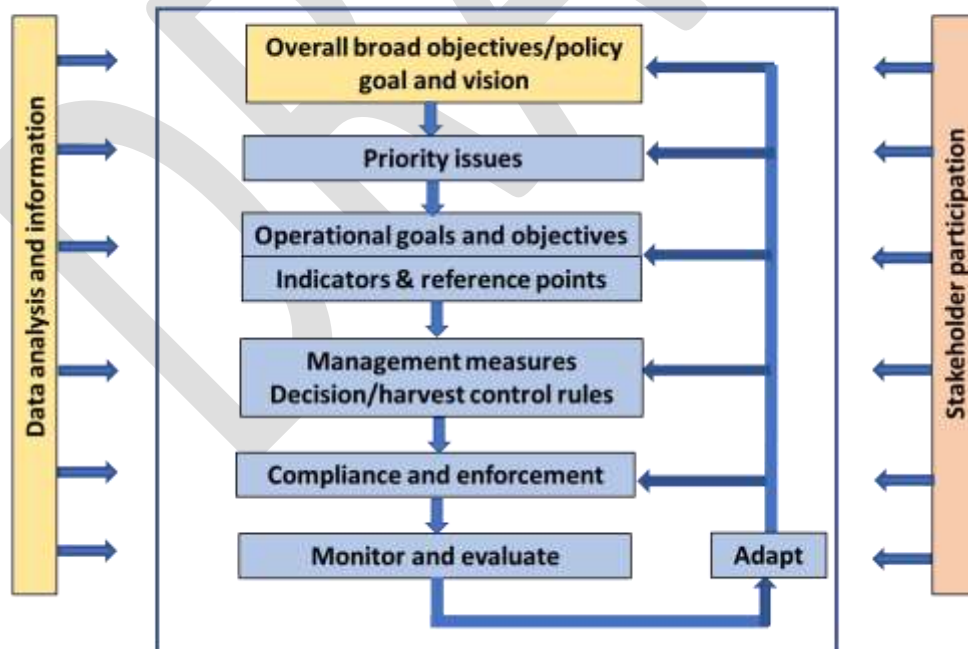
<sup>5</sup> Agreement for the implementation of the provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. [https://www.un.org/Depts/los/convention\\_agreements/texts/fish\\_stocks\\_agreement/CONF164\\_37.htm](https://www.un.org/Depts/los/convention_agreements/texts/fish_stocks_agreement/CONF164_37.htm)

## Management framework



The management cycle, which guides the assessment and management of catch, ETPs, habitats and ecosystem (section 2), links the high-level policy goal(s) with the management measures used to achieve the goal(s) (as shown in the figure below adapted from FAO (2003)<sup>6</sup>):

## Management cycle/harvest strategy



<sup>6</sup> FAO 2003. Fisheries management: The ecosystem approach to fisheries. *FAO Technical Guidelines for Responsible Fisheries*, No. 4, Suppl. 2., 112pp. <http://www.fao.org/3/a-y4470e.pdf>

*Note: When considering catch, the term ‘harvest strategy’ and ‘harvest control rules’ are commonly used, especially for single-species assessment and management. The harvest strategy includes the combination of setting operational objective(s), indicators and reference points, the assessment of the status of the fishery resource, the setting management measures and harvest control rules, and the monitoring and evaluation of management performance (i.e. steps 3, 4 and 6 in the diagram plus data analysis relating the fishery resource assessment). However, when considering ETPs, habitats and ecosystem impacts under EAFM, the generic terms ‘management strategy’ and ‘decision rules’ are more appropriate.*

The management cycle starts with the policy goals for management (ecological, economic and/or social) that help form an overall vision of what the fishery will look like in the future. The next step is to identify and prioritise the issues and threats that may prevent reaching the policy goals. The core problems that underlie these issues are then translated as operational objectives, each with its own indicator(s) and reference point(s). Management measures that can address the causes of the problems are chosen and often framed as decision rules that specify actions if the reference points are reached or exceeded. The cycle is then completed by monitoring and evaluating progress towards achieving the objectives by comparing indicators with reference points (performance measures).

Depending on the evaluation results, adaptive management is then applied through a series of feedback loops that can update and modify the appropriate step in the cycle and, in extreme cases, the overarching policy goals. Participation of key stakeholders is important in all steps of the cycle, as is input from data analyses and information.

## 5. Scoring system

The assessment is divided into two main sections:

Section 1: Management and governance

Section 2: Catch, ETPs, habitats and ecosystems

Section 1 is treated differently to Section 2 and is rated simply as a ‘Pass’ or ‘Gap’. If assessed as a gap, actions to reduce the gap need to be included in a Fishery Action Plan (FAP).

In Section 2, fisheries are assumed by default to represent a very high risk in the four areas: catch, ETPs, habitats and ecosystems. Actions taken by fishery managers or other fishery stakeholders can mitigate these risks to a greater or lesser extent.

The level of risk posed by a fishery in each of the four categories (catch, ETPs, habitats and ecosystem) is measured on a scale of 0-100 and is termed the Fishery Risk Rating. For each category, the default before any risk mitigation is taken into account is 100 for any one category, which is considered very high risk. The sum of the mitigation scores for each category is then deducted from 100, to derive a Risk Rating. The sum of the mitigation scores is designed so that a maximum mitigation score is 100 (or close to it) for the category (resulting in a risk rating score of 0). For example, if there are four criteria, the maximum mitigation score for each criterion is 25. If there are six criteria, the maximum mitigation score is 11.

This results in the following current Fishery Risk Rating categories:

Very Low	Low	Moderate	High	Very High
0-20	20-40	40-60	60-80	80-100

There is no minimum risk rating that an applicant fishery must achieve. However, to remain in the MarinTrust Improver Program (IP) a fishery must be able to demonstrate a reduction in risk rating over time. At this stage of the IP pilot we are allowing fisheries to propose their own improvement timeline, which we will ask expert peer reviewers to examine and to determine whether it represents a meaningful rate of progress. These requirements will tighten as the learnings from the pilot IP are assessed. Once the assessment is finalized and there is a determination on where responsible management of fisheries falls under the standard process, a decision on the timeline will then be made

The mitigation value for each criterion can be used by a fishery to reduce the level of risk for any of the risk areas. This risk assessment process will allow the fishery to identify the main risks to the fishery and allow for the development of a FAP that could include strategies and measures that will further reduce the Fishery Risk Ratings over time.

The MarinTrust Improver Programme aims to allow fisheries the flexibility to reduce the risk they pose through whatever actions they deem appropriate for their specific circumstances. Therefore, potential mitigation measures are not limited to those listed in the IP multi-species assessment methodology.

## 6. Characteristics of the fishery

The UoA needs an introductory overview (3-4 pages) to the fishery that provides context to the assessment. This should be completed by the assessor based on a checklist of input from the applicant and include referencing documents used (electronic or other):

1. Area of operation of the UoA and jurisdiction under which it falls
2. History of the fishery and its past management
3. Profiles of the catch taken and the type of fleets used in the fishery
4. Fishing areas and seasons
5. Gears and operation of the fishery
6. The supply chain for fishmeal/oil
7. Management objectives for the fishery (referring to any or all of the following if relevant):
  - a. Resources
  - b. Environmental
  - c. Biodiversity and ecosystem
  - d. Social
  - e. Economic
8. Data availability
9. Current status of the fishery resources, ETPs, habitats and the ecosystem
10. Current management arrangements and measures, including details of those individuals or groups granted rights of access to the fishery and particulars of the nature of those rights
11. Arrangements and responsibilities for monitoring, control and surveillance (MCS) and enforcement
12. Arrangements for monitoring and evaluation of management performance, including reporting requirements

The report shall have a summary of the assessment process based on the topics below, referencing documents used (electronic or other):

- Particulars of the recognised groups with interests in the UoA

- Details of consultations leading to the formulation of the Fisheries Action Plan (FAP)
- Arrangements for on-going consultations with interest groups
- Details of the decision-making process or processes, including the recognised participants
- Details of any planned education and training for interest groups

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## 7. Section 1: Management/governance frameworks

The three criteria in this section relate to the overall management and governance regime applied to the fishery under assessment. The table below outlines the standards specified in the (i) UNCLOS, CBD, (ii) the FAO CCRF and (iii) the Southeast Asia Regional CCRF.

UNCLOS, CBD	FAO CCRF	Southeast Asia Regional CCRF
<b>Management/governance frameworks</b>		
<p>UNCLOS Article 62.4: 'Nationals of other States fishing in the exclusive economic zone shall comply with the conservation measures and with the other terms and conditions established in the laws and regulations of the coastal State inter alia, to the following: licensing of fishermen, fishing vessels and equipment, regulating seasons and areas of fishing, the types, sizes and amount of gear, and the types, sizes and number of fishing vessels that may be used; and enforcement procedures.'</p> <p>CBD Article 8 (k): 'Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations.'</p>	<p>CCRF Article 7.6.2: 'States should adopt measures to ensure that no vessel be allowed to fish unless so authorised, in a manner consistent with international law for the high seas or in conformity with national legislation within areas of national jurisdiction.'</p> <p>CCRF 7.7.2: 'States should ensure that laws and regulations provide for sanctions applicable in respect of violations which are adequate in severity to be effective, including sanctions which allow for the refusal, withdrawal or suspension of authorisations to fish in the event of non-compliance with conservation and management measures in force'.</p>	<p>Regional CCRF Article 7.6.2 (2): 'States should ensure that fishing vessels operating in waters of other States must comply with the regulations of the coastal State and that they must secure appropriate fishing authorisation from the flag State.'</p> <p>Regional CCRF Article 7.6.2 (3): 'States should strengthen their national enforcement capabilities to deter any unauthorised fishing within their national jurisdiction and to ensure compliance'</p> <p>Regional CCRF Article 7.1: 'States should incorporate fisheries management into the national development plan.'</p>

These norms were used to expand the MarinTrust single-species criteria that covered the management framework and surveillance, control and enforcement. The new Section 1 criteria cover:

- M1: Legislation, policy, and plans
- M2: Institutions and stakeholder engagement
- M3: Monitoring, control and surveillance

The criteria should be completed by providing sufficient evidence to justify awarding each of the requirements a Pass or Gap rating. If any element is assessed as a gap, then an action to lessen the gap needs to be specified in the FAP.

Many of the terms used in these criteria (e.g. sustainable development) are defined in the glossary at the end of the guidelines.

M1 Legislation, policy and plans		
M1.1	The fishery is covered by modern comprehensive legislation that includes primary legislation (law and acts) and subsidiary legislation (rules and regulations).	Pass/Gap
M1.2	The legislation is based on relevant international law, instruments and standards.	Pass/Gap
M1.3	The legislation and/or overarching policy documents outline the overall policy goals for the fishery (ecological, social and economic).	Pass/Gap
M1.4	The legislation legally empowers the responsible organisations to manage the fishery, including undertaking monitoring, control and surveillance and implementing management actions.	Pass/Gap
M1.5	The policies and plans publicly commit the fisheries management organisations to sustainable development of the fishery.	Pass/Gap
M1.6	The legislation and national policies include arrangements for stakeholder engagement and consultation.	Pass/Gap
M1.7	The fishery has an up-to-date fisheries management plan (or is linked to such a plan) that incorporates the main principles of the ecosystem approach to fisheries, covering the ecological, social and economic dimensions of sustainable development.	Pass/Gap
M1.8	The fishery management plan specifies goals and operational objectives.	Pass/Gap
M1.9	The fishery management plan outlines the roles and responsibilities of the different fishery management and partner organisations.	Pass/Gap
<b>M1 outcome:</b>		Passes and Gaps
Guidance:		
<p><b>M1.1 The fishery is covered by modern comprehensive legislation.</b></p> <p>For a pass, the legislation must be based on modern fisheries management principles (developed in at least the last 10 years) and be revised regularly (every 5-10 years). The legislation needs to include primary legislation such as laws/acts as well as subsidiary legislation outlining the rules and regulations that govern the fishery.</p> <p><b>M1.2 The fishery has legislation based on relevant international law, instruments and standards.</b></p> <p>The law/act must include references to international obligations and international law, such as the ecosystem approach to fisheries, the precautionary principle, adaptive management and transparency and participation.</p> <p><b>M1.3 The legislation and overarching policies outline the overall policy goals for the fishery.</b></p> <p>There needs to be sufficient evidence that fishery management is guided by the broad policy goals as set out in either/both legislation and overarching policies e.g. enhance food security, achieve the maximum economic yield or maximize employment.</p>		

**M1.4 The legislation legally empowers the fishery management organisation(s) to manage the fishery.**

The legislation should legally empower a fishery management organisation(s) to be responsible for planning and administering the fishery, undertaking monitoring control and surveillance activities and implementing management measures.

**M1.5 The policies and plans publicly commit to sustainable development (sustainability).**

Evidence from policy documents/plans that show commitment to sustainability, including references.

**M1.6 The legislation and national policies include arrangements for stakeholder engagement and consultation.**

Fisheries legislation and policy documents should state requirements for consultation with stakeholders or the need to have stakeholders involved in the management advisory process.

**M1.7 The fishery has an up-to-date fisheries management plan.**

Ideally, the UoA should have its own fisheries management plan that is based on international best practice and recognises international norms and standards. However, the fishery could also be under the umbrella of a broader fisheries management plan that refers to the UoA under consideration.

**M1.8 The fishery management plan specifies goals and operational objectives.**

The fishery management plan needs to have clearly stated goals and objectives so that it is clear what is trying to be achieved by harvesting the fishery resource.

**M1.9 The fishery management plan outlines the roles and responsibilities of the different fishery management and partner organisations.**

The plan needs to specify who is responsible for implementing the management measures and for assessing their success or otherwise. This should include other agencies responsible for conservation and protection, such as the environmental agency.

**Evidence**

- Fisheries legislation (primary and subsidiary)
- National planning documents (e.g. 5-year plans)
- National fishery policy documents
- Fishery management plans

**Links: (see Annex 1)**

**MarinTrust Standard clause**

**1.3.1.1** The management framework, system, or customary arrangement for the fishery shall include a **legal, administrative and scientific basis** for the development and implementation of measures and controls to support the conservation of the species,

	ecosystems and environments directly and indirectly affected by the fishery.
<b>MarinTrust whole fish fishery assessment</b>	M1.3, M1.4, M1.5
<b>FAO CCRF</b>	3.1, 7.1.1, 7.1.2, 7.3.3, 7.6.8, 7.7.1
<b>MSC Fisheries standard*</b>	3.1.1(a), 3.1.2, 3.1.2(a), 3.1.2(b), 3.1.3
<b>GSSI Global benchmark</b>	D.1.08, D.1.10, D.2.01, D.3.01, D.3.13

\* Version 2.01, August 2018

<b>M2</b>	<b>Institutions and stakeholder engagement</b>		
	M2.1	The organisation identified in the initial screening has an effective management framework in place.	Pass/Gap
	M2.2	The management decision-making is based on the best scientific evidence available.	Pass/Gap
	M2.3	There is an organisation charged with the identification, management and conservation of ETPs with jurisdiction over the fishery.	Pass/Gap
	M2.4	There is an organisation responsible for the conservation and protection of fishery habitats.	Pass/Gap
	M2.5	The fishery has some form of governance arrangements in place that can be used to coordinate management between the government organisation and key stakeholders of the fishery.	Pass/Gap
	M2.6	There is a consultation process through which fishery stakeholders are engaged in all aspects of planning and decision-making.	Pass/Gap
	M2.7	The decision-making process is transparent, with processes and results publicly available.	Pass/Gap
<b>M2 outcome:</b>		Passes and Gaps	
<b>Guidance:</b>			
<p><b>M2.1 The organisation identified in the initial screening has an effective management framework in place.</b></p> <p>For a pass rating, there needs to be clear, publicly available evidence that identifies the key organisations involved in the management and administration of the fishery that cover, at least, the following areas of responsibility:</p> <ul style="list-style-type: none"> <li>• Policy and planning</li> <li>• Data collection and analyses</li> <li>• Registration and licensing of vessels/gears</li> <li>• Decision-making (both long-term policy and day-to-day)</li> <li>• Monitoring, control and surveillance (MCS)</li> <li>• Administration and training</li> </ul> <p>A quick check is to examine the organisation's structure to see whether these components of the management framework are covered.</p> <p>Where there is sufficient information available publicly to conduct the MarinTrust assessment without resorting to requests for additional information, assessors should consider this evidence that the management process is adequately transparent for the purposes of this clause.</p>			

**M2.2 The management decision-making is based on the best scientific evidence available.**

Identify organisation responsible for collecting data and assessing the status of fishery and, in particular, the status of the fishery resources. Is the organisation providing management advice based on the best scientific evidence?

Also, does the organisation include fishers/fishing communities to provide additional information to managers to support the effective management of the fishery? This could include information on the fishery resource, fishing operations and providing operational or economic data.

**M2.3 There is an organisation charged with the identification, management and conservation of ETPs with jurisdiction over the fishery.**

The fishery should have an organisation that is responsible for identifying ETP species and providing plans and strategies to conserve and protect ETPs that, is part of, or works cooperatively with the fisheries management organisation.

**M2.4 There is an organisation responsible for the conservation and protection of fishery habitats.**

The fishery should also have an organisation that is responsible for the management of fishery habitats. If it is an organisation that is not the fishery management organisation, there should be cooperation and coordination mechanisms in place.

**M2.5 The fishery has some form of governance arrangements in place that can be used to coordinate management between the government organisation and key stakeholders.**

Assessors should ensure that the management system includes governance arrangements that facilitate the engagement and involvement of relevant stakeholders, such as fishing industry representatives, non-governmental organisations (NGOs) and environmental NGOs. Are there any committees in place to facilitate coordination across stakeholders and jurisdictions?

**M2.6 There is a consultation process through which fishery stakeholders are engaged in decision-making.**

What mechanisms are in place to engage stakeholders? Does the management system include consultation processes? Are there recent relevant examples of these?

**M2.7 The decision-making process is transparent, with processes and results publicly available.**

Is there formal communication with fishery stakeholders explaining reasons for management measures? This could be via stakeholder meetings, direct mailing, websites etc.

**Evidence**

- Fisheries legislation
- Fishery management plans
- Government websites
- Government organisation annual reports

Any agency reports, such as fishery meetings, annual reports and stakeholder committee minutes that may detail evidence of consultation and engagement of stakeholders.

<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<p><b>1.3.1.1</b> The management framework, system, or customary arrangement for the fishery shall include a legal, administrative and scientific basis for the development and implementation of <b>measures and controls to support the conservation of the species, ecosystems and environments directly and indirectly affected by the fishery.</b></p> <p><b>1.3.1.2</b> Stock assessments, management procedures and management outcomes shall be developed in <b>consultation with stakeholders</b>, and made publicly available.</p>
<b>MarinTrust whole fish fishery assessment</b>	M1.1, M1.2, M1.6
<b>FAO CCRF</b>	6.4, 6.13, 7.1.2, 7.7.1, 10.4.3
<b>MSC Fisheries standard</b>	3.1.2(a), 3.2.2(a)
<b>GSSI Global benchmark</b>	D.1.01, D.1.03, D.1.05, D.3.02

<b>M3</b>	<b>Monitoring, control and surveillance</b>	
M3.1	The MCS organisation identified in the initial screening provides effective compliance and enforcement mechanisms that ensure management measures are complied with.	Pass/Gap
M3.2	There are adequate sanctions for illegal activities that can be applied when rules and regulations are broken.	Pass/Gap
M3.3	There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of illegal, unreported and regulated (IUU) fishing.	Pass/Gap
M3.4	Surveillance is conducted through a regime that includes a range of activities, for example, at-sea and portside inspections, observer programmes and VMS, as appropriate.	Pass/Gap
M3.5	Stakeholders in the fishery are aware of, and understand, the laws and regulations.	Pass/Gap
<b>M3 outcome:</b>		Passes and Gaps
<b>Guidance:</b>		
<b>M3.1 The MCs organisation identified in the initial screening provides effective compliance and enforcement mechanisms that ensure management measures are complied with.</b>		
Are MCS mechanisms in place to ensure the management measures in the fishery are enforced and complied with. This involves having effective risk-based MCS plans, and implementation of relevant strategies to minimise the risk of IUU, including informal mechanisms?		
<b>M3.2 There are adequate sanctions for illegal activities.</b>		

Sanctions that can be applied when rules and regulations are broken need to be part of the legislation/regulations. The sanctions also need to be of a sufficient scale to be a real deterrent. Do legislation/regulations clearly state the sanctions for different infringements?

The assessment team will ensure that, where fishing regulations are broken, sanctions of appropriately effective scale are invoked by the State or States controlling the fishery. The assessment team will list examples of the key laws and summarise the sanctions deemed to be a violation, and where possible, provide cases where the punishment on offending vessels has been executed.

**M3.3 There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing.**

Can it be determined that fishers comply with all relevant regulations?

The assessment team will determine the extent to which the management measures are effective, looking in particular for any reports illustrating examples of infringements. Additional evidence for this section can be obtained by on-site assessors, for example ensuring that all landings are monitored or that vessel locations are recorded.

**M3.4 Compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes and VMS.**

The assessment team will determine the effectiveness of the organisation responsible for fishery control and enforcement, and the actions taken by that organisation. These will include consideration of activities that are appropriate for the fishery, for example:

- a) Dockside monitoring
- b) Boarding vessels
- c) On-board observers
- d) Electronic technologies such as mobile apps, cameras, etc.
- e) Vessel monitoring system (VMS) or GPS vessel monitoring
- f) Vessel licensing
- g) Aerial enforcement

**M3.5 Stakeholders in the fishery are aware of, and understand, the laws and regulations.**

Do stakeholders know about the laws and regulations that govern them? Are there any awareness programs, literature, signage etc that inform the stakeholders about the laws and regulations?

**Evidence**

- Fisheries legislation
- Records of court cases
- MCS plans and strategies
- MCS mechanisms in place such as VMS, vessel inspections (both at sea and on landing), logbook, sales notes and landing declarations, landing restrictions etc.
- Regional MCS reports – including reviews/ evaluations of MCS efficacy
- Fishery management plans

Any agency reports, such as fishery meetings, annual reports and stakeholder committee minutes which may detail compliance information and details of fishery offences and prosecutions.

**Links: (see Annex 1)**

<b>MarinTrust Standard clause</b>	<b>1.3.1.3</b> There shall be systems and organisations in place to implement effective surveillance, control and enforcement programmes, and to apply sanctions when fishery laws and regulations are broken.
<b>MarinTrust whole fish fishery assessment</b>	M2.1, M2.2, M2.3, M2.4
<b>FAO CCRF</b>	6.16, 7.1.7, 7.7.2, 7.7.3
<b>MSC Fisheries standard</b>	3.2.2(d), 3.2.3, 3.2.3(b), 3.2.3(c)
<b>GSSI Global benchmark</b>	D.1.09

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## 8. Section 2: Catch, endangered, threatened and protected species (ETPs), habitats and ecosystem impacts

This section is broken up into:

- 2a: Catch
  - A: Total aggregate catch
  - B: High-risk/vulnerable species/species groups
  - C: Reduction component of the catch
- 2b: Endangered, threatened and protected species (ETPS)
- 2c: Habitats
- 2d: Ecosystem impacts

It is important not to lose sight of the interactions among these categories. For example, impacts on the total aggregated catch will also impact on the ETPs, habitats and the ecosystem structure and function.

### 8.1 2a. Catch

Catch is defined as the landed catch, along with any quantity of discards. The focus on catch is not intended to ignore other requirements for maximising socio-economic benefits, nor other measures to control fisheries, such as effort controls – but the indicator and reference point of interest is the catch. For example, management objectives could be to control fishing effort through control on vessels or gears, which would have their own indicators and reference points, but these objectives would be evaluated through their impact on catch.

As stated in UNCLOS and the CCRF, fisheries management is aimed at maximising socio-economic benefits while maintaining or restoring populations of harvested species at levels that can produce the maximum sustainable yield (MSY), as qualified by relevant environmental and economic factors. All species, including associated or dependent species, should be maintained above levels at which their reproduction may become seriously threatened (also known as the point at which recruitment is impaired (PRI)).

Based on these principles, the catch of the multi-species fishery is divided into three parts:

**Part A:** Total aggregate catch (using a target reference point (TRP – see glossary for definition) e.g. the multi-species maximum sustainable yield (MMSY)). It is up to the UoA to nominate the TRP that meets the overall fisheries management policy goal, with a default being the MMSY.

**Part B:** High-risk species/species groups (using a limit reference point (LRP) e.g. the PRI (see glossary for definition)). Note: These species or groups of species do not include ETPs that are assessed separately below. It is up to the UoA to nominate the LRP that meets the overall fisheries management policy goal, with a default being a PRI of 20%.

**Part C:** The component of the catch that is used to manufacture fish meal/oil based on demonstrating sustainability of the catch and minimum impact on juveniles of high-value species. In tropical fisheries this component is often known as ‘low value/trash fish’.

## 8.1.1 Part A: Total aggregate catch

The following table is a summary of relevant overarching standards that relate to the total aggregate catch of the fishery.

UNCLOS, CBD	FAO CCRF	Southeast Asia Regional CCRF
UNCLOS Article 61(3): '...maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors...'	CCRF Article 7.2.1: 'adopt appropriate measures, based on the best scientific evidence available, which are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing countries'.	Regional CCRF Article 7.5.3 (1): 'States should promote the input control for fisheries management considering the complexities of exploitation of aquatic resources including multi-species nature of fisheries'.  Regional CCRF Article 7.5.3 (2): 'States should recognise the nature of input control which may not be guided by conventional target reference points (e.g. MSY, MEY, TAC, etc.) but adjusted their actions through the effective monitoring exercise (e.g. appropriate level of CPUE, maturity size, etc.) on the fishing practices.'

The nature of the aggregation is at the discretion of the UoA. Common aggregations are based on aggregating species/species groups on their biology (e.g. r-selected and K-selected species), market value or major groups (e.g. demersal and pelagic groups).

A1: Management objectives and references points	
	Mitigation Score
The fishery has not developed any objectives or target reference points to ensure that the total multi-species assemblage is maintained or restored to levels capable of producing the TRP (e.g. multi-species maximum sustainable yield (MMSY) as qualified by relevant environmental and economic factors).	0
The fishery has informally adopted objectives and target reference points to ensure that the total multi-species assemblage is maintained or restored to levels capable of producing the TRP.	8
The fishery has formally adopted objectives and target reference points to ensure that the total multi-species assemblage multi-species assemblage is maintained or restored to levels capable of producing the TRP.	17
Guidance	
The standard requires the existence of management objectives that are applicable to the UoA and the fishery resources under consideration and seek outcomes consistent with the long-term	

sustainable use of the fisheries resources under management. The objectives may be formally described or, in some cases such as small data-poor fisheries, informally accepted and understood.

The objectives could apply to a group of species or the aggregate of all species as long as the aggregate catch is controlled to levels consistent with the target reference point.

The term ‘species/species groups’ refers to individual species or a group of similar species and is intended to allow the fishery the flexibility to manage the resource in a way which is appropriate for its particular circumstances. The fishery should be able to justify the particular grouping methodology for the species groups it has selected, within the broader context of the management approach implemented. This remains true throughout the remainder of the criteria that use this term.

**Target reference point.** The target reference point for the aggregate catch is set by the governing body. It could be the MMSY – the annual catch which on average can be removed yearly from the fishery resources without deteriorating the productivity of the resources is the baseline standard. This is reflected in the target biomass ( $B_{MMSY}$ ) and target fishing mortality ( $F_{MMSY}$ ) that can support the maximum sustainable yield. Depending on the policy goals for the fishery, other target reference points are possible but these need to be more conservative than the MMSY standard e.g. multi-species maximum economic yield (MMEY) or MSY levels to rebuild ecosystem structure and function that requires a lower level of fishing effort to achieve.

Fishing at levels to produce the MMSY does not imply that all species/species groups will be fished at MSY. Catches of some will be above their MSY, while others will be below their MSY. For the species/species groups above their MSY, it important to consider these as high-risk species/species groups (see Part B) that need management measures to keep these above their PRI. Note: As a result of the biological and technological interactions between species, the sum of independent species MSY for a fished ecosystem is consistently much larger than the aggregate MMSY and if independent species MSY form the basis for catch limits they will likely lead to overfishing.

In data-poor fisheries where an estimate of the MMSY is not possible, proxies can be used as long as the constraints of the proxies are acknowledged and corrected to the extent possible. The GSSI defines a proxy as a surrogate or substitute approach that results in acceptable outcomes consistent with the primary approach. When data are insufficient to estimate reference points directly other measures of productive capacity can serve as reasonable substitutes or ‘proxies’. Suitable proxies may be, for example, standardised CPUE as a proxy for biomass, standardised fishing effort as a substitute for fishing mortality. Alternatively, specific levels of fishing mortality and biomass which have proven useful in other fisheries and may be used with a high degree of confidence in the absence of better-defined levels. It is important to note that the use of a proxy may involve additional uncertainty, and if so, should trigger the use of extra precaution in the setting of the target reference points.

<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.4 Reference points (or proxies) are established for the stock.</b>
<b>MarinTrust whole fish fishery assessment</b>	
<b>FAO CCRF</b>	7.5.3, 7.6.1
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>A2. Data and information</b>	
	<b>Mitigation Score</b>
The fishery does not monitor any indicators relating to total catch nor collect sufficient data and information to assess the current status of the resources.	0
The fishery monitors indicators relating to total catch with a low degree of precision and regularity and collects some information that could be used to estimate the status of the fishery resources through proxies.	8
The fishery monitors indicators relating to total catch with a high degree of precision and frequency and collects sufficient data and information to formally assess the current status of the fishery resources.	17
<b>Guidance</b>	
<p>This criterion has two components: firstly, data and information that allow regular assessments of the fishery resources status (see A3), and secondly, indicators as part of management cycle/harvest strategy that can be used to assess how well the target reference point is being achieved (see A6).</p> <p>In the first component, the data and information must be sufficient to allow assessment of the fishery resource status based on the assessment methodology of choice (e.g. formal assessment methods or more data-poor methods).</p> <p>In the second component along with estimates of total catch (total landings and discards, other indicators such as aggregate biomass (B) and aggregate fishing mortality (F) should be monitored, as appropriate, to assess how well management objectives are being achieved. In data-poor situations, proxies for these could include the standardised catch rate (CPUE) standardised fishing effort (f) etc. The degree of disaggregation required will be dependent on the mechanism used by the fishery to calculate total removals e.g. the categorisation used for 'species/species groups'. Is the fishery collecting catch composition data consistent with the species/species groups that are appropriate? Where harvest control rules (HCR) have been specified, data and information on the relevant indicator(s) should be collected and assessed regularly, so that the HCR can be effectively implemented.</p> <p>Ideally, a number of indicators should be used, which are not all highly correlated. The fishery may use any scientifically justifiable methodology to determine the appropriate level of monitoring for certainty/frequency. The assessor should consider the relative reliability of the methodology used and the potential for intentional or unintentional errors in records. Where harvest control rules (HCR) have been specified, data and information on the relevant indicator(s) should be collected and assessed regularly, so that the HCR can be effectively implemented.</p>	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.1</b> There shall be <b>sufficient scientific information</b> collected to enable informed and responsible management of all stocks.
<b>MarinTrust whole fish fishery assessment</b>	
<b>FAO CCRF</b>	7.4.4
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>A3. Fishery resource assessment</b>	
	<b>Mitigation Score</b>
There is no recent or reliable assessment of the status of the fishery resource.	0
The status of the fishery resource is based on indirect evidence from indicators or proxies of stock status.	8
The fishery resource status has been recently assessed using a scientifically sound methodology.	17
<b>Guidance</b>	
<p>The assessment of the status of the fishery resource should be based on the best scientific advice available. To score a high mitigation score this would need to involve a formal assessment based on tools such as aggregate production modelling, multi-species production modelling, ecosystem modelling etc. This would include estimates of the current biomass in relation to the <math>B_{MMSY}</math> and the fishing mortality in relation to <math>F_{MMSY}</math>.</p> <p>Where such quantitative assessments are not available, either through a lack of informative data or the capacity to analyse them, or both, less data-rich assessments of the status of the aggregate resource are possible. For example, analyses of the historical catch time-series and distributions of various population parameters, swept-area methods based on ad-hoc fishery-independent surveys and non-parametric analyses. These methods would rate a lower risk mitigation score.</p>	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.2 Stock assessments shall be conducted with sufficient frequency</b> to permit the informed management of the stock; shall take into account the best available scientific information and shall consider the entire biological stock.
<b>MarinTrust whole fish fishery assessment</b>	
<b>FAO CCRF</b>	7.4.1
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>A4: Status of the fishery resource</b>	
	<b>Mitigation Score</b>
The current status of the fishery resource with respect to a target reference point is unknown.	0
The current status of the fishery resource with respect to a target reference point is known with a low level of certainty and is based on proxies.	8
The current fishery status with respect to a target reference point is known with a high level of certainty.	17
<b>Guidance</b>	
<p>This criterion requires that the status of the resource has been recently assessed and compared with a target reference point. To score 17, the both the current status and the target reference point need to be known with a high level of certainty that has involved the estimation of the target reference point using the best available scientific evidence.</p>	

<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.2.2</b> There shall be strong evidence that the fishery is not putting the species at risk of over-exploitation.
<b>MarinTrust whole fish fishery assessment</b>	
<b>FAO CCRF</b>	7.2.1
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>A5. Management measures and their effectiveness</b>	
	<b>Mitigation Score</b>
There are no management measures in place to control total catch.	0
There are management measures in place to control total catch, but they are not effective.	8
There are management measures in place to control total catch, which are effective.	17
<b>Guidance</b>	
<p>Are there management measures in place to control the amount of the total catch and are they being complied with and effective? Management measures could include:</p> <ul style="list-style-type: none"> <li>• Catch controls (total allowable catch (TACs), catch quotas)</li> <li>• Effort controls (total allowable effort (TAEs), effort quotas) <ul style="list-style-type: none"> <li>○ Boat number limits, fishing days limits, gear restrictions, TURFs</li> </ul> </li> <li>• Vessel buybacks</li> <li>• Gear modifications (mesh size, bycatch reduction devices (BRDs), juvenile and trash exclusion devices (JTEDs))</li> <li>• Limits of fish size (maximum and minimum)</li> <li>• Spatial controls (closed areas/zones, marine protected areas (MPAs))</li> <li>• Temporal controls (seasonal closures)</li> <li>• Restocking and stock enhancement</li> <li>• Artificial reefs</li> </ul> <p>Effectiveness could be assessed against whether the right measures have been adopted and/or whether they are being complied with.</p>	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.3</b> There is a <b>mechanism in place</b> by which <b>total fishing mortality can be controlled</b> , and this mechanism is effective at maintaining fishing mortality within the levels recommended by scientific organisations.
<b>MarinTrust whole fish fishery assessment</b>	
<b>FAO CCRF</b>	7.1.1
<b>MSC Fisheries standard</b>	1.2.2
<b>GSSI Global benchmark</b>	D.3.01

<b>A6. Management performance</b>	
	<b>Mitigation Score</b>
The fishery has failed to achieve the objectives it has set in relation to the aggregate catch OR there are no such objectives.	0
The fishery is making progress to meeting the objectives it has set in relation to the aggregate catch.	8
The fishery has achieved the objectives it has set in relation to the aggregate catch.	17
<b>Guidance</b>	
Is there evidence that management is working towards meeting the objective(s)?	
This question should be answered by having documented reports that directly compare objectives and target reference points described in A1 with the results of the monitoring of indicators in A2. The overall objective is to ensure that the fishery is achieving outcomes consistent with the long-term sustainable use of the fisheries resources under management. The objectives, however, may be more specific, such as to reduce the fishing effort and/or rebuild the resources, and in such cases the M&E might involve comparing indicators such as the current fishing mortality with the $F_{MMSY}$ and the current biomass with $B_{MMSY}$ and their proxies.	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.3</b> There is a <b>mechanism in place</b> and this mechanism is <b>effective at maintaining fishing mortality within the levels recommended by scientific organisations.</b>
<b>MarinTrust whole fish fishery assessment</b>	
<b>FAO CCRF</b>	
<b>MSC Fisheries standard</b>	1.1.1
<b>GSSI Global benchmark</b>	D.6.02

## 8.1.2 Part B: High-risk species/species groups

High-risk species/species groups are defined as those that by nature of their biology and ecology are more vulnerable to fishing and more likely to be fished towards or past PRI. Note that the IUCN uses the term ‘vulnerable species’ to refer to a species threatened with extinction unless the circumstances that are threatening its survival and reproduction improve. In the following criteria, we are referring to high-risk species/species groups that are not included as endangered, threatened and protected species (ETPs) in 2b. below). The following table is a summary of relevant overarching standards that relate to the high-risk species/species groups.

UNCLOS, CBD	FAO CCRF	Southeast Asia Regional CCRF
UNCLOS Article 61(4): ‘...take into consideration the effects on species associated with or dependent upon harvested species with a view to maintaining or restoring populations of such associated or dependent species above levels at which their reproduction may become seriously threatened.’	CCRF Article 6.2: ‘Management measures should not only ensure the conservation of target species but also of species belonging to the same ecosystem or associated with or dependent upon the target species’.	Regional CCRF Article 7.5.3 (1): ‘States should promote the input control for fisheries management considering the complexities of exploitation of aquatic resources including multi-species nature of fisheries’.  Regional CCRF Article 7.5.3 2 ‘States should recognise the nature of input control which may not be guided by conventional target reference points (e.g. MSY, MEY, TAC, etc.) but adjusted their actions through the effective monitoring exercise (e.g. appropriate level of CPUE, maturity size, etc.) on the fishing practices.’

B1: Management objectives and references points	
	Mitigation Score
The fishery has not identified high-risk species/species groups and has not developed any objectives or limit reference points to ensure that these species or groups of species are not being pushed past their PRI.	0
The fishery has identified some high-risk species/species groups and the fishery has informally adopted objectives and limit reference points for these species or groups of species.	8
The fishery has identified most of the high-risk species/species groups and the fishery has formally adopted objectives and limit reference points for all these species or groups of species.	17
Guidance	
The high-risk species/species groups can be identified by a number of tools (see Annex 2). Productivity Susceptibility Analysis (PSA) assesses how likely a stock is to recover when depleted, as	



well as how likely other species are to interact with fishing gear and is useful in identifying high-risk species/species groups. If there are a large number of high-risk species/species groups identified, a sample of indicator species/species groups could be chosen, as long as the choice is transparent and the indicator species/species group can be considered to be a representative sample of the whole high-risk category.

**Limit reference point.** The limit reference point indicates the limit beyond which the state of a fishery and/or resource is not considered desirable. For high-risk species/species groups the limit is the PRI. Fishery development should be stopped before reaching it but if a limit reference point is inadvertently reached, management action should severely curtail or stop fishery development, as appropriate, and corrective action should be taken.

The standard requires the existence of management objectives for high-risk species/species groups that are applicable to the UoA under consideration. These objectives may not be part of the normal fisheries planning and implementation management cycle, but in separate documents referring vulnerable species, e.g. National Plan of Action – Sharks.

**Links: (see Annex 1)**

<b>MarinTrust Standard clause</b>	<b>1.3.2.1.4 Reference points (or proxies) are established for the stock</b> , and the fishery is closed if the stock is determined to have fallen below the biomass limit reference point (or proxy).
<b>MarinTrust whole fish fishery assessment</b>	C
<b>FAO CCRF</b>	7.6.1
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

## B2. Data and information

	<b>Mitigation Score</b>
Monitoring does not include indicators that can be used for evaluating management performance or conducting stock assessments for high-risk species/species groups.	0
Monitoring includes some indicators that can be used for evaluating management performance or stock assessments for some high-risk species/species groups.	8
Monitoring includes indicators that can be used for evaluating management performance and conducting stock assessments for all high-risk species/species groups.	17

### **Guidance**

Does the fishery collect data and information on the species/species groups identified as high risk? Is the fishery collecting catch composition data consistent with the appropriate species/species groups? Is the fishery collecting other information relating to the species/species groups in the catch, including information that could be used in carrying out stock assessments (e.g. species/species group catch and effort data or length frequency data)? Note that a set of indicator species/species group can be used if it represents an adequate sample.

<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.1</b> There shall be <b>sufficient scientific information</b> collected to enable informed and responsible management of all stocks.
<b>MarinTrust whole fish fishery assessment</b>	B2
<b>FAO CCRF</b>	7.4.4
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>B3. Assessment of high-risk species/species groups</b>	
	<b>Mitigation Score</b>
There is no or unreliable assessment of the status of high-risk species/species groups.	0
The status of high-risk species/species groups has been recently assessed based on indirect evidence from indicators or proxies of stock status.	8
The status of high-risk species has been recently assessed using a scientifically sound methodology.	17
<b>Guidance</b>	
The fishery may use any of the available methods to determine the status of high-risk species/species groups. In data-rich fisheries these may include accepted stock assessment methods such as production modelling or age-based/ length-based analyses. Where such quantitative assessment is not available, either through a lack of informative data or the capacity to analyse them, or both, data-poor assessments methods may be more appropriate but would have a lower risk mitigation score (see A3).	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.2</b> Stock assessments shall be conducted <b>with sufficient frequency</b> to permit the informed management of the stock; shall take into account the best available scientific information and shall consider the entire biological stock.
<b>MarinTrust whole fish fishery assessment</b>	C1.1
<b>FAO CCRF</b>	7.4.1
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>B4. Status of high-risk species/species groups.</b>	
	<b>Mitigation Score</b>
The status of high-risk species/species groups with respect to the limit reference point is unknown.	0
The status of the high-risk species/species groups with respect to the limit reference point is known with a low level of certainty.	8

The fishery status with high-risk species/species groups with respect to the limit reference point is known with a high level of certainty.	17
<b>Guidance</b>	
This criterion requires that the status of the high-risk species/species groups has been recently assessed and compared with the limit reference point. To score 17, the both the current status and the limit reference point need to be known with a high level of certainty that has involved the estimation of the limit reference point using the best available scientific evidence.	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.2.2</b> There shall be <b>strong evidence</b> that the fishery is not putting the <b>species at risk of over-exploitation</b> .
<b>MarinTrust whole fish fishery assessment</b>	C1.2
<b>FAO CCRF</b>	
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>B5. Management measures, and their effectiveness</b>	
	<b>Mitigation Score</b>
There are no management measures in place aimed at preventing high-risk species/species groups falling below the PRI.	0
There are some management measures in place aimed at preventing specific species or groups of species, falling below the PRI.	8
There are management measures in place that are capable of achieving the objectives relating to high-risk species/species groups.	17
<b>Guidance</b>	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	
<b>MarinTrust whole fish fishery assessment</b>	A3.2
<b>FAO CCRF</b>	6.2
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>B6. Management performance</b>	
	<b>Mitigation Score</b>
The fishery has failed to achieve the objectives it has set in relation to high-risk species/species groups OR there are no such objectives.	0
The fishery is making progress to meeting the objectives it has set in relation to high-risk species/species groups.	8
The fishery has achieved all of the objectives it has set in relation to high-risk species/species groups.	17
<b>Guidance</b>	
<b>Links: (see Annex 1)</b>	

MarinTrust Standard clause	<b>1.3.2.2.1</b> If the species is from a stock managed using reference points, <b>the stock shall be within the defined limit reference point(s).</b>
MarinTrust whole fish fishery assessment	A3.3
FAO CCRF	
MSC Fisheries standard	
GSSI Global benchmark	

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### 8.1.3 Part C: Reduction component of the catch

The reduction component of the catch is defined as that part of the total catch that is destined to be reduced to fish meal and fish oil. This often consists of (i) by-products (bones, scraps and offal from fish processing, (ii) low-value small ‘trash’ fish (fish not suitable for human consumption), (iii) low quality high-value fish (deteriorated to a state unfit for human consumption) and (iv) juveniles of higher-value fish.

The standards are a combination of the UNCLOS/FAO CCRF and the Southeast regional CCRF given in Parts A and B above. The total aggregate catch should be maintained below a target reference point (e.g. MMSY for the different types of reduction catch) and any high-risk species/species groups maintained above a limit reference point (PRI) and the impact of catching juvenile fish of higher-value species minimized. What is considered to be an acceptable level of juvenile catch in the reduction component is at the discretion of the UoA, but as with other criteria, it is important that repeat assessments demonstrate improvement.

Different approaches may be needed for the four different types of the reduction component of the catch. For example, use of aggregate production model to give MMSY for the by-product group, the low-value ‘trash’ fish and the low-quality higher-value fish and use these as an overall TRP for group. For individual indicator species use of the PRI and TRP of the depletion level predicted to give MMSY for the group could be used. A similar approach could be taken for effort controls, especially if there are many gears involved, each exerting a different fishing mortality, and there was a desire to change the gear mix of the catch. Evaluating the impact on juveniles of higher-value fish will be difficult for all the species involved and, in the timeframe of a FIP, a simple indicator of the percentage of the reduction component that is juvenile fish of higher-value fish could be used.

<b>Part C: Total Mitigation Value</b>	
<b>Part C: Catch Risk Value (100 minus mitigation value)</b>	
<b>Part C: Catch Risk Rating</b>	

<b>C1: Management objectives (catch of the reduction component)</b>	
	<b>Mitigation Score</b>
The fishery has not developed any objectives for the total catch (see Part A) or for the reduction component of the catch to ensure that the reduction component of the catch is maintained at levels capable of producing less than the TRP (e.g. multi-species maximum sustainable yield (MMSY) of the reduction component as qualified by relevant environmental and economic factors).	0
The fishery has developed objectives for the total catch (see part A) but NOT for the reduction component of the catch that indirectly results levels capable of producing less than the TRP (e.g. MMSY) of the reduction component as qualified by relevant environmental and economic factors).	6
The fishery has developed objectives for the total catch (see part A) AND for the reduction component of the catch that indirectly results levels capable of producing less than the TRP (e.g. MMSY) of the reduction component as qualified by relevant environmental and economic factors).	11
<b>Guidance</b>	

<p>The standard requires the existence of management objectives that are applicable to the reduction component of the catch of the UoA under consideration and seek outcomes consistent with the long-term sustainable use of this component of the fishery under management. The logic behind this criterion is that the ‘low-value/trash fish’ is composed of highly productive forage fish that as a separate group will have a relatively high MMSY compared to the total fishery aggregate MMSY. By-products will be variable, but if sourced from a surimi factory again will consist of relatively high productivity species. In cases where large quantities of low-quality fish are used, these could pose a risk and would be covered in specific objectives for the reduction component.</p>	
<p><b>Links: (see Annex 1)</b></p>	
<p><b>MarinTrust Standard clause</b></p>	<p><b>1.3.2.1.4 Reference points (or proxies)</b> are established for the stock.</p>
<p><b>MarinTrust whole fish fishery assessment</b></p>	
<p><b>FAO CCRF</b></p>	<p>7.5.3, 7.6.1</p>
<p><b>MSC Fisheries standard</b></p>	
<p><b>GSSI Global benchmark</b></p>	

<p><b>C2: Management objectives (juvenile catch)</b></p>	
	<p><b>Mitigation Score</b></p>
<p>The fishery has not developed any objectives relating to the catch of juvenile higher-value fish in the reduction component to ensure that the catch is having a minimal impact on total fish resource of the UoA.</p>	<p>0</p>
<p>The fishery has informally adopted objectives for the catch of juvenile higher-value fish in the reduction component to ensure that the catch is having a minimal impact on total fish resource of the UoA.</p>	<p>6</p>
<p>The fishery has formally adopted objectives for the catch of juvenile higher-value fish in the reduction component to ensure that the catch of juveniles is having a minimal impact on total fish resource of the UoA.</p>	<p>11</p>
<p><b>Guidance</b></p>	
<p>The reduction component of the catch often contains large quantities of juvenile commercial fish. This can result in growth overfishing where the fishing mortality (or fishing pattern) is such that fish are caught before they have a chance to reach their growth potential and value. It can also contribute to recruitment overfishing where catching juvenile fish before they mature can lower the spawning biomass.</p> <p>There may be hundreds of species where the juveniles of higher-value fish are part of the reduction component of the catch. Good practice fisheries management will have in place objective(s) that aim to reduce the catch of juvenile fish that reduces ‘growth overfishing’ and potentially ‘recruitment overfishing’. This could be an aggregate objective relating to the percentage of juvenile high-value species in the reduction component, or if feasible, all or an indicator species subset of the more commonly caught species/species groups.</p>	
<p><b>Links: (see Annex 1)</b></p>	
<p><b>MarinTrust Standard clause</b></p>	
<p><b>MarinTrust whole fish fishery assessment</b></p>	
<p><b>FAO CCRF</b></p>	

MSC Fisheries standard	
GSSI Global benchmark	

### C3. Data and information (reduction component catch)

	Mitigation Score
The fishery does not monitor any indicators relating to catch of the reduction component nor collect sufficient data and information to assess the current status of the reduction component.	0
The fishery monitors indicators relating to the catch of the reduction component with a low degree of certainty and frequency and collects some information that could be used to estimate the status of the reduction component through proxies.	6
The fishery monitors indicators relating to total catch with a high degree of certainty and frequency and also collects sufficient data and information to formally assess the current status of the reduction component.	11

#### Guidance

This criterion has two components: firstly, data and information that allow an assessment of the reduction component of the fishery resources status (see C4), and secondly, indicators as part of management cycle/harvest strategy that can be used to assess how well the target reference point is being achieved.

In the first component, the data and information must be sufficient to allow assessment of the status of the reduction component of the catch based on the assessment methodology of choice (e.g. formal assessment methods or more data-poor methods) for the different types of fish in the reduction component.

In the second component along with estimates of total reduction component catch (total landings and discards, other indicators such as aggregate biomass (B) and aggregate fishing mortality (F) should be monitored, as appropriate, to assess how well management objectives are being achieved. In data-poor situations, proxies for these could include the standardised catch rate (CPUE) standardised fishing effort (f) etc.

Is the fishery collecting data on the catch of 'low-value/trash fish' and the low-quality higher value fish and catch composition data consistent with the species/species groups that are appropriate? Is there also data on fishing effort or other information needed to carry out an assessment of the status of the resource. Is there any data on the species composition that constitutes the by-product destined for reduction?

#### Links: (see Annex 1)

MarinTrust Standard clause	<b>1.3.2.1.1</b> There shall be <b>sufficient scientific information collected</b> to enable informed and responsible management of all stocks.
MarinTrust whole fish fishery assessment	<b>A1.1</b>
FAO CCRF	<b>7.4.4</b>
MSC Fisheries standard	
GSSI Global benchmark	

<b>C4. Data and information (juvenile catch)</b>	
	<b>Mitigation Score</b>
The fishery does not monitor any data on the catch of juvenile higher-value fish in the reduction component.	0
The fishery monitors indicators relating to the catch of juvenile higher-value fish with a low degree of certainty and frequency.	6
The fishery regularly monitors the catch of juvenile higher-value fish with a degree of certainty.	11
<b>Guidance</b>	
The basic data and information needed is regular data on the total amount and species composition of the juveniles of higher-value fish in the 'low-value/trash fish' component. These data and information can be used to infer their impact on the higher-value fish and, also, for monitoring trends.	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.1</b> There shall be <b>sufficient scientific information</b> collected to enable informed and responsible management of all stocks.
<b>MarinTrust whole fish fishery assessment</b>	<b>A1.1</b>
<b>FAO CCRF</b>	<b>7.4.4</b>
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>C5. Assessment and status of the resource (reduction component)</b>	
	<b>Mitigation Score</b>
There is no recent or reliable assessment of the status of the fish resources in the reduction component of the catch.	0
The status of the fishery resource in the reduction component is based on indirect evidence from indicators or proxies of stock status.	6
The fishery resource status has been recently assessed using a scientifically sound methodology.	11
<b>Guidance</b>	
<p>The assessment of the status of the fishery resource in the reduction component of the catch should be based on the best scientific advice available. To score a high mitigation score this would need to involve a formal assessment based on tools such as aggregate production modelling, multi-species production modelling, ecosystem modelling etc. It could also entail PSA for the main 'low-value/trash fish' stocks to demonstrate that these are stocks have a low vulnerability/risk to current fishing effort.</p> <p>Where such quantitative assessments are not available, either through a lack of informative data or the capacity to analyse them, or both, less data-rich assessments of the status of the aggregate resource are possible. For example, analyses of the historical catch time-series and distributions of various population parameters, swept-area methods based on ad-hoc fishery-independent surveys and non-parametric analyses. These methods would rate a lower risk mitigation score.</p>	



<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.2 Stock assessments shall be conducted with sufficient frequency</b> to permit the informed management of the stock; shall take into account the best available scientific information and shall consider the entire biological stock.
<b>MarinTrust whole fish fishery assessment</b>	A2.1, A2.4, A2.5
<b>FAO CCRF</b>	7.4.1
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>C6. Assessment and status of the resource (juvenile catch)</b>	
	<b>Mitigation Score</b>
There has been no consideration of the possible impact of the catch of juvenile higher-value fish on the status of the fishery resource of the total UoA.	0
There has been consideration of the possible impact of the catch juvenile higher-value fish, but no assessment has been made.	6
The impact of the catch of juvenile higher-value fish on the fishery resources in the UoA is known with a fair degree of accuracy.	11
<b>Guidance</b>	
The assessment of juvenile catch would be based on inferences about the amount of juvenile fish taken. When the proportion of juvenile catch is high (30-50% of the total 'low value/trash fish), it could be inferred that the impact is relatively high. Size frequency data could also be used for selected species to demonstrate the difference between the mean size at maturity and the size of the captured fish.	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.2 Stock assessments shall be conducted with sufficient frequency</b> to permit the informed management of the stock; shall take into account the best available scientific information and shall consider the entire biological stock.
<b>MarinTrust whole fish fishery assessment</b>	A2.1, A2.4, A2.5
<b>FAO CCRF</b>	7.4.1
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>C7. Management measures and their effectiveness</b>	
	<b>Mitigation Score</b>
There are no management measures in place to control the catch of the reduction component nor the amount of juvenile higher-value fish taken.	0

There are management measures in place to control the catch of the reduction component and the amount of juvenile higher-value fish taken but are not effective.	6
There are management measures in place to control the catch of the reduction component and the amount of juvenile higher-value fish taken, which are effective.	11
<b>Guidance</b>	
<p>Are there management measures in place to control the amount of the total catch in the reduction component and are they being complied with and effective. In general, these would refer to management measures for the whole UoA that would also control the catch of the reduction component. These could include:</p> <ul style="list-style-type: none"> <li>• Catch controls (total allowable catch (TACs), catch quotas)</li> <li>• Effort controls (total allowable effort (TAEs), effort quotas) <ul style="list-style-type: none"> <li>○ Boat number limits, fishing days limits, gear restrictions, TURFs</li> </ul> </li> <li>• Vessel buybacks</li> <li>• Limits of fish size (maximum and minimum)</li> <li>• Spatial controls (closed areas, MPAs)</li> <li>• Temporal controls (seasonal closures)</li> <li>• Restocking and stock enhancement</li> <li>• Artificial reefs</li> </ul> <p>Are there also measures in place to further minimize the catch of juvenile commercial fish? These could include:</p> <ul style="list-style-type: none"> <li>• Gear modifications (mesh size limits, BRDs, JTEDs)</li> <li>• Temporal controls (seasonal closures to protect juvenile fish)</li> </ul> <p>Note that it will be impossible to eliminate the catch of juvenile fish entirely without reducing the catch of the reduction component to such a level as to make it commercially unviable.</p>	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.3</b> There is a <b>mechanism in place</b> by which <b>total fishing mortality can be controlled</b> , and this mechanism is effective at maintaining fishing mortality within the levels recommended by scientific organisations.
<b>MarinTrust whole fish fishery assessment</b>	A3.1, A3.3
<b>FAO CCRF</b>	7.1.1
<b>MSC Fisheries standard</b>	
<b>GSSI Global benchmark</b>	

<b>C8. Management performance (reduction component)</b>	
	<b>Mitigation Score</b>
The fishery has failed to achieve the objectives it has set in relation to the reduction component OR there are no such objectives.	0
The fishery is making progress to meeting the objectives it has set in relation to the reduction component of the catch.	6
The fishery has achieved the objectives it has set in relation to the reduction component of the catch.	11
<b>Guidance</b>	
Is there evidence that management is working towards meeting the objective(s)?	
This question should be answered by having documented reports that directly compare objectives and target reference points described in C1 with the results of the monitoring of indicators in C3. The overall objective is to ensure that the fishery is achieving outcomes consistent with the long-term sustainable use of the reduction component of fisheries resources under management. The objectives, however, may be more specific, such as to reduce the fishing effort and/or rebuild the resources, and in such cases the M&E might involve comparing indicators such as the current fishing mortality with the $F_{MMSY}$ and the current biomass with $B_{MMSY}$ and their proxies.	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.2.1.3</b> There is a <b>mechanism in place</b> and this mechanism is <b>effective at maintaining fishing mortality within the levels recommended by scientific organisations.</b>
<b>MarinTrust whole fish fishery assessment</b>	A3.2
<b>FAO CCRF</b>	
<b>MSC Fisheries standard</b>	1.1.1
<b>GSSI Global benchmark</b>	D.6.02

<b>C9. Management performance (juvenile catch)</b>	
	<b>Mitigation Score</b>
The fishery has failed to achieve the objectives it has set in relation to juvenile catch OR there are no such objectives.	0
The fishery is making progress to meeting the objectives it has set in relation to the juvenile catch.	6
The fishery has achieved the objectives it has set in relation to the juvenile catch	11
<b>Guidance</b>	
Is there evidence that management is working towards meeting the objective(s)?	
This question should be answered by having documented reports that directly compare objectives and target reference points described in C2 with the results of the monitoring of indicators in C4. The overall objective is to ensure that the fishery is achieving outcomes consistent with the long-term sustainable use of the reduction component of fisheries resources under management.	
<b>Links: (see Annex 1)</b>	

MarinTrust Standard clause	<b>1.3.2.1.3</b> There is a <b>mechanism in place</b> and this mechanism is <b>effective at maintaining fishing mortality within the levels recommended by scientific organisations.</b>
MarinTrust whole fish fishery assessment	A3.2
FAO CCRF	
MSC Fisheries standard	
GSSI Global benchmark	

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## 8.2 2b. Endangered, threatened and protected species (ETPs)

This refers to species that are:

- Categorised by the IUCN as Endangered or Critically Endangered:
  - Endangered. When used in the context of the IUCN Red List, a taxon is classified as endangered when there is very high risk of extinction in the wild in the immediate future.
  - Critically Endangered. When used in the context of the IUCN Red List, a taxon is classified as critically endangered when there is an extremely high risk of extinction in the wild in the immediate future (IUCN, 2001).

Or:

- Appear in the CITES appendices I, II or III:
  - Appendix I includes species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.
  - Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilisation incompatible with their survival.
  - Appendices III contains species that are protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade.

Species listed in national (state/province/local) legislation as being depleted, at increased risk of extinction and usually subject to conservation measures are also considered as ETPs.

Possible ETPs include some species of turtles, dugongs, some species of seals, some species of sea snakes and 16 species of fish in Appendix I, 107 species in Appendix II and 24 species in Appendix III 24. The main groups of marine fish are (i) some species of sawfish, (ii) some species of sharks and (iii) some species of seahorses.

Note no species in CITES appendices, or categorised by the IUCN as Endangered or Critically Endangered, will be approved for use as a MarinTrust approved raw material.

For ETPs, the criteria are based on three main measures that consider whether:

1. interactions with ETPs are known;
2. there is no substantial evidence that the fishery has a significant negative effect on ETPs;
3. the fishery is known to interact with ETPs – if so, measures are in place to minimise mortality.

The following table is a summary of relevant overarching standards that relate to ETPs.

UNCLOS, CBD	FAO CCRF	Southeast Asia Regional CCRF
<p>UNCLOS Article 194.5: ‘The measures taken in accordance with this Part shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life’.</p> <p>CBD Article 8f ‘Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species’.</p>	<p>CCRF Article 7.2.2d : ‘Biodiversity of aquatic habitats and ecosystems is conserved and endangered species are protected’</p>	<p>Regional CCRF Article 7.2.2 (7): ‘States should ban fishing and taking of rare, threatened and endangered species.’</p>

T1. ETPs are known		Mitigation Score
There is no list of ETPs and fishers are unaware of the existence of ETPs.		0
Some ETPs have been listed and fishers are familiar with these.		12
A full list of ETPs has been formally adopted and fishers are familiar with all of these ETPs.		25
Guidance		
This criterion is looking for evidence of a list of ETPs for the fishery that are known by the fishers. The list should be a combination of IUCN red list species, CITES annexes species and any further nationally listed species that occur in the area of the UoA.		
Links: (see Annex 1)		
MarinTrust Standard clause	1.3.3.1 (part) The fishery management system shall monitor the impacts of the fishery on ETP species.	
MarinTrust whole fish fishery assessment	F1.1	
FAO CCRF		
MSC Fisheries standard	2.3.3	
GSSI Global benchmark	D.4.04	

T2. Interactions with ETPs are known		Mitigation Score
There are no observations or records pertaining to ETPs interaction with the fishery.		0
There are ad hoc observations or records of interactions with ETPs.		12

There are reliable and regular records of ETP interactions.		25
<b>Guidance</b>		
Based on the list of ETPs species, this standard should assess whether the fishery has had, or is still having any interactions with ETPs. This could range from having no information, to having ad hoc information to having more formal recording system.		
<b>Links: (see Annex 1)</b>		
<b>MarinTrust Standard clause</b>	<b>1.3.3.1 (part)</b> The fishery management system shall monitor the impacts of the fishery on ETP species.	
<b>MarinTrust whole fish fishery assessment</b>	F1.1	
<b>FAO CCRF</b>		
<b>MSC Fisheries standard</b>	2.3.3	
<b>GSSI Global benchmark</b>	D.4.04	

<b>T3: Interaction effects</b>		
		<b>Mitigation Score</b>
It is unknown whether the fishery has a significant negative effect on ETPs.		0
There is some evidence to show that the fishery has no negative effect on ETPs		12
There is substantial evidence to show that fishery has no negative effect on ETPs.		25
<b>Guidance</b>		
This standard requires evidence to show that the fishery does not kill a significant number of ETPs. A 'significant' number is a value judgement and if affected by the status of a particular ETP. If the ETP is critically endangered, then a zero kill would be considered significant. On the other hand, if the ETP is relatively common but listed by one country in CITES Appendix III, an incidental kill could be tolerated. Note that the criterion refers to killing of ETPs, if caught by the fishing gear, and released unharmed back into the sea the effect is less.		
<b>Links: (see Annex 1)</b>		
<b>MarinTrust Standard clause</b>	<b>1.3.3.1 (part)</b> The fishery shall not have a significant negative effect on ETP species or place them at serious risk of extinction.	
<b>MarinTrust whole fish fishery assessment</b>	F1.2	
<b>FAO CCRF</b>		
<b>MSC Fisheries standard</b>	2.3.2	
<b>GSSI Global benchmark</b>	D.5.10	

<b>T4. Management measures and their effectiveness</b>		
		<b>Mitigation Score</b>
The fishery is known to interact with ETPs AND:		
There are no strategies or measures in place to minimise mortality of ETPs.		0
There are some strategies and measures in place to protect ETP species, and to mitigate the impacts of the fishery on ETP species, but they are not effective.		12

There are comprehensive strategies and measures in place to protect ETP species, and mitigate the impacts of the fishery on ETPs, which are effective.	25
<b>Guidance</b>	
<p>If there are no known interactions with any ETP, the mitigation score for this criterion is 33.</p> <p>If there are known interactions, the assessor should take note of any regulations or management measures that are in place to avoid/minimise risks of capture, such as gear modifications e.g. turtle exclusion devices (TEDs), bycatch reduction devices (BRDs), mesh configurations (e.g. square meshes), closed areas and/or seasons of known ETP habitats.</p> <p>Educational material and training for fishermen to identify ETP species and learn appropriate handling techniques that increase the survival of released ETPs is also an important measure.</p> <p>Any studies that are on-going into protection of ETP species.</p>	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.3.1 (part)</b> The fishery management system shall minimise these impacts to the extent practicable.
<b>MarinTrust whole fish fishery assessment</b>	F1.3
<b>FAO CCRF</b>	7.2.2
<b>MSC Fisheries standard</b>	2.3.1
<b>GSSI Global benchmark</b>	D.2.06, D.6.06



## 8.3 2c. Habitats

In a narrow sense a critical habitat is a habitat area essential to the conservation of a threatened or endangered species. In a broader definition, the Southeast Asia Regional CCRF defines critical habitats as habitats that are essential to maintaining the integrity of an ecosystem, species or assemblages of species. For a species, critical habitats are habitats that are important for the spawning and survival of juvenile fish, which if degraded, results in a decline in the abundance of fish. Mangroves, seagrass and coral reefs are commonly referred to as ‘critical habitats’.

Critical habitats are impacted by both fishery-related damage and damage caused by non-fishery uses such as coastal development, aquaculture, forestry and agriculture. The focus of this category is the degradation of critical habitats caused by fishing.

The assessment of critical habitats is also based on three main criteria:

1. Potential critical habitat interactions are considered in the management decision-making process.
2. There is no substantial evidence that the fishery has a significant negative impact on critical habitats.
3. If the fishery is known to interact with critical habitats, there are measures in place to minimise and mitigate negative impacts to within acceptable limits.

The following table is a summary of relevant overarching standards that relate to habitats.

UNCLOS, CBD	FAO CCRF	Southeast Asia Regional CCRF
CBD Article 8 (d): ‘Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings.’	CCRF Article 6.8: ‘All critical fisheries habitats in marine and freshwater ecosystems, such as wetlands, mangroves, reefs, lagoons, nursery and spawning areas, should be protected and rehabilitated as far as possible and where necessary.’	Regional CCRF Article 7.3.3 (2): ‘States should strongly implement management measures such as closed areas and seasons in critical habitats (e.g. coral reefs, seagrass beds, mangrove areas, etc.) which are important for sustaining fish stocks.’

Measures may include specification of the critical habitats in fisheries management plans or in separate critical habitat management plans. They may also include laws, rules and regulations aimed to conserve or protect certain critical habitats or traditional knowledge of fishers, such as protection by a spatial/temporal closure.

If there is little available information on the critical habitats encountered by the fishery, a risk-based approach could be used.

H1. Habitat consideration	
	Mitigation Score
There is no consideration of potential critical habitat interactions in the management of the fishery.	0
There is some consideration of potential critical habitat interactions in the management of the fishery.	16

There is full consideration of potential critical habitat interactions in the management of the fishery.	33
<b>Guidance</b>	
The assessor should determine if the potential impact of the fishery on the physical critical habitats are recognised in the management of the fishery.	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.3.2 (part)</b> The fishery management system shall monitor the impacts of the fishery on the physical environment.
<b>MarinTrust whole fish fishery assessment</b>	F2.1
<b>FAO CCRF</b>	
<b>MSC Fisheries standard</b>	2.4.3
<b>GSSI Global benchmark</b>	D.4.05

<b>H2. Information on the impact on critical habitats</b>	
	<b>Mitigation Score</b>
There is no information on the impacts of the fishery on the critical habitats it encounters.	0
There is limited information collected on the impacts of the fishery on the main critical habitats.	16
There is comprehensive information collected on the impacts of the fishery on main and critical habitats.	33
<b>Guidance</b>	
<p>The level of knowledge of the critical habitats for the species/species groups under consideration and critical habitats that are highly vulnerable to damage by the fishing gear of the UoA should provide sufficient understanding to enable impacts of the UoA on those critical habitats to be avoided, minimised or mitigated.</p> <p>The assessors should review the information that is available to understand the main impacts of the gear on the main critical habitats, especially spatial overlap of critical habitats and fishing gear.</p> <p><b>GSSI: D.4.05</b> The standard requires that there is knowledge within the fishery management system of the essential critical habitats for the stock under consideration and habitats that are highly vulnerable to damage by the fishing gear of the UoA. This includes knowledge of the full spatial range of the relevant critical habitat, not just that part of the spatial range that is potentially affected by fishing.</p>	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.3.2 (part)</b> The fishery shall not have a significant negative effect on the physical environment.
<b>MarinTrust whole fish fishery assessment</b>	F2.2
<b>FAO CCRF</b>	12.5
<b>MSC Fisheries standard</b>	2.4.1
<b>GSSI Global benchmark</b>	D.5.08

<b>H3. Management measures</b>	
	<b>Mitigation Score</b>
If the fishery is known to interact with critical habitats AND:	
There are no measures in place to minimise and mitigate negative impacts.	0
There are some measures in place to minimise and mitigate negative impacts, but they are not effective.	16
There are comprehensive measures in place to minimise and mitigate negative impacts that are effective.	33
<b>Guidance</b>	
<p>The standard requires the existence of management measures seeking to avoid, minimise or mitigate impacts of the UoA on essential critical habitats for the species/species groups under consideration and on critical habitats that are highly vulnerable to damage by the fishing gear of the UoA. For example, spatial/temporal closures, closed areas and/or seasons in critical habitats (e.g. coral reefs, seagrass beds, mangrove areas, etc.) gear modifications, and/or banning of destructive gears.</p> <p>The assessor should review the regulations or management measures that are in place to protect critical habitats. The assessor should also establish whether the measures are being complied with.</p>	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.3.2 (part)</b> The fishery management system shall minimise these impacts to the extent practicable.
<b>MarinTrust whole fish fishery assessment</b>	F2.3
<b>FAO CCRF</b>	6.8
<b>MSC Fisheries standard</b>	2.4.2
<b>GSSI Global benchmark</b>	D.3.09

## 8.4 2d. Ecosystems

Fishing, like any human activity, has an impact on the ecosystem. The production of food on land is almost entirely based on managed ecosystem change which is generally significant e.g. monoculture crops on cleared lands. For fisheries, there are choices and trade-offs to be made and good fisheries management makes clear the options and consequences of fishing. The complexity of ecosystems can make defining desirable operational reference points difficult. What should an ecosystem structure look like? How much change is allowable before undesirable effects occur? Selecting any particular ecosystem structure will come with trade-offs. It is impossible to have all species simultaneously at large biomasses because an increase in some species will mean a decline in others. The phenomenon of ‘fishing down the food chain’ is possible. This is the depletion of the large predatory fish on top of the food web, which is followed by the depletion of increasingly smaller species, finally ending up with previously non-commercial small fish and invertebrates. An ecosystem where predators are depressed may generate larger standing biomasses and potential yields of prey species, but this will come at a cost of increased potential for year-to-year variation within the system and lower prices per weight.

In trying to select a plausible and desired ecosystem state and because of the nonlinear dynamics of ecosystems along with the influence of climate change, means that it may not be possible to get back to a previous state. The following table is a summary of relevant overarching standards that relate to the ecosystem.

UNCLOS, CBD	FAO CCRF	Southeast Asia Regional CCRF
CBD Article 8 (d): ‘Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings’	CCRF Article 6.1: ‘States and users of living aquatic resources should conserve aquatic ecosystems’.	Regional CCRF Article 7.2.2 (4): ‘States should be aware of the importance of maintaining the biodiversity and extent of aquatic habitats and ecosystems to the conservation and management of tropical fisheries’.

The criteria for this category are:

1. The impact of the fishery on the broader ecosystem within which the fishery occurs is considered in management.
2. The impact on the ecosystem structure and function is known.
3. The presence of key ecological species (either key predators or key prey that influence the ecosystem structure and function) has been evaluated.
4. Management measures are in place to mitigate the impact of fishing on the ecosystem. If the impact on any key ecological elements is unacceptable, additional precaution is included in recommendations relating to the total permissible fishery removals.

As with many of the other categories considered in this multi-species assessment, there will be trade-offs in terms of what is considered an acceptable outcome. In the case of the ecosystem, this will lie somewhere between having low fishing effort of selective fishing gears and a pristine ecosystem, to a high fishing effort of mainly unselective fishing gears that have had a deleterious impact on the structure and function of the ecosystem. A primary goal should be to manage the system such that

the ecosystem structure is still resilient to future shocks, such as climate change, while still allowing other goals to be included, where agreed.

<b>E1. Ecosystem consideration</b>	
	<b>Mitigation Score</b>
The impact of the fishery on the broader ecosystem within which the fishery occurs is not considered in management.	0
The impact of the fishery on the broader ecosystem within which the fishery occurs is considered in a superficial way in management.	12
The impact of the fishery on the broader ecosystem within which the fishery occurs is considered fully in management.	25
<b>Guidance</b>	
<p>The assessor should determine if the potential impact of the fishery on the ecosystem is recognised in the fishery management system. This could be in the form of legislation and/or policy. However, 'considered fully' would involve a description of how the ecosystem impact is operationalised in terms of fisheries management and considered in a fishery management plan or strategy document.</p> <p>The impact could be assessed using one or more of the ecosystem-level indicators that relate the total catch to some indicator of ocean productivity. If feasible, the impact may be considered in the form of loss of biodiversity, both in the supporting environment and the supporting habitats. The ecosystem structure and function should not necessarily be undisturbed (not possible when harvesting occurs) but should not be excessively risky.</p>	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.3.3</b> The fishery management system shall monitor the impacts of the fishery on aquatic ecosystems and minimise these impacts to the extent practicable. The fishery shall not have a significant negative effect on aquatic ecosystems.
<b>MarinTrust whole fish fishery assessment</b>	F3.1
<b>FAO CCRF</b>	
<b>MSC Fisheries standard</b>	<b>2.5.3</b>
<b>GSSI Global benchmark</b>	F.4.02

<b>E2. Impacts on the ecosystem structure and function</b>	
	<b>Mitigation Score</b>
There is no information available on the ecosystem structure/biodiversity and function.	0
There is only ad-hoc information about the impact of the fishery on the ecosystem, especially with respect to structure/biodiversity and function.	12
The impact on the ecosystem is well known, especially with respect to structure/biodiversity and function.	25
<b>Guidance</b>	

The assessor should review the types of information available on the fishery effects on the ecosystem structure/biodiversity and function (e.g. research surveys), including any ecosystem-level indicators.

Have the main impacts of the ecosystem structure and function been assumed from this existing information but not fully investigated? Compared to the state prior to fishing, what changes have occurred in the ecosystem structure that could impact its resilience to further impacts (e.g. changes in fishing operations or climate change).

**Links: (see Annex 1)**

<b>MarinTrust Standard clause</b>	<b>1.3.3.3 (part)</b> The fishery management system shall monitor the impacts of the fishery on aquatic ecosystems.
<b>MarinTrust whole fish fishery assessment</b>	F3.2
<b>FAO CCRF</b>	<b>12.5</b>
<b>MSC Fisheries standard</b>	<b>2.5.2</b>
<b>GSSI Global benchmark</b>	D.5.07

### E3. Impacts on key ecological species/keystone species

	Mitigation Score
There is no data or information on key ecological species in the ecosystem.	0
There is limited data and information that indicates that there is either no key ecological species in the ecosystem or that the impact on the fishery on these is known with a low degree of certainty.	12
There is adequate data and information that indicates that there is either no key ecological species in the ecosystem or that that the impact on the fishery on these is known with a high degree of certainty.	25

#### Guidance

This criterion looks at the case where there could be key ecological species in the ecosystem. These are defined as an organism that helps define an entire ecosystem. Without these keystone species, the ecosystem would be dramatically different or cease to exist altogether.

Examples of marine key ecological species include anchovy in some ecosystems that form the prey for a large number of marine species.

**Links: (see Annex 1)**

<b>MarinTrust Standard clause</b>	
<b>MarinTrust whole fish fishery assessment</b>	F3.3
<b>FAO CCRF</b>	
<b>MSC Fisheries standard</b>	2.5.1, 1.1.1A
<b>GSSI Global benchmark</b>	D.2.08, D.3.10, D.4.06, D.6.06

### E4. Management measures and strategies

	Mitigation Score
There are no measures in place for the management and conservation of ecosystem structure and function.	0

There are some plans/strategies and measures in place for the management and conservation of ecosystem structure and function.	12
There is a comprehensive set of plans/strategies and measures in place for the management and conservation of ecosystem structure and function.	25
<b>Guidance</b>	
<p>The assessor should review the regulations or management measures that are in place to manage the impact on the fishery resources, but which would have the capacity to achieve ecosystem outcomes. These would include all the measures aimed to control the fishing operations, but in particular areas closed to the fishery (e.g. marine protected areas (MPAS) set up to protect and conserve biodiversity). These need to meet the objectives as set out in E1.</p> <p>If the impact on key ecological species is unacceptable, it may be necessary to add additional precaution in the setting of, for example, catch and effort controls.</p> <p>It may also be necessary to introduce additional controls to protect and conserve key ecological specie/species groups such as culling of undesirable species/species groups or restocking and stock enhancement.</p> <p>The GSSI standard requires the existence of management objectives that seek to minimise adverse impacts of the UoA, including any associated enhancement activities if applicable, on the structure, processes and function of aquatic ecosystems that are likely to be irreversible or very slowly reversible.</p> <p>The assessor should review the regulations or management measures that are in place to manage the impact on target species or other components, but which would have the capacity to achieve ecosystem outcomes.</p>	
<b>Links: (see Annex 1)</b>	
<b>MarinTrust Standard clause</b>	<b>1.3.3.3 (part)</b> The fishery management system shall minimise these impacts to the extent practicable. The fishery shall not have a significant negative effect on aquatic ecosystems.
<b>MarinTrust whole fish fishery assessment</b>	F3.1, F3.3
<b>FAO CCRF</b>	7.2.2
<b>MSC Fisheries standard</b>	2.4.1
<b>GSSI Global benchmark</b>	D.2.09, D.3.11, D.6.09

## 9. Socio-economic criteria

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

### Improver Programme notes

In the current version of the MarinTrust fishery assessment, the social component is limited to a commitment from applicants. The extent to which this commitment is 'tested' is limited. However, applicants to the Improver Programme should be aware that this section will be under continuing development over the coming year(s), and additional social requirements are likely to be added before the end of any FIP process.

Because the overall goal of fisheries management is to maximise socio-economic benefits while minimising impacts on the fishery resources and the integrity, structure and functioning of the ecosystem. Because of this, a set of economic criteria is also being considered so that the costs (impacts on the fishery resources and the ecosystem) can be balanced with socio-economic benefits.

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