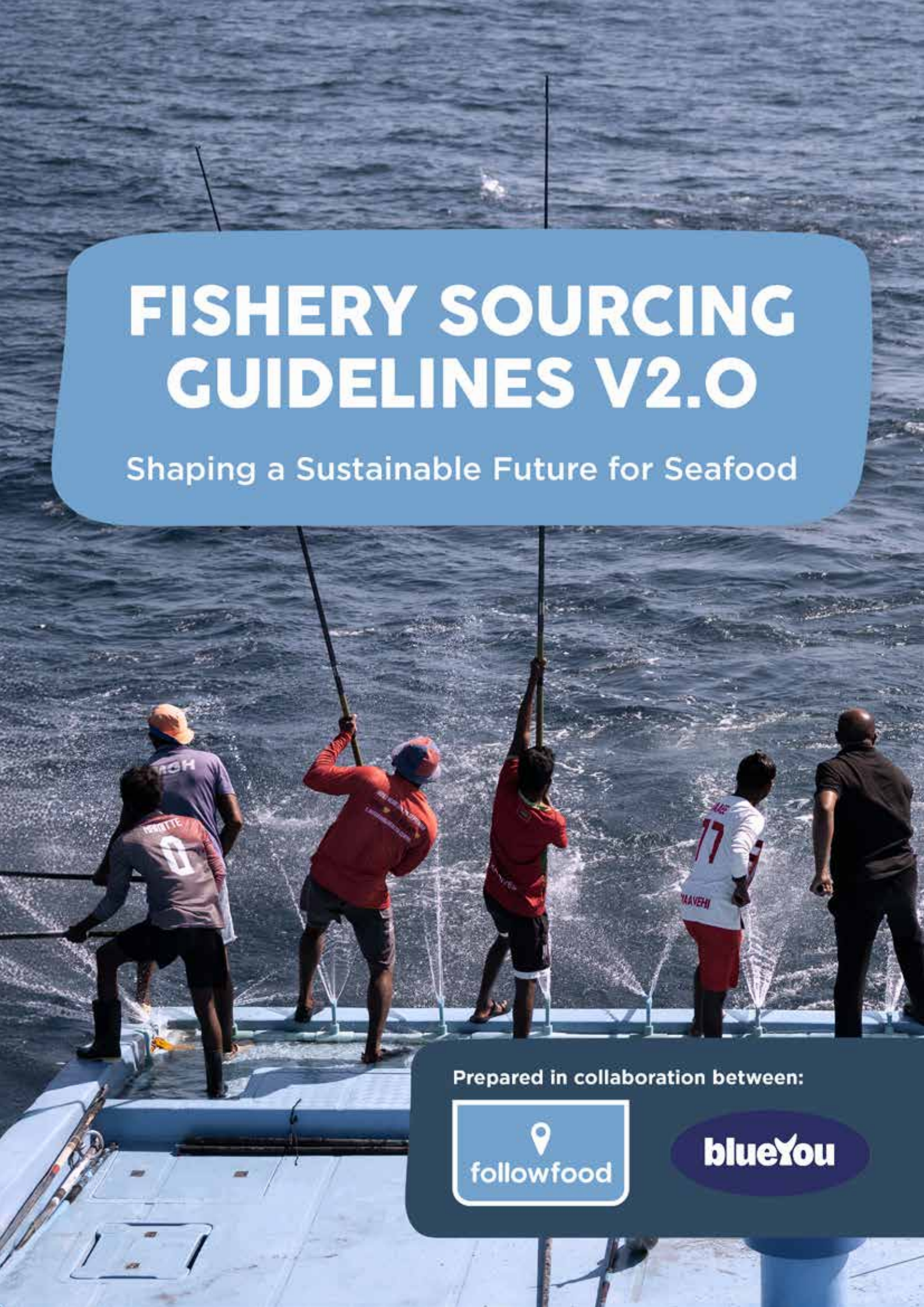


FISHERY SOURCING GUIDELINES V2.0

Shaping a Sustainable Future for Seafood

Prepared in collaboration between:

followfood

blueYou

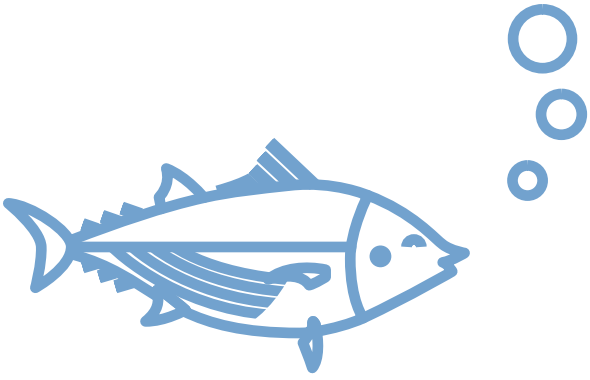
ACKNOWLEDGMENTS

The followfood Sourcing Guidelines, commissioned and financially supported by followfood and developed in collaboration with Blueyou, are a testament to the collective contributions and expertise of numerous individuals and organizations. The expert committee, consisting of esteemed experts in their respective fields, played integral roles in shaping the guidelines.

We express our gratitude for the significant contributions of the WWF (World Wildlife Fund). Franck Hollander, Dr Philipp Kanstinger, and Mark Heuer from the WWF invested substantial time and effort in developing and reviewing these guidelines. Their expertise and insights greatly enhanced the credibility and rigor of the followfood Sourcing Guidelines. We would also like to highlight the work of Dr Robert Parker, from Dalhousie University, who conducted extensive research and laid the groundwork for the greenhouse gas (GHG) criterion. Sven Blankenhorn, a specialist in promoting ethical and sustainable practices, made significant contributions to the social criteria, and Prof. Dr Christian Möllmann from the University of Hamburg provided valuable insights and served as a reviewer, ensuring the accuracy of the followfood Sourcing Guidelines. Additionally, unnamed partners contributed their expertise and support throughout the process, further strengthening the comprehensiveness and effectiveness of the guidelines.

The development process involved working sessions, where all committee members actively participated, sharing their knowledge and engaging in open discussions to shape the individual criteria. Following the working sessions, a thorough review process was conducted to align the developed guidelines with the outcomes of the working sessions and incorporate the input and expertise of the committee members.

Before the official publication, the followfood Sourcing Guidelines underwent several months of internal testing across various fisheries and supply chains. This phase served to verify that the criteria were not only scientifically sound but also applicable. Feedback from internal users led to targeted adjustments, particularly regarding the social criteria for the fishing operation and the stock status of bycatch. We extend our sincere appreciation to all those involved, including the lead authors of this report Oscar Zamora, David Benkel, Jonas Walker, and Fabian Mollet, for their dedication and valuable contributions to this endeavour. Their collective efforts have resulted in the creation of a comprehensive guideline that promotes transparency, sustainability, and responsible sourcing practices in the seafood industry. Additionally, we would like to thank the Marine Stewardship Council (MSC), whose certification provides the strong and valuable foundation on which followfood builds, making these sourcing guidelines possible. Lastly, it is important to note that followfood holds a majority stake in Blueyou. The expert committee's contributions, therefore, not only improved the quality and completeness of the standard but also enhanced its objectivity.



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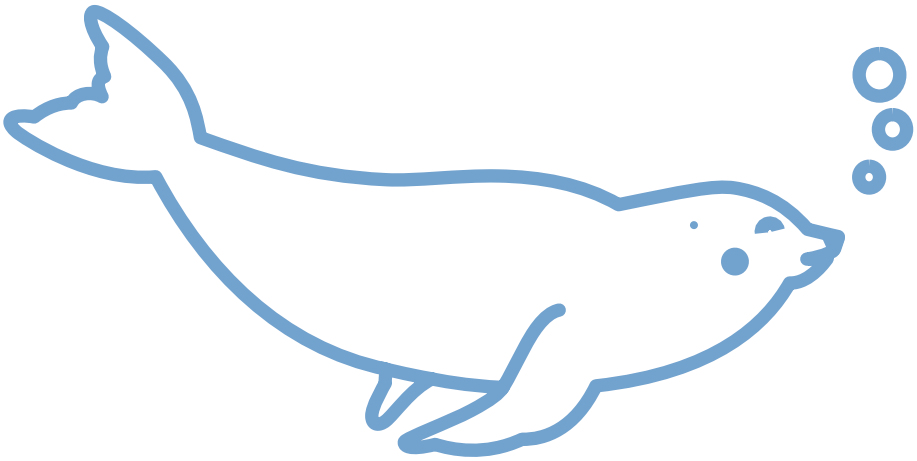


1 GLOSSARY

B. Total biomass of a stock, i.e., the sum weights of all individuals of a defined stock. Usually, the Spawning Stock Biomass (SSB) is used as an indicator for population biomass in reference points (see below).

B_{lim}. Limit reference point for population biomass size below which it is at "unsustainable" biological limits because its reproduction and recruitment are impaired (ICES, 2013).

B_{MSY}. A reference point for population biomass that results in the Maximum Sustainable Yield (MSY) when iteratively fished at F_{MSY} until equilibrium (ICES, 2013).

B_{pa}. A precautionary limit reference point for population biomass, i.e., the point below which the limit reference point B_{lim} lies with a probability of 95% (ICES, 2013).

Bycatch. The incidental capture of non-target species during fishing. The species compounding the bycatch can be kept or discarded, depending on their commercial value, size, and regulations in place.

CITES. Convention on International Trade in Endangered Species of Wild Fauna and Flora.

CMS. Convention on the Conservation of Migratory Species of Wild Animals.

Concern category. The concern category is based on the quantitative score of the followfood (ff) assessment and expresses the level of compliance of a fishery regarding the ff guidelines (*e.g.*, Least concern: High compliance; Some concerns; Medium compliance; Critical concern: non-compliant).

Discards. Any organism caught but not retained and thrown back to sea, dead or alive, before landings. Discards are not retained because they either have no market or to prioritize species with a better market given the space limitations on the vessel.

ETP species. Endangered, Threatened, or Protected species.

F. Fishing mortality. A measure of the intensity with which a stock is exploited, defined as the rate of population decline due to fishing mortality in an interval of one year.

FAO. Food and Agriculture Organization, United Nations.

FCR. Favourable Conservation Status. When an ETP/OOS unit stock is at a level equivalent to 50% carrying capacity based on reference points such as Optimum Sustainable Population, Maximum Net Productivity Level, Maximum Sustained Fishing Mortality or Fishing Mortality or Biomass-based reference points (MSC, 2022c) .

ff. followfood.

ff assessment species. The species to be evaluated in an ff assessment, given by species that account for >5% of the landing volume of the fishery from which the target species originates. In MSC terminology, this corresponds to the target species and all main species (excluding "less resilient" species under the MSC assessment accounting for <5% but >2% of the total landing volume).

ff target species. A species ff buys from a fishery which is subject to the ff assessment. In MSC terminology, there can be several target species assessed against the MSC standard. In the ff assessment, a ff target species is only the species of interest for ff.

F_{lim}. Limit reference point for fishing mortality rate *F*. If fished at this rate in iteration, the population will diminish to a size below which it is at 'unsafe biological limits, because its reproduction and recruitment are impaired (ICES, 2013).

F_{MSY}. A target reference point for fishing mortality rate *F*. If fished at this rate, the population will equilibrate at the size B_{MSY} and produce the Maximum Sustainable Yield (MSY) (ICES, 2013).

F_{pa}. A precautionary limit reference point for fishing mortality rate (mean over defined age range) (ICES, 2013).

HCR. Harvest Control Rule. The set of actions designed by the stakeholders and implemented by the authorities to ensure sustainable exploitation and prevent overfishing (*e.g.*, limitation of licenses, limitation of catch volume, closed seasons, allowed gears, minimum catch sizes, etc.).

ILO. International Labour Organization.

Landings. The retained species landed in the port (i.e., catch minus discards).

LRP. Limit Reference Point.

MSC-main species. As defined in the MSC standard, the MSC-main species are those that represent more than 5% of the total catch volume of a fishery (or 2% for less resilient species). In the ff guidelines, all MSC-main species, except less resilient main species, are ff assessment species (see above) and subject to the ff criteria.

MSC. Marine Stewardship Council

MSY. Maximum Sustainable Yield. The largest theoretical yield that can be taken from a species' stock (ICES, 2013). MSY is achieved when the population is kept at a size where its biomass growth is maximal, usually based on a logistic population growth model.

NGO. Non-governmental Organization.

PI. Performance Indicator. The lowest level of sub-criterion of every MSC principle (MSC, 2022b).

PCR. Public Certification Report. The assessment report published in the MSC website after approval by the MSC evidencing the MSC certification of the fishery (MSC, 2022b).

R. Recruitment. The number of fish added to the exploitable stock each year due to reproduction and growth (or *e.g.*, migration into the fishing area). For example, the number of fish that grow to become vulnerable to the fishing gear in one year would be the recruitment to the fishable stock that year. This term is mostly used in referring to the number of fish from a year class reaching a certain age. For example, all fish reaching their first year are the age-1 recruits (ICES, 2013).

S. Escapement. The number of fish that escaped the fishery and were, consequently, not caught. This indicator is commonly used for salmon fisheries, as the escaped fish are the spawners moving into the river to reproduce (NOAA, 2006).

SG. Scoring Guidepost. Benchmark level of performance for every numeric score for each performance indicator used in the MSC standard (MSC, 2022b).

S_{buf}. A limit reference point associated with the minimum number of escapements necessary to avoid recruitment impairment in salmon fisheries.

S_{MSY}. The target number of escapements to produce the MSY in salmon fisheries.

SS*B*. Spawning stock biomass, i. e., total weight of all sexually mature fish in the stock (ICES, 2013).

Stock. A group of fish of the same species that live in the same geographic area and mix enough to breed with each other when mature.

MSC-target species. As defined by the MSC standard, the target species are the species for which the MSC certification is done, for which the certification is valid, and for which the MSC logo can be applied. More than one fishery species can be an MSC target species and have to be assessed under Principle 1 of the MSC Fisheries standard.

TRP. Target Reference Point.

UoA. Unit of Assessment. Scope of the assessment: the entire fishery under assessment, defined by the target species, fishing gears, and fishing area (MSC, 2022b).

VME. Vulnerable Marine Ecosystem.

VMS. Vessel Monitoring System.

WGI. World Governance Indicators.

1.1 GLOSSARY FOR THE SOCIAL COMPLIANCE CRITERION

Amfori BSCI. Since 2003, Amfori BSCI (a business association) has enabled companies to trade with purpose by improving social performance in their supply chain. Their strong Code of Conduct has 11 principles that support their members; these range from fair remuneration to no child labour, along with a step-by-step approach that enables companies to monitor, engage, get empowered, and receive support to put sustainable trade at the heart of their business. amfori.org

AENOR Atún de Pesca Responsable certification. The Atún de Pesca Responsable (APR) certification guarantees the social and labour rights of the fishing fleet according to international standards and agreements while ensuring compliance with best fishing practices as suggested by globally recognized standards. The APR applies to industrial/medium or large fisheries. atundepescaresponsableaenor.com

BRCGS ETRS. The BRCGS Ethical Trading and Responsible Sourcing Standard meets the clients' ever-evolving needs and responds to shifts in buyer, regulatory, and investor behavior. It is also the only global standard that provides supply chain confidence and true social compliance. brcgs.com

Fair Trade USA Capture Fisheries Standard. The Fair Trade USA Capture Fisheries Standard (CFS) was developed to allow fishers to demonstrate the core elements of fair trade in their practices while helping them commercialize their product. The CFS is organized around the core principles of Fair Trade USA. The CFS applies to small-scale fisheries, but for the guidance is treated as appropriate to both industrial/medium or large fisheries and small-scale fisheries. fairtradecertified.org.

(FISH) Standard for Crew. The development of the FISH standard was driven by harvesters, with input from the entire seafood supply chain and social-focused NGOs. FISH provides a tool for responsible harvesters to demonstrate to buyers and potential buyers that their products were harvested in line with internationally recognized best practices for decent, socially responsible working conditions. fishstandard.com

Fishery Progress. Fishery improvement projects use the power of the private sector to address challenges in a fishery. As fishery improvement projects (FIPs) worldwide grow, businesses and conservation organizations need an easier way to access consistent, reliable information about FIP progress. Fishery Progress gives buyers and customers a range of information about global FIPs, from a quick snapshot of progress and opportunities to get involved to detailed evidence for improvements. fisheryprogress.org

Global Seafood Assurances Responsible Fishing Vessel Standard. The Responsible Fishing Vessel Standard (RFVS) certification enables fishing operations to assure decent working conditions and operational best practices from the catch to the shore. The RFVS is accessible to any single commercially licensed fishing vessel or fleet of vessels globally. seafish.org

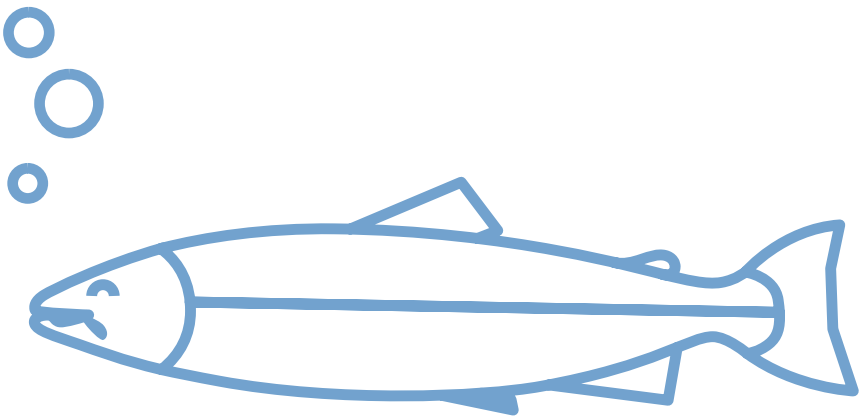
ILO Convention C188 "Work in Fishing". The International Labour Organization Convention No. 188 sets out binding requirements to address the main issues concerning work on board fishing vessels, including occupational safety and health and medical care at sea and ashore, rest periods, written work agreements, and social security protection at the same level as other workers. ilo.org.

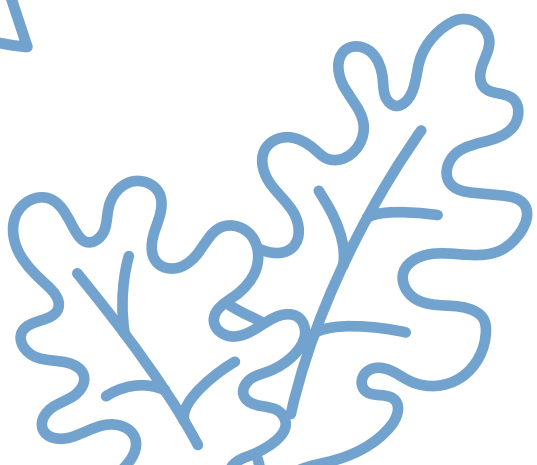
SA8000. The SA8000 standard is the world's leading social certification program. The SA8000 Standard and Certification System provide a framework for organizations of all types, in any industry, and in any country to conduct business in a way that is fair and decent for workers and to demonstrate their adherence to the highest social standards. Created by Social Accountability International in 1997 as the first credible social certification, it has led the industry for over 20 years. sa-intl.org

Sedex SMETA. SMETA is the world's most widely used audit. Businesses use SMETA to understand and make improvements to working conditions and environmental performance in their business and supply chain. sedex.com.

Walk Free Foundation Global Slavery Index. Walk Free's flagship report, the Global Slavery Index (GSI) provides national estimates of modern slavery for 160 countries. The estimates draw on thousands of interviews with survivors collected through nationally representative household surveys across seventy-five countries and the assessment of national-level vulnerability. walkfree.org

World Governance Indicators. The World Governance Indicators (WGI) are published annually by the World Bank and are intended for general cross-country comparisons. They include six aggregate indicators for over 200 countries and territories that are based on information from more than 30 think tanks, international organizations, nongovernmental organizations and private firms. worldbank.org





2 INTRODUCTION

Introducing the followfood Fishery Sourcing Guidelines: Shaping a Sustainable Future for Seafood.

The food sector is one of the main contributors to the transgression of the planetary boundaries (Rockström et al., 2025). Acknowledging this significant impact, it is certain that fundamental changes in the industry are necessary. followfood aims for a collaboratively built food system in which all stakeholders operate within the planetary boundaries and work with nature rather than against it. Only this can ensure that ecosystems worldwide are preserved and restored to meet not only present needs but also to safeguard the well-being of future generations and the planet's natural resources. Embracing the motto "What we eat changes the world", followfood strives for a positive impact through its business activities and decisions - setting an example that companies can and need to be part of the solution of staying within the planetary boundaries. To achieve these objectives, transparency is crucial and a key aspect of the brand's philosophy, enabling customers to understand the food journey and impact from ocean to plate. By providing traceable information, followfood not only ensures accountability but also creates a blueprint for others to follow and consumers to demand.

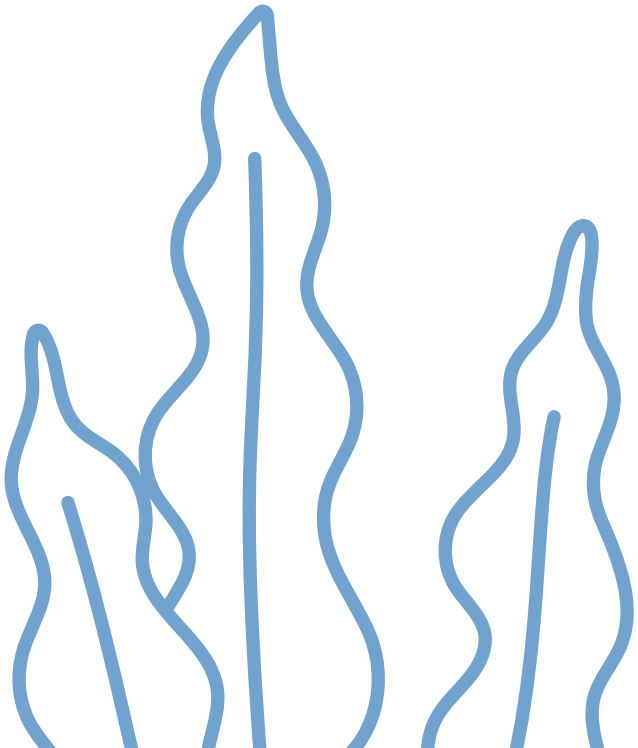
While society pays increasing attention to stable and functioning ecosystems on land our oceans and seas are often overlooked despite covering the majority of the earth surface. The seafood industry is currently one of the main actors which threatens the stability and health of entire populations and ecosystems - risking the collapse of food webs and marine cycles which we heavily rely on. Therefore, seafood has a dire need but also a great potential to improve its environmental impact. Sustainable fishing and stock management are based on the principle that stocks are not fished beyond their capacity to replenish themselves. However, the tragedy of the commons persists. Fuelled by the growing demand, high fishing levels sustained for the past decades, leading to an increase in overfished stocks and posing threats to marine ecosystems and wildlife. followfood stands up for a seafood industry and fisheries policy which respects and follows scientific advice on sustainable catch quota, applies best practices and selective fishing gear to avoid unintentional capture of endangered species, minimize habitat degradation, reduces ocean pollution and takes action against social welfare violations and illegal, unreported and unregulated fishing.

Here, the Marine Stewardship Council plays a vital role. As the leading international standard for sustainable fisheries, it assesses the effective management and ecological sustainability of fisheries. The recently released Version 3.1 of the standard, incorporating the "Code of Conduct for Responsible Fisheries" by the Food and Agriculture Organization of the United Nations (FAO), has the ambition to reflect the scientific knowledge and best practices in fisheries management. By adhering to the MSC Fisheries Standard, fisheries can work towards resolving the crisis by implementing measures to address overfishing, minimize bycatch, protect habitats, and promote sustainable fishing methods. Offering its certification to fisheries around the world,

its positive impact on the progress of the fishing industry towards more sustainable practices is undeniable. However, being the largest certifier of sustainable seafood, the MSC is criticized for compromises and the slow adjustments to the rapid changes of the ocean.

Building on the strong foundation of the MSC, followfood values and relies on the publicly available data of the MSC certification. At the same time, followfood is both positioned and committed to going beyond the MSC and introducing additional proactive sourcing practices. By doing so, followfood can extend upon the existing standard and seeks to lead the development of sustainable seafood products . Recognizing its role in the supply chain, followfood has the opportunity to leverage its position and implement sourcing guidelines that identify and support fisheries adhering to the highest standards of sustainability and environmental responsibility. Through this initiative, followfood strives to endorse sustainable fishing practices and serves as a beacon guiding the shift towards a responsible and ecologically mindful seafood industry. The goal is nothing less than to establish the most sustainable seafood products by rigorous and responsible sourcing.

Building upon the initial fishery sourcing guidelines of 2020, followfood initiated an inclusive revision process three years later to maintain the high standard by adjusting to the dynamic seafood industry, latest scientific standards and progressing environmental changes. Collaboratively with a council comprising experts from scientific institutions and non-governmental organizations (NGOs) the inherent challenges were addressed and solutions to environmentally but also socially sustainable seafood sourcing at individual fishery level were elaborated during working sessions. The result of this process provides a strong foundation for conducting annual assessments of every followfood fishery and for a periodic review cycle that responds to evolving standards and conditions. For that each criterion was examined and refined to bridge the existing gaps and align with possible advancements in sustainable practices within fisheries. By implementing these additional criteria for fisheries, followfood demonstrates how seafood companies can become part of the solution for a food sector which operates within the planetary boundaries. followfood wants to inspire the entire industry, the public and consumers by showcasing that doing business differently is possible and implementable today.



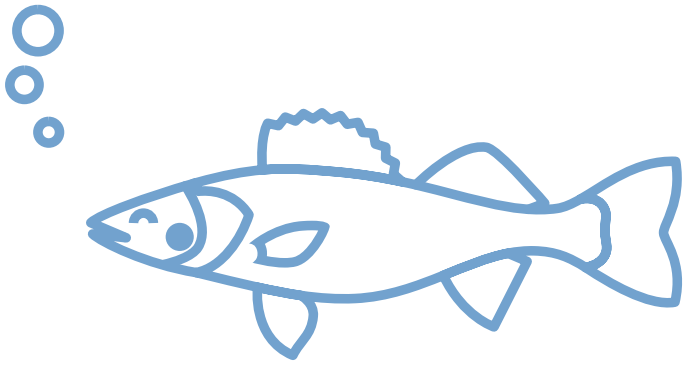
3 GENERAL METHODOLOGY

The followfood (hereinafter ff) Sustainable Fishery Sourcing Guidelines define the criteria that must be met by all wild capture fisheries ff sources from. ff stipulates a valid MSC certification as the necessary requirement for the assessments, as the MSC standard and the data within the MSC assessments are the most acknowledged and standardized information available today. However, if fisheries can guarantee a benchmarked certification (*e.g.*, by the Global Sustainable Seafood Initiative) of comparable quality and data availability, it may be used as a substitute basis for the fishery assessment. Examples of such equivalent certifications are the marks of the Certified Seafood International (CSI) and the Iceland Responsible Fisheries (IRF).

Although the MSC standard is recognized as benchmark for sustainable seafood, some areas of it are openly discussed as less rigorous by NGOs and the Scientific community alike. In reaction to the ongoing debates, the MSC finished its revision in July 2024, introducing version 3.1. However, the operational compliance for new fisheries will not start before 2026 and already certified fisheries have until end of 2030 for the adoption. Therefore, the developed set of criteria further extends the existing MSC standard by addressing current challenges in fisheries sustainability. They present additional filters for the ff sourcing, whereby a fishery that does not meet the criteria may in result be excluded from the ff sourcing, even though it holds a valid MSC certification.

The ff focus areas and additional criteria which were developed, and are presented in this document are:

- **MSC target share:** Ensure that more than 60% of the total landings are comprised by the target stocks.
- **ETP species:** Ensure that no ETP species is at significant risk by the fishery's operations.
- **Stock & Exploitation Status:** Ensure that the target species is neither overfished nor subject to overfishing and that the reproductive capacity of all other species contributing >5% of the total landing volume is within safe limits.
- **Gear-Ecosystem Interaction:** Ensure that the fishing operations are not threatening the ecosystem functions.
- **Greenhouse Gas Emissions:** Favor fisheries with low greenhouse gas emissions.
- **Social Compliance:** Monitor the compliance and due diligence or estimate the risk of ff supply chain entities with regard to human and labor rights.
- **Animal Welfare:** Promote awareness, transparency, and data collection regarding animal welfare practices in the fishing industry.
- **Ocean Pollution:** Create awareness and transparency of ocean pollution beyond the risks of ghost gear.



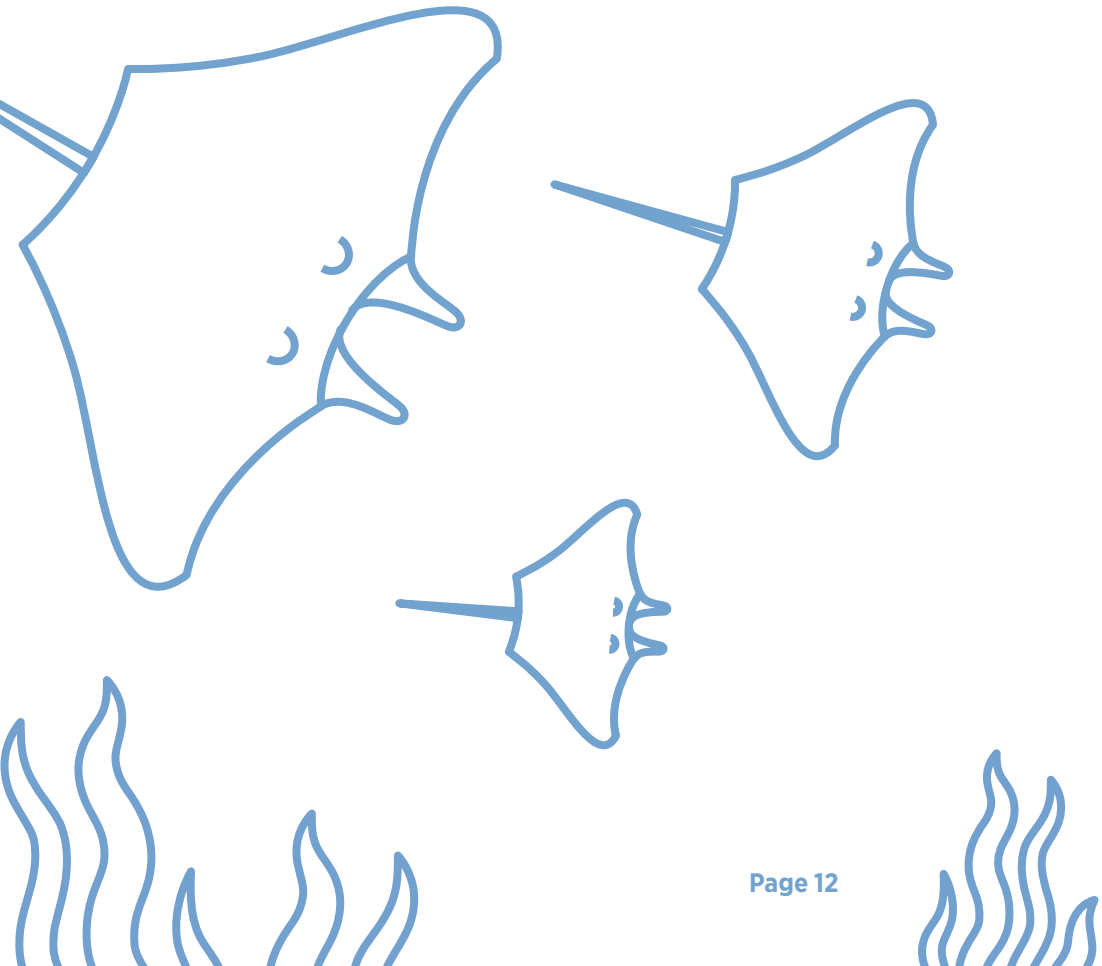
One of the benefits of the MSC certification scheme is the quantity of data gathered for each fishery and made publicly available. The MSC data, along with the latest stock assessments and scientific and other publications such as public NGO concerns, build the main data source for the ff fishery assessment.

Each fishery ff is sourcing from is assessed against the above-mentioned criteria. The assessor uses a traffic light system based on "concern" categories to summarize the performance of the fishery against each criterion. Whenever a criterion is assessed across multiple instances (*e.g.*, multiple fishing gears, stocks or ETP/OOS units), the overall concern category for that criterion is determined by the lowest score identified.

The three concern categories are:

- **Least concern:** Regarding the assessed criterion, the fishery demonstrates exemplary performance in terms of sustainability. It shows that the fishery is state-of-the-art for this criterion.
- **Some concerns:** Regarding the assessed criterion, the fishery does raise some sustainability concerns. The fishery's development regarding this criterion will be monitored closely in future assessments.
- **Critical concern:** Regarding the assessed criterion, the fishery poses a significant sustainability risk and, therefore, needs to be excluded from the ff sourcing.

The assigned concern categories for the criteria form the basis for the final sourcing recommendation, which is concluded based on the criterion-specific outcomes of all parameters composing each criterion. If the fishery raises a critical concern for any of the criteria, it cannot be recommended for sourcing. If the recommendation for ff is to stop sourcing from a certain fishery, an ff internal process is triggered to search for alternatives within one year, and the ff supplier is notified that sourcing will be discontinued. The only exception is for critical concerns arising from active demersal gears, as their exclusion is a medium-term target.



4 MSC CERTIFIED SHARE

Although all fishing is fundamentally selective, depending on the desired species to catch, the chosen gear type and its specifications, as well as the time, place, and duration of the operation, there can be immense differences in the catch composition and the amount of bycatch (Gilman et al., 2020). The term bycatch refers to animals that fishermen do not want, cannot sell, or are not allowed to keep. This ranges from undersized juvenile fish of the target species to protected species or other marine animals like whales, sea turtles, or seabirds. The catch composition is given by the contribution of species to the total catch volume, determined by gear selectivity and species availability. It is desired that the selectivity for the target species is as high as possible, as this allows for a more precise fisheries management and reduces the return of bycatch to the sea (discards) and their negative effects. The introduction of the landing obligation within the EU in 2019 has provided an incentive for the fisheries to increase species selectivity (CINEA, 2021).

4.1 MSC APPROACH

The MSC standard does not include criteria for evaluating the proportion of the target species relativ to the total catch volume. During the certification process, target species are assessed against the MSC principle 1 Sustainable target stocks, and the audit team evaluates the performance of the target stock according to its status and the harvest strategy in place. For MSC main species, i.e., species that make up more than 5% of the catch composition (or 2% for less resilient species), the stock status is assessed under principle 2. However, the scoring criteria are less rigorous than for target stocks under principle 1. For instance, the scoring process under principle 1 is more comprehensive. It includes 18 performance indicators, which gather information to assess the stock status relative to the recruitment impairment, the harvest strategy (design, evaluation, and monitoring), the harvest control rules (design, application, robustness), and the assessment quality (information range, monitoring scheme, appropriateness, assessment approach, uncertainty, evaluation and peer-review) along with alternative measures implemented to improve the fishing gear selectivity. On the other hand, MSC-main species under principle two are evaluated with seven performance indicators related to the stock status, management strategy, information adequacy for assessment and management (also alternative measures to minimize the bycatch). The reason for the less rigorous assessment of the MSC-main species is that they are considered within the broader effect of the fishery on the ecosystem rather than as a primary focus of the assessment, as target species are.

Consequently, fisheries can be certified, even if the main species of the fishery represent a significant portion of the catch and are overfished or overfishing is occurring. For example, the MSC-certified longline swordfish fishery in the Indian Ocean caught 40–46% of the target species, although the MSC-main species (Yellowfin tuna, Bigeye tuna, Albacore, and Blue marlin) represented almost 50% of the total catch. The latter species currently would not meet the principle 1 criteria (Deleau et al., 2025). The share of MSC-certified species and the potential concerns with non-target species caught are not visible for consumers buying an MSC-certified product.

4.2 FF APPROACH

To go beyond the MSC requirements, ff aims to source only from fisheries with a high share of species assessed against the MSC principle 1 criteria. Thereby, ff reduces potential risks related to other caught MSC main species, which are assessed against the MSC principle 2 with a less stringent benchmark and which may, for instance, include overfished stocks (see chapter 5 Stock & Exploitation Status).

4.3 FF CRITERIA

4.3.1 OBJECTIVE

The ff selectivity criteria ensure that the MSC target species, i.e., the MSC-certified species within a certain catch composition, represent a significant part of the total catch. This also includes MSC-certified species of the same client, assessed under different certificates. The evaluation shall be based on evidence from an adequate monitoring scheme[1] of the catches and not only on landings, which could exclude discards happening at sea.

4.3.2 CRITERIA

The MSC target species should represent 60% or more of the total catch/landing volume of a fishery (Figure 1), i.e., 60% or more of the fishery's catch should be MSC-certified under principle 1.

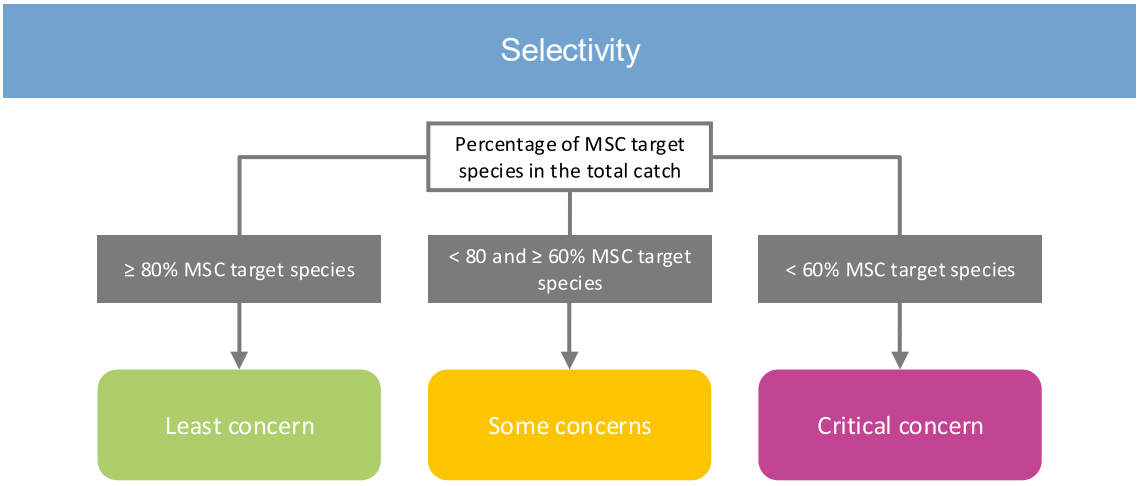


Figure 1. Decision tree for the selectivity criterion.

To assign the concern category obtained in Figure 1, the assessment parameters described below should be considered in addition to the catch composition available from documented evidence. The final score of the selectivity criterion is a concern category based on the average percentage of the target species in the last 3 years to cover outliers, the justification to consider the monitoring scheme adequate or not, and a brief description of the additional measures in place to minimize bycatch and their potential benefits on the fishery selectivity.

[1] Refers to the strategy in place to monitor the fishery in terms of operations, catch volumes, species and size composition of catch, among others.

4.3.3 EXCEPTION FOR INLAND FISHERIES

The above-mentioned criteria are mandatory for all ff fisheries. Exceptions in the sense that a fishery might be recommended for ff sourcing despite the fact that the 60% MSC species selectivity is not met, might be allowed only under the following conditions:

1. The fishery is a small-scale, artisanal inland fishery of local socioeconomic importance.

AND

2. An MSC certification for the main species is not viable due to missing markets for those and therefore, are sold locally.

4.4 ASSESSMENT PARAMETERS

The assessor should consider the following parameters in assessing the fishery against the ff criteria:

4.4.1 CATCH COMPOSITION

The catch composition as reported in the MSC certification reports or other documentation of the catch composition of the fishery that is deemed reliable.

4.4.2 RELIABILITY OF THE MONITORING SCHEME

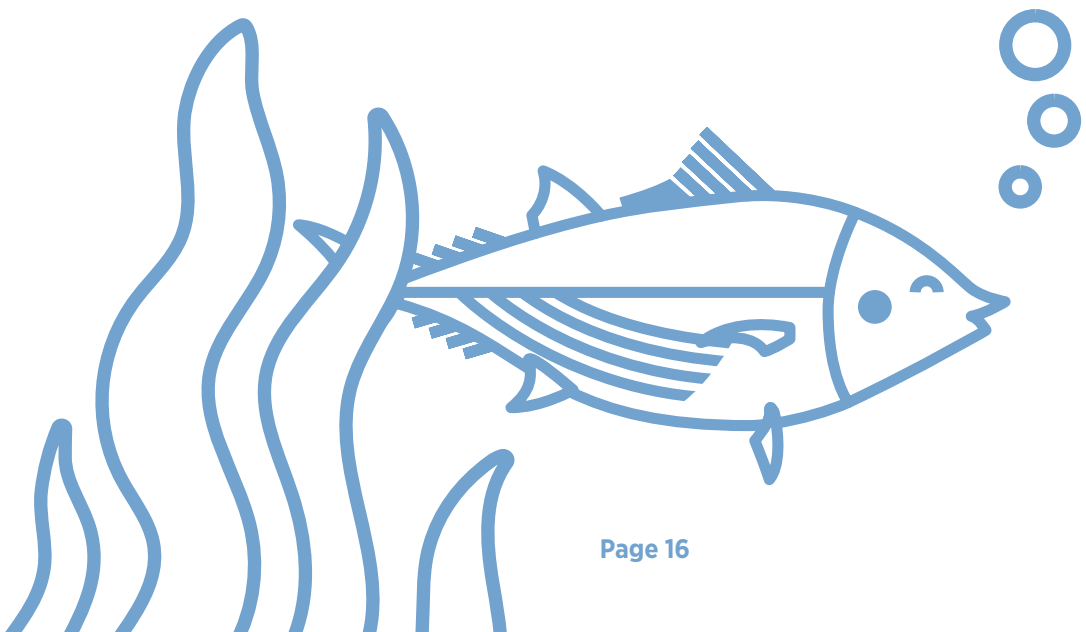
The level of reliability of the catch composition of a fishery depends on the reliability of its monitoring scheme. This must be considered to ensure that the data is representative of all species interactions the fishery likely has, given its fleet size and gear. Monitoring schemes can differ in their nature with respect to coverage, in situ inspections, and regular surveys. For instance, for an observer program leveraging representative data, at least 20% of the entire fishery must be covered (Babcock et al., 2011). The coverage should be large enough to detect ETP interactions, which might be rare, but can still have a significant impact on these populations. However, how inspections are conducted might affect the resulting data. Based on expert knowledge, the assessor might assess the risk of interaction with ETP species differently from what is reported in observer data. If the assessor deems that the observer program data isn't fully reliable, the concern category may be raised.

4.4.3 BYCATCH AVOIDANCE AND DISCARD SURVIVAL

Fishing gear/practices measures to prevent bycatch of unwanted species, *e.g.*, juveniles of the target species (i.e., enhancing their selectivity) and other species, should be considered when determining the mortality caused by the fishery, as is also done during the MSC certification process. If there is bycatch, but there is evidence that the discarded organisms survive (i.e., discard survival can be assumed quite different in purse seines vs. trap fishing), the effect might be similar as avoiding bycatch. The assessor may use evidence for such measures to improve the concern category.

4.4.4 CRITERION FINAL SCORE

For fisheries using just one fishing method, the final score is given by combining the above-mentioned parameters. For fisheries with more than one fishing method, the final score is given by the lowest scoring process obtained by all the fishing methods from which ff is sourcing.



5 STOCK & EXPLOITATION STATUS

Fisheries management focuses on fish stocks, which are populations of a species within a defined area (King, 2013). The stock status describes whether a population size or biomass (B) is above or below a threshold needed for population equilibrium. The optimal yield that can be obtained from a stock is known as the Maximum Sustainable Yield (MSY), i.e., the maximum catch that can be maintained over time. If the stock biomass is below 80% of that level (B_{MSY}), it is considered "overfished" (FAO, 2021). Exploitation status determines if the current fishing mortality rate (F) is sustainable (i.e., below F_{MSY}) or unsustainable (i.e., above F_{MSY}) in the long term.

The MSY is commonly estimated and used as a Target Reference Point (TRP) for fisheries management. Other reference points used in management are Limit Reference Points (LRP), looking at the population level below which reproduction is impaired (Caddy & Mahon, 1995). The uncertainty in estimations determines whether TRPs or LRPs are used to manage a fishery. The size of a stock naturally fluctuates also due to natural mortality, given by food availability and predation, among others, and variable recruitment, caused by environmental conditions, *e.g.*, currents and available nutrients that will affect recruitment every year (Ciannelli et al., 2008). Fishing mortality is an additional human-induced mortality due to fishing, and therefore, stock assessments seek to separate this component and control it through management measures.

5.1 MSC APPROACH

The stock status of the target species is assessed under principle 1 of the MSC certification process, which requires the fisheries to provide science-based evidence that the fish stock targeted is not below the point of recruitment impairment and that harvest strategies are in place. Otherwise, it would not meet the certification requirements. Other species the fishery catches are assessed under principle 2 of the MSC certification, which also reviews the stock status and management strategies in place, but the criteria to meet certification requirements are less rigorous (see MSC Species Selectivity above). Therefore, a species might not meet the principle 1 criteria but is still successfully assessed under principle 2. This leads to situations where a fishery loses the certificate for a target species due to its poor stock status but can continue fishing in the same way. For example, in the MSC-certified North Sea fisheries, the Atlantic cod component lost its MSC certificate due to its poor stock status. However, Atlantic cod continues to account for a significant portion of the catch volume as main species and in some units of assessment the landings of cod are even higher than the ones of the actual MSC target species (Polonio et al., 2024).

5.2 FF APPROACH

For the ff assessment, as with the MSC assessment, the catch composition is classified into three categories: “ff target species” (in MSC terminology, the species of assessment), “ff assessment species” (in MSC terminology, the “main species”) and “other species.” The ff target species is the species that ff sources and for which the assessment is conducted. All other caught species are defined as ff assessment species if they contribute more than 5% of the total catch volume or 2% in the case of less resilient species. The ff stock and exploitation status criterion strictly relates to TRPs and LRPs. Therein, ff target species must meet higher standards, while ff assessment species must not be depleted below critical thresholds even if the fishery is unlikely to hinder recovery.

5.3 FF CRITERIA

The criteria and classification of the concern category are based on the estimates of population biomass $_{B}$ and fishing mortality rate $_{F}$ relative to certain reference points: TRPs are given by B_{MSY} and F_{MSY}, and LRPs are given by B_{lim} and F_{lim}. The limit reference point B_{lim} is estimated as the biomass below which the rate of decrease in recruitment significantly changes. It is estimated by examining the relationship between population size and stock-recruitment in numbers. The ICES stock assessments furthermore use the Precautionary Approach (PA) estimation for the limit reference point B_{lim}, i.e., they estimate B_{lim} probabilistically and define the PA limit reference point B_{pa} as the reference point below which the limit reference point B_{lim} is with a certain probability (usually 95%). If a precautionary limit reference point is unavailable, the assessor shall derive a probabilistic precautionary B_{pa} to the best of his/her knowledge.

5.3.1 OBJECTIVE

The objective of the stock status and exploitation criterion is to ensure that the ff target stocks are at optimal levels of population growth, or at least, with high certainty, within safe biological limits. Concurrently, the stocks of ff assessment species must be above safe biological limits. These criteria apply across different management systems, such as RFMO-, ICES-, or NOAA-managed stocks.

5.3.2 CRITERIA

The stock status and exploitation criteria for ff target and assessment species (corresponding to MSC-target and MSC-main species), assess each stock’s current $_{B}$ and $_{F}$ relative to TRPs and LRPs for population biomass and exploitation rate (Figure 2). There is “least concern” if the stock is at or above the target reference point B_{MSY} and if the exploitation rate is at or below the target reference point F_{MSY}. Also, there is a “critical concern” if a stock is below the precautionary limit reference point B_{pa} (for ff target species), below the limit reference point B_{lim} (for ff assessment species), or if the relationship between the current $_{B}$ and $_{F}$ indicate reduced stock resilience.. For all other situations, an intermediate risk category is assigned (“some concerns”). The logical formulation for classifying stock and exploitation status in concern categories, corresponding to this logic, is given in Figure 2.

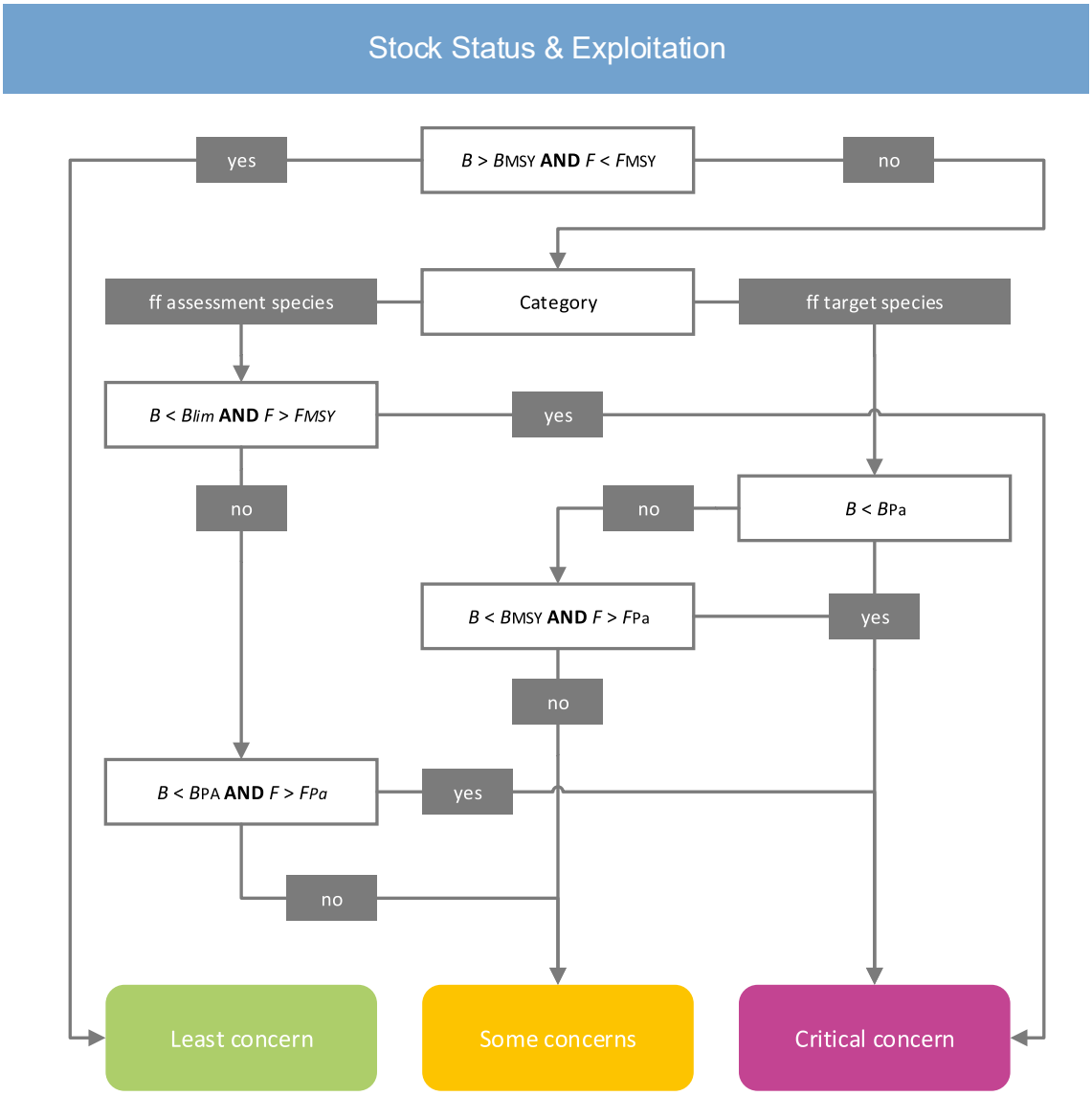


Figure 2. Concern categories are based on the estimates of biomass (B) and fishing mortality (F) relative to the target (B_{MSY} and F_{MSY}) and limit (B_{pa} and F_{pa}; B_{lim} and F_{lim}) reference points.

5.3.3 EXCEPTIONS

The above-mentioned criteria are mandatory for all ff target and assessment species. Exceptions in the sense that a fishery might be recommended for ff sourcing despite the fact that not all target and assessment species comply with the criteria, might be allowed only under the following conditions:

1. The landing volume of the non-compliant ff assessment species landed by the fishery is < 5% (or 2% for less-resilient species) of the total landing volumes of its stock (i. e., the total biomass of the stock is known and the total catches or the fishing mortality induced by the UoA on the stock can be considered "marginal") for fisheries with total annual landings < 400,000 t. The exception does not apply to fisheries catching > 400,000 t annually (or "exceptionally large catches" in the MSC vocabulary).

AND

The fishery is a small-scale, artisanal fishery of high local socioeconomic importance.

AND

The fishery operates on a widely distributed transboundary stock, and the fishery under assessment is assumed to have little or no influence on the specific management measures of the stock. '

2. A non-compliant stock of the ff target species accounts for less than 5% of the total catch volume of the species by this fishery, but meets the criteria applied to ff assessment species.

5.3.4 ANADROMOUS SPECIES (SALMON)

For anadromous species such as salmon, the stock indicators and reference points differ and need a different interpretation: The logic described above applies by replacing B_{MSY} for S_{MSY}, and B_{pa} for S_{buf} (an LRP usually used for salmon stocks). $_F$ can be disregarded because the survival of the stock is only affected by the escapement S (Figure 3).

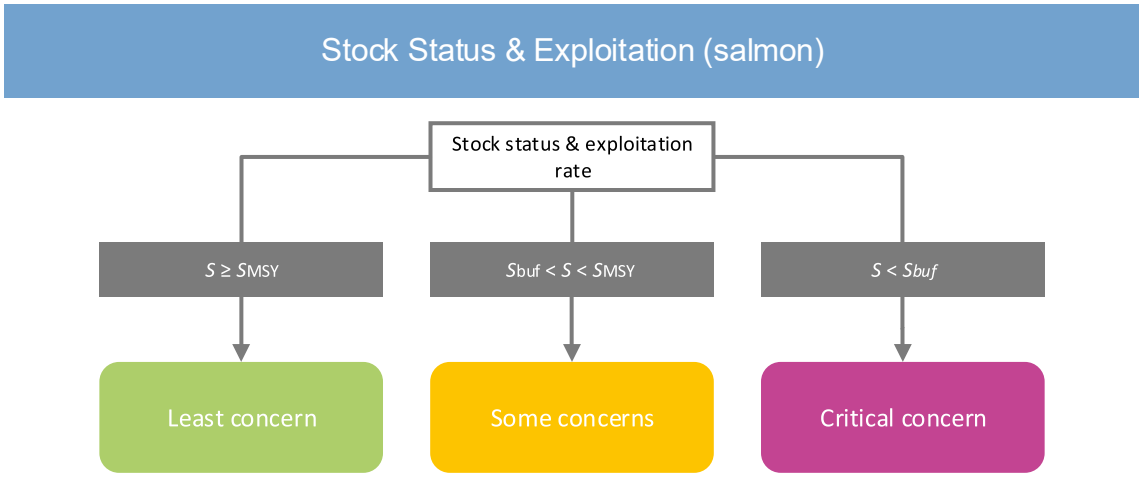


Figure 3. Concern categories are based on the estimates of escapements (S) relative to the target (S_{MSY}) and limit (S_{buf}) reference points for salmon stocks.

5.4 ASSESSMENT PARAMETERS

5.4.1 LIMIT REFERENCE POINTS (LRPS)

LRPs are given in all MSC-certified fisheries relative to stock status and mortality indicators, but only ICES uses a precautionary approach to the LRPs. If estimates for B_{pa} or F_{pa} are not available, the assessor shall derive a precautionary measure based on the given LRPs. For instance, to estimate B_{pa}, 0.8 B_{MSY} or 2 B_{lim}, analogous to the calculation of Btrigger (ICES, 2022), or 25% of virgin biomass, can be used as a rule of thumb.

5.4.2 TARGET REFERENCE POINTS (TRPS)

TRPs are given in most MSC-certified fisheries relative to stock status and fishing mortality indicators. In the absence of MSY estimates, a stock can be considered fully-exploited if the stock status is 40–60% of the virgin biomass (Amorim et al., 2019). If no biomass TRP is given they can be estimated as 2 B_{pa} or 3 B_{lim} otherwise, the best concern category ("least concern") cannot be assured and the concern categories of "some concerns" and "critical concern" shall be assigned based on the expert judgment of the ff assessor.

5.4.3 EXPLOITATION STATUS TRENDS

$_B$ depends on natural mortality and recruitment, which are shaped by environmental variability, and $_F$, which reflects the human-induced impact on the stock (Maunder & Punt, 2004; Pedersen & Berg, 2017). $_F$ is determined by fleet's size, individual catchability and fishing power, and individual fishing effort applied (e. g. the number and duration of tows, the number and size of nets, lines, or traps set, the number of hooks, etc.). An increasing trend in $_F$ might be a consequence of increasing fleet size, fishery-technological developments resulting in higher catchability, or increased fishing efforts due to increasing market demands, and such a trend will have an impact on the future stock status (B). Therefore, the short-term (*e.g.,* five years) trend in $_F$ should be considered in scoring the stock and exploitation status criteria, to account for a likely risk of a future decrease in $_B$ as a consequence of an inherently increasing $_F$ (i.e., the stock status result can be lowered if it is close to a concern category threshold, while $_F$ seems to be systematically increasing).

5.4.4 DATA QUALITY

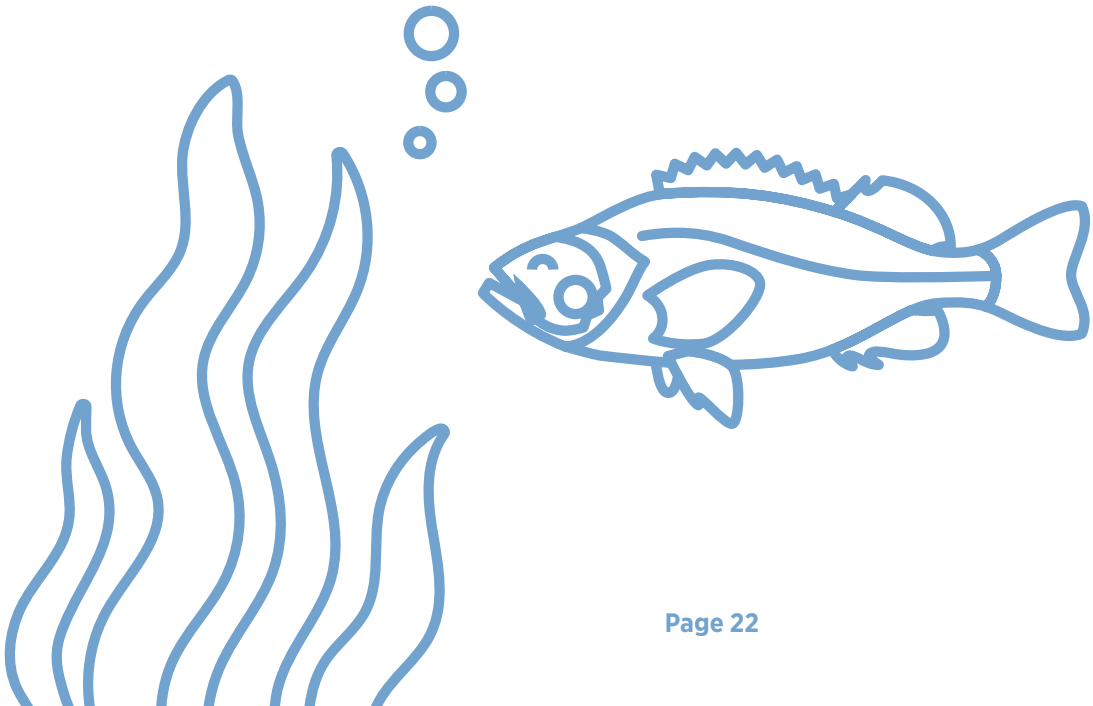
Data quality and reliability of the stock assessment is reviewed for every ff assessment species to avoid sourcing from certified fisheries without a comprehensive stock assessment. To consider data quality as high, data must be up to date (not older than five years), comprehensive and representative for all ff assessment species, i.e., for all MSC-target and MSC-main species. If data quality is low and the assessment as consequence unreliable, the assessor may lower the stock and exploitation criteria score accordingly.

5.4.5 ADDITIONAL SOURCES OF INFORMATION

Apart from the most up-to-date stock assessment reports (regularly published by international fisheries councils, commissions, or committees), the assessment of the ff stock status criteria may be based on other scientific information or published NGO concerns to consider additional perspectives not considered in the MSC documents. For instance, the Atlantic longline bluefin tuna fishery was MSC certified in 2020 based on an uncertain stock assessment, as declared in the 2022surveillance report "Note that the results of the update assessment from 2020 are reported here in the context of the uncertainty highlighted in the previous section. The reader is invited to view them with caution" (Jones et al., 2022). For this reason, WWF considered the certification as premature and likely to provide dangerous incentives to the market for a stock that just a few years ago was overfished (WWF, 2020). Also, in the same fishery, the blue shark (Prionace glauca) is caught as a main species. The blue shark stock is not considered overfished in the region (Jones et al., 2020), but the species, in general, is considered Near Threatened with a decreasing population trend by the IUCN (Rigby et al., 2019). In cases such as the one mentioned above, additional sources of information might be considered in the ff assessment. If the raised concerns are relevant, the assessor may lower the final score of the stock status criteria. Conversely, if there is evidence of additional resilience of the stock, the final score can be increased.

5.4.6 CRITERION FINAL SCORE

For fisheries with only one stock included target or main species the final score derives directly from the assessment parameters described above. For fisheries with two or more stocks being assessed the final score shall be the worst score obtained in all stocks assessed.



6 ETP SPECIES

Endangered, Threatened, or Protected (ETP) species are at risk of population decline and ultimately extinction. In the fishery context, ETP species are non-target species that can be incidentally caught (bycaught) during fishing operations, such as sea turtles, marine mammals, birds, some chondrichthyans, or any other species considered at a certain risk level. Most of those are discarded back to the sea, often with unknown or low survival rates (Pérez-Roda et al., 2019). Therefore, the interaction of a fishery with ETP species is of particular concern because it might hinder the recovery and further deteriorate the population status of ETP species, driving them towards extinction. The assessment of the fisheries' interaction with ETP species is a crucial part of the MSC certification process (MSC, 2022b), as it ensures that the fishery doesn't contribute to the extinction of species, and that there are measures in place to avoid further population declines of potentially endangered species.

6.1 MSC APPROACH

The assessment conducted by the MSC audit teams is generally comprehensive (see MSC standard V 3.1 designation of ETP/OOS species in Annex 12.1). The results are peer-reviewed, exposed to public opinion, and the ETP species lists reported are reliable. However, in some cases, data is incomplete or insufficient to adequately reflect the fishery's impact on ETP species. Controlling the impact on ETP species requires a reliable monitoring scheme (as defined in section 4.4.2). For instance, the Solomon Islands longline tuna fishery catches several ETP species, including the oceanic whitetip shark and various species of sea turtles (Morrison & Meere, 2019). During the initial certification, observer coverage was reported to be low and can be considered insufficient to reliably represent bycatch events, particularly given the typically high interaction rates between tropical longline gear and ETP species. Subsequently, conditions were imposed by the certification body, and electronic monitoring systems were installed in the following years.

On the other hand, in some cases, even though during the MSC audit the ETP interaction of the fishery is estimated to be low, independent organizations, such as NGOs or scientific organizations raise concerns of the fishery's impact on either ETP species with which the fishery is interacting directly or indirectly, and which were not previously considered during the MSC assessment. For example, in a letter jointly published by 16 NGOs (FishSec, 2022) the Baltic Sea Sprat fishery (certified from 2017–2022), which, given the prey-predator relationship between Sprat and Cod (Lassen et al., 2017) is considered to hinder the recovery of the Baltic Sea Cod stocks by lowering the abundance of prey.

Additionally, MSC audits consider the impacts of the fishery under assessment on ETP/OOS units, as well as the cumulative impacts of overlapping MSC-certified fisheries operating in the same area. This approach appropriately focuses on impacts for which the fishery can be held accountable. However, in practice, ETP/OOS units may also be affected by multiple non-certified fisheries. As a result, even if the fishery under assessment does not, on its own, impede recovery, it may still contribute to broader cumulative impacts. For example, a productivity–susceptibility analysis of fish species in Baja California, Mexico, found that considering the combined effects of multiple co-occurring fisheries resulted in higher risk estimates for more species than when fisheries were assessed individually (Micheli et al., 2014).

6.2 FF APPROACH

The ff guidelines aims to ensure the consumer that its seafood products come from fisheries that don't contribute to population declines and extinction of ETP species with a high certainty. This certainty is achieved by reviewing the fishery's impact on the ETP species one-by-one, evaluating the current reliability of the monitoring scheme, quality of the data used by the MSC audit team, and estimating the potential impacts that could go unreported with expert knowledge. Also, NGO or science-based published concerns are considered, analyzed, and discussed. The ETP criteria as formulated by MSC are considered comprehensive (see summary in MSC standard V 3.1 designation of ETP/OOS species) and need no further amendment. But in the search for the most sustainable fish sources, and to assure that no ETP species population is being endangered by any of the ff sources, ff therefore conducts an independent assessment of the likely impact on ETP species against MSC criteria for ETP species. This approach is intended to ensure that the selected fisheries contribute to the conservation and recovery of ETP species, rather than adding to existing pressures.

6.3 FF CRITERIA

6.3.1 OBJECTIVE

The ff assessment verifies the reliability of information used in MSC assessments with respect to ETP species and ensures that none of the ETP species listed in the MSC certification face significant risks and identifies species that are potentially impacted by the fishery but were not considered during the MSC certification process.

6.3.2 CRITERIA

The basis of assessment is the MSC criteria on ETP species (see summary in MSC standard V 3.1 designation of ETP/OOS species in Annex 12.1), against which ff does a critical independent assessment based on the MSC audit reports and additional literature, following the guideline in the subsequent assessment parameters.

6.4 ASSESSMENT PARAMETERS

The final score of the ETP criterion is a concern category depending on the list of ETP species reported to be caught by the fishery, the level of data quality used during the MSC audit, the reliability of the monitoring scheme, additional science-based and NGO concerns published. In special cases an assessment of cumulative impacts from all fisheries affecting an ETP/OOS stock may be required.

6.4.1 LIST OF ETP SPECIES

The list of ETP species is given in the MSC report, including the number of observed incidences, their percentual contribution to the total catch, along with the justification for the SG in the ETP section of the MSC audit. This section shall be analyzed in the context of the referenced but also other relevant evidence, if available.

6.4.2 DATA QUALITY

During the assessment, the ff assessor shall evaluate if the data presented in the MSC audit is up to date, complete and representative, and provide, a short summary of the information given in the PI 2.3.1 of the MSC PCR to the score of each ETP/OOS unit.

6.4.3 OTHER PUBLISHED CONCERNS

Concerns published by NGOs or scientific organizations directly related to the fishery, or the species impacted by the fishery, shall be assessed, and put in context with all available information.

6.4.4 CUMULATIVE EFFECTS

If there are published NGO or scientific concerns about the risk posed by the fishery on a specific ETP/OOS unit or multiple fisheries affecting a specific ETP/OOS unit and the MSC certificate does not include all vessel fishing on a particular stock, the cumulative impact sub-parameter is triggered. This approach is intended to help ensure that the MSC-certified fishery contributes to addressing these concerns rather than exacerbating them. To estimate the total effect of a fishery on a specific ETP/OOS unit, the approximated proportion of the fishery on the total catch of the target species stock by fisheries using the same fishing gear is considered (named as Cumulative Impact Factor, CIF). Assuming that all of those fisheries cause a similar number of ETP/OOS mortalities, this number is used to make an extrapolation by dividing it by the CI*F*.

The result shall be compared by the ff assessor against the indicators of "negligible impacts" (i.e., <2% of total catch for ETP/OOS units and <0.1% for OOS units) or to the Favourable Conservation Status (FCS) provided for each species by the MSC-auditor. Considering that multiple criteria can be used to assess the FCS of an ETP/OOS unit, the assessor will score every species using expert judgment based on the best available information while also factoring in impacts by fisheries using other fishing gears. An explanation shall be provided for each score. Since the cumulative effect is a sub parameter, no species should be scored as "Critical concern". Therefore, if the cumulative effect is above the negligible threshold, the unit should be scored as "some concerns"; if not, it should be scored as "least concern".

6.4.5 RELIABILITY OF MONITORING SCHEME

See section 4.4.2.

6.4.6 CRITERION FINAL SCORE

For every ETP/OOS unit a "unit score" is given based on the parameters and sub-parameters described above. Then, the final score will be based on the lowest unit score given.

7 GEAR-ECOSYSTEM INTERACTION

Fishing gear can be categorized as active or passive, as well as demersal or pelagic. All of those may have a negative impact on habitats to some extent (King, 2013), but the severity depends on the interaction between the gear and the marine habitat, as well as its vulnerability. Active demersal gear, such as dredges and bottom trawls, actively and mechanically interact with the seabed and are the most destructive (Collie et al., 2017). However, the use of passive demersal fishing gear, such as demersal longlines or gillnets, can have adverse effects on the ecosystem as well, damaging benthic habitats during anchoring or retrieval. One important parameter that defines the vulnerability of a certain habitat is its resilience to perturbation, i.e. the time it takes to recover after perturbances. For example, coral reefs take a long time to form and therefore, require a long time to recover after being perturbed. On the other hand, habitats like sandy bottoms and the organisms living within them take much less time to recover. Therefore, specific habitats (*e.g.*, sponge meadows, coral reefs, sea pen colonies, etc.) may be legally declared as Vulnerable Marine Ecosystems (VMEs), if special vulnerability to impacts from fishing are to be expected and legal consequences are needed. Consequently, good management of fishing gear interactions with habitats requires mapping of the fishing activity in relation to the geographical occurrence of VMEs. The MSC applies this under principle 2 (PI 2.3 & 2.4) and mandates the mapping and protection of VMEs and the establishment of management strategies.

Used fishing gear can be abandoned, lost or discarded, also known as ghost gear, and pose a considerable risk to the ecosystem. Mainly through the potential entanglement of species, but also by contributing to marine pollution. Different types of fishing gear harbor different levels of risk as ghost gear. In particular, passive gear has the greatest potential negative impact.

Additional concerns arise from the use of fish aggregating devices (FADs). FADs are artificial or natural objects that float on or near the ocean's surface and naturally attract various marine species. FAD-associated fishing involves setting the fishing gear near these objects to capture the aggregated fish species. The use of FADs has helped the fishing industry to increase its efficiency, so much so that about half of the global tuna landings are associated with FADs (Davies et al., 2014). However, there are also concerns about high bycatch rates of species considered less resilient like billfishes, sharks and rays, the probability of increasing the marine litter problem the potential for ghost fishing (Farquhar & Gomez, 2018) and the likely impact on tuna migratory patterns (MSC, 2022a).

7.1 MSC APPROACH

Generally, any fishing gear can be MSC-certified if the fishery is able to demonstrate low-level impacts on marine ecosystems. Given the common lack of information to fully understand the interaction between the fishing gear and VMEs, the MSC usually concludes by encouraging improvements in the evaluation method, data availability, and scientific understanding of the interaction of fishing gears with VMEs. Consequently, the MSC auditor has some freedom of interpretation and their decision on the Performance Indicator (PI) 2.3 and 2.4 is often not fully comprehensible and reproducible. The MSC doesn't, by principle, exclude destructive active demersal gear but requires that the damage shall be documented alongside the objective to limit or control the damage to some degree. But the line between the interpretation of controlled damage and unacceptable damage is thin and the decision in the hands of the MSC assessor.

For instance, the Northern Demersal Stocks fishery (more than 200 vessels) which targets haddock, saithe, European hake, European plaice and whiting using bottom trawls and purse seines in the North Sea has been certified since 2010. However, there is evidence that the fisheries bottom trawl activity negatively impacts sea pen fields (Cook et al., 2021) along with the diminishment of biomass, diversity and the productivity of benthic communities (Lambert et al., 2014). These kinds of fisheries represent a significant risk to the ecosystem function, even more in cases where Marine Protected Areas are not respected by fishery fleets (Stephenson & Johnson, 2023).Even if percentual contributions of typical VME-species in a fishery are low, as is the case for the orange roughy fishery in New Zealand (Punt et al., 2022) the cumulative impact of the fishery over years of fishing still raises concerns about the successful conservation of VMEs (WWF, 2016). There is evidence that bottom trawling fisheries caused significant damage to benthic habitats in the past and recovery time depends heavily on the sediment and benthic community type (Clark et al., 2016).

The new MSC standard V 3.1 assesses the use of FADs under the habitat ghost gear management strategy and the criteria include the FAD design (entangling/non-entangling), the rate of deployment/loss of FADs and further preventive measures such as design improvements to mitigate the FADs ghost gear impact. Although, the MSC Standard V 3.1 was introduced in July 2024, fisheries only need to comply to the revised third version of the MSC standard by November 2030. Some of the currently certified fisheries exemplify the need for action on this matter (MSC, 2022c). In the Echebastar Indian Ocean purse seine Skipjack tuna fishery the catch composition of FAD-associated sets is comprised by up to 39 species, including sharks, rays and sea turtles. This is in contrast to the 3 species of tuna caught in the Free-School catches (Scarcella & Ríos, 2022). Therefore, mediated by fishing gear, there is a considerable risk of higher negative ecosystem impact for FAD based fisheries. This is especially the case for drifting FADs which are frequently lost and for potentially entangling or non-biodegradable FADs. In contrast, non-entangling, anchored FADs used in combination with selective fishing gears, such as Pole and Line or Handline, are not likely to create significant sustainability concerns.

7.2 FF APPROACH

To decrease the risk of significant ecosystem damage, ff does not allow sourcing of new species for new products from fisheries that use active demersal gear and will avoid these fishing gears entirely in the future. For fisheries using FADs, ff independently evaluates their potential ecosystem risks. For any other fishing gear, an independent review is conducted to investigate the potential risks or damages associated with the gear-ecosystem interaction, aiming to identify any existing evidence of their impact.

7.3 FF CRITERIA

7.3.1 OBJECTIVE

Based on scientific evidence and data from the MSC reports, regarding habitat interaction, comprehensiveness of management strategies, ghost gear risk factor, and potential impact on vulnerable marine ecosystems (VMEs) the ff assessment identifies fisheries whose activities are estimated to have a negative impact on the ecosystem and are, therefore, excluded for the ff sourcing.

7.3.2 CRITERIA

The assessment is conducted and scored for every fishing gear type used by the fishery, evaluating the habitat and potential VME interactions, the management strategies in place and the ghost gear risk factor (Figure 4). As all active demersal fishing gear will be excluded from the ff sourcing, the following gears will be automatically scored as "critical concern": all bottom trawls, all beam trawls, all dredges, all demersal seines. For fisheries using FADs, an additional assessment parameter is utilized to score their environmental impact. The details of every assessment parameter are described in the section below.

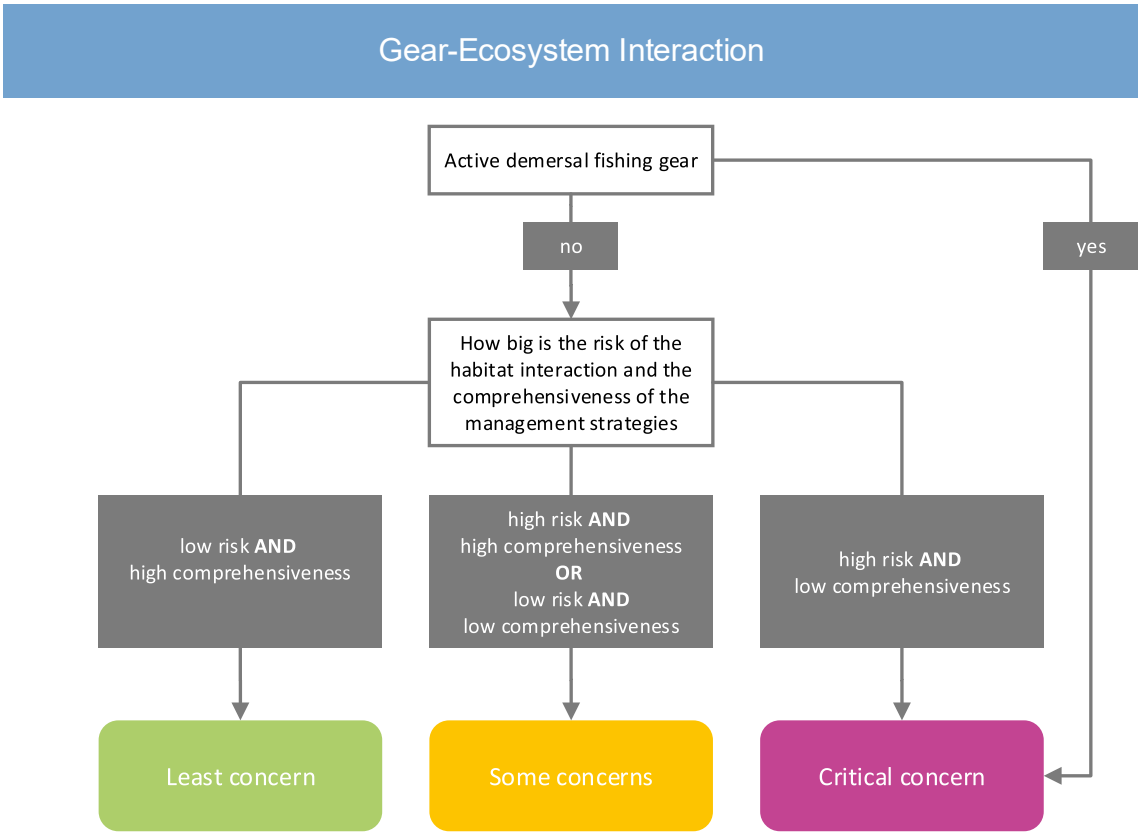


Figure 4. Decision tree for excluding active demersal gears and to assess the fisheries impact on the ecosystem.

7.4 ASSESSMENT PARAMETERS

The exclusion of active demersal gear only depends on the used fishing gear and no further information is considered. For assessing a fishery using FADs, the assessor considers (Figure 5):

- The fishing gear used (handline or pole and line/purse seine)
- The type of FAD (anchored/drifting)
- The design of FAD (potential for entanglement and biodegradability).

7.4.1 FISHING GEAR USED

The fishing gear used by the fishery is detailed in the MSC report as individual UoAs, which is essential for conducting an specific assessment. Only exception is the use of FADs as they are only an additional tool.

7.4.2 INDEPENDENT ASSESSMENT OF FISHING IMPACT FOR ALL FISHING GEARS

For all the fishing gears an independent assessment shall be conducted, considering the commonly encountered habitat, the overlap between VME and the fishing operation, the documented intensity of interaction of the fishery with the VMEs found, the ghost gear risk factor for every fishing gear used by the fishery, along with the comprehensiveness and expected compliance of the management strategies in place, such as move-on rules and the mandatory use of electronic logbooks and VMS. Also, other published scientific or NGO concerns are assessed to complement the information provided by the MSC documents. For instance, if a fishery often interacts with VMEs, and the protection measures are considered limited or non-existent, the fishery would be considered of "critical concern" regarding the gear-ecosystem interaction, even though it is not using active demersal fishing gear or FADs. The existence of other published potential effects not covered by the MSC reports, and deemed significant by the ff assessor could lower the previous score assigned to the fishery.

7.4.3 MANAGEMENT OF HABITAT GEAR INTERACTION

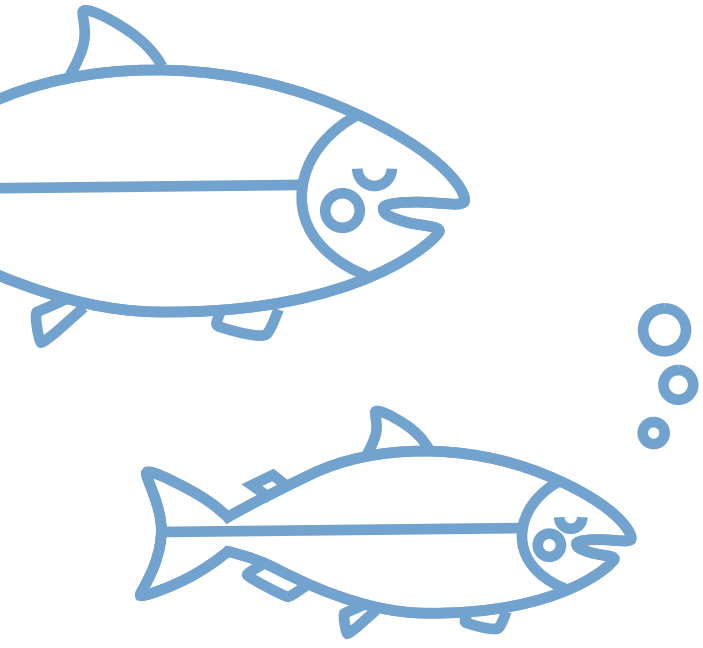
The following parameters related to the fishing operations are based on MSC audit data and criteria but are further independently assessed and, where necessary, supplemented:

- **Habitat interaction:** The impact of the fishing gear on the habitat depends on the features of the fishing gear and the habitat sensitivity. For instance, fishing methods based on vertical lines or manual extraction represent a much lower threat to habitats than traps, bottom gillnets, demersal longlines, or pelagic trawls which occasionally can contact the seabed. Also, the expected effect on the habitat depends on the habitat type, and therefore, lower impacts are expected in mud or sand bottoms compared to boulder or biogenic habitats (SFW, 2020). Therefore, the risk of habitat interaction is scored based on the fishing method, the commonly encountered habitats and the depth range of the fishing operations.
- **VMEs potentially impacted by the fishery:** Many complex and diverse habitats are considered VMEs due to their relevance for the ecosystem function. All biogenic habitats are considered VMEs, for example, seagrass beds, coral reefs, deep-sea corals, sponge fields, sea pen fields, maerl beds, gorgonian colonies, bivalve reefs, mangroves, smokers (hydrothermal) or cold seeps. Therefore, VMEs can be found in many (if not all) areas where fisheries operate. The threat posed by a fishery to VMEs can be assessed by considering habitat complexity of the occurring VMEs and the probability of the fishery overlapping with the VMEs area. Fisheries which operate in areas with comprehensively mapped VMEs and whose fishing activities don't overlap with the mapped VMEs, are assumed to harbor a low level of risk for negative ecosystem impact.

Conversely, a high risk is assumed for fisheries whose activities overlap with VME areas of high complexity.

- **Ghost gear risk factor:** Abandoned, lost, and discarded fishing gear (ALDFG) can pose considerable risks, mostly through ghost fishing, to the ecosystem. Therefore, these risks must be considered while assessing a fisheries gear-ecosystem impact. The risk of a fishing gear becoming a "ghost gear" and the negative impact of different types of ghost gear depend on several factors. The relative ghost gear risk index (Gilman et al., 2021) offers a standardized way to assess the ghost gear risk for different fishing gears and is considered during the ff assessment of gear-ecosystem impact (see The relative ghost gear risk index in the annex). In the ff sourcing assessment, the ghost gear risk index is utilized to assess the gear-ecosystem impact of different fishing gears. Based on this index, gear types are categorized into two concern categories: "Least Concern" and "Some Concern."
    - Gear types with a score below 0.8 are classified as "Least Concern," indicating a lower risk of becoming ghost gear. This category includes hand dredge, harpoon, non-tuna purse seine, troll, demersal longline, beach seine, pelagic longline, handline, midwater trawl, boat seine, pound net, pot, fyke net, and pole-and-line with anchored FADs.
    - Gear types with a score of 0.8 or higher are categorized as "Some Concern", signifying a relatively higher risk of becoming ghost gear. This category includes bottom trawl, tuna purse-seine with drifting FADs, drift gillnet, and set and fixed gillnets, trammel net.
- **Comprehensiveness of management strategies in place:** The fishery's impact on the habitat and VMEs can be controlled if robust management strategies are in place. These are for instance:
    - Move-on rules in place if a fishery interacts with VMEs
    - Reporting schemes for VME interactions using electronic logbooks
    - Vessel Monitoring Systems (VMS).

  The level of comprehensiveness of the management strategies can be considered low if there is no or only a partial strategy in place, or if the level of compliance can be expected to be low. Conversely, if the management strategies are comprehensive there is evidence for a high level of compliance, the level of comprehensiveness is considered high.



7.4.4 ASSESSMENT FOR FISHERIES USING FADS

Fisheries using FADs are assessed against additional criteria in the gear-ecosystem interaction assessment of ff (Figure 5). The impact of FADs is assessed based on the fishing gear used in combination with the design type of the FAD (biodegradable, non-entangling) and if the FAD is anchored or drifting.

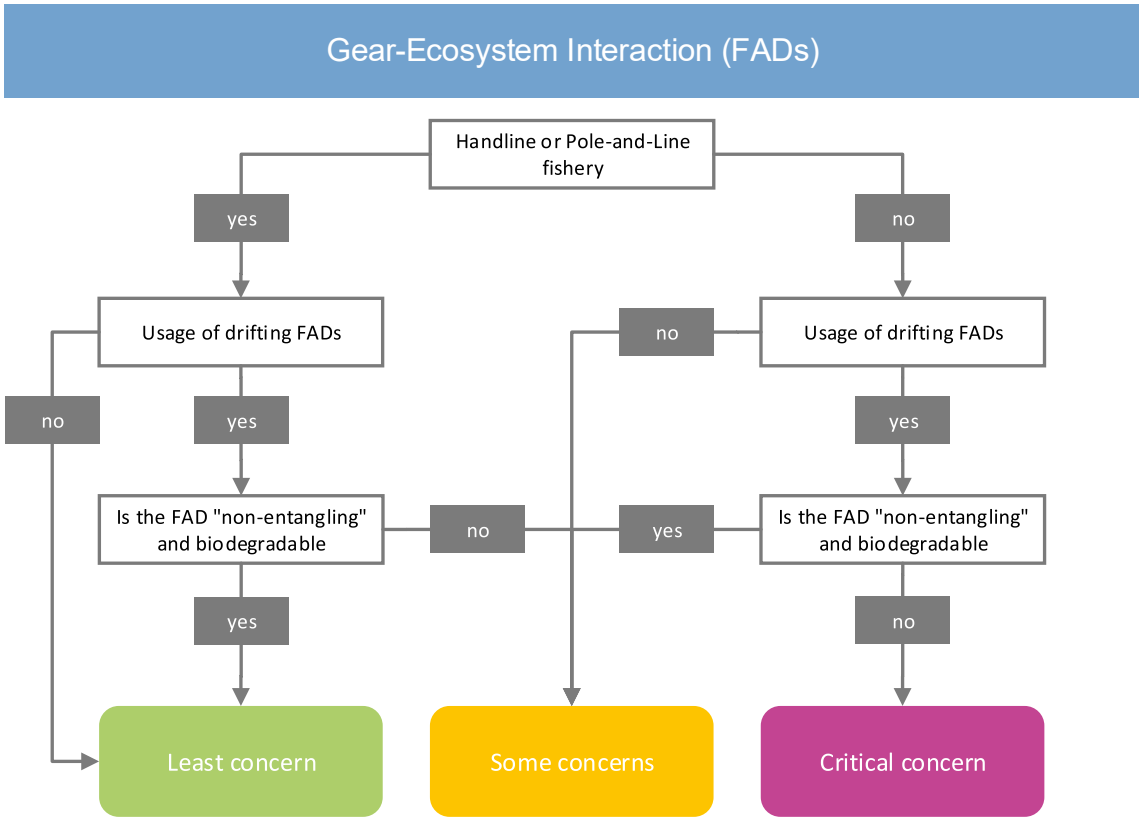


Figure 5. Decision tree for assessing the ecosystem impacts of FADs.

First, the type of FAD is identified: anchored and non-entangling FADs are considered of "least concern" due to their low chance of getting lost and contribute to ghost fishing and marine litter. Drifting FADs must be assessed in more detail. Biodegradable drifting FADs reduce the risk of marine pollution and ghost fishing if lost or abandoned (Zudaire et al., 2023). Therefore, drifting FADs made of biodegradable materials and designed to minimize the entanglement of marine life (non-entangling FADs) are considered of "least concern," as well. Conversely, a pole and line or handline fishery using non-biodegradable or entangling drifting FADs is considered "some concerns." Pole and line or handline fisheries are never considered of "critical concern" due to their above-mentioned selective properties.

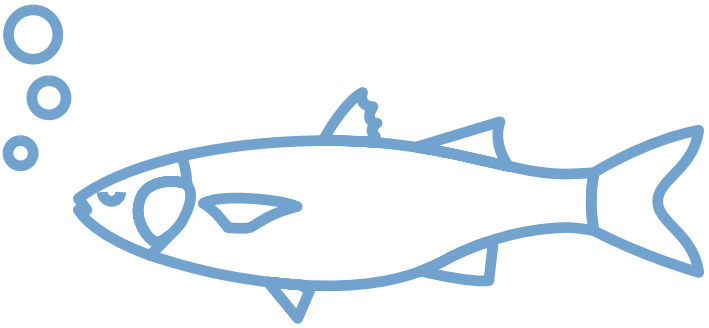
Purse seine fisheries using anchored FADs or biodegradable and non-entangling drifting FADs are considered of "some concerns". If a purse seine fishery uses non-biodegradable or entangling FADs, it is considered as "critical concern". The purse seine fisheries using FADs are scored with stricter parameters due to their lower species selectivity. The process to score the FAD criterion is also explained in Figure 5.

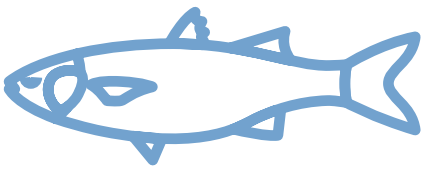
7.4.5 OTHER PUBLISHED CONCERNS

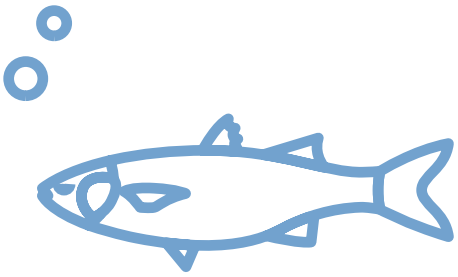
Published concerns expressed by NGOs or scientific organizations regarding ecosystem related risks of a specific fishery or a specific gear type are considered.

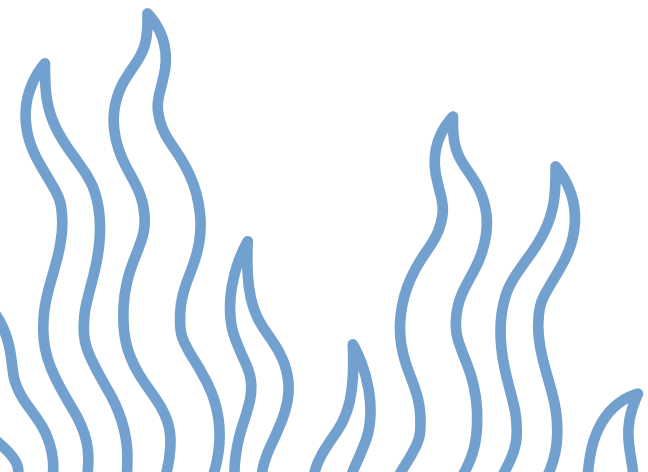
7.4.6 CRITERION FINAL SCORE

For fisheries using just one fishing method, the final score is given by the combination of the above-mentioned parameters. For fisheries with more than one fishing method, the final score is given by the lowest scoring process obtained by all the fishing methods ff is sourcing from.









8 GREENHOUSE GAS EMISSIONS

Fisheries contribute approximately 4% of global greenhouse gas (GHG) emissions related to food production (Parker et al., 2018). Several methodological approaches exist for assessing and predicting the GHG performance of fisheries, including observation-based and effort-based models, life cycle assessments, and vessel energy audits. Based on available evidence, many fishery products tend to have lower greenhouse gas emission footprints than land-based animal protein products (Bianchi et al., 2022; Parker et al., 2018). However, there is significant variability in GHG emissions among fisheries and fishery products. While pelagic capture fisheries generally show the lowest emissions, flatfish and crustacean fisheries have the highest emissions, broken down to unit weight of the resulting edible seafood portion (Gephart et al., 2021). GHG emissions in fisheries are mainly caused by fuel use for fishing (Parker et al., 2018). As evidenced by life cycle assessments across a wide range of fisheries, fuel consumption typically accounts for 60-90% of GHG emission from fisheries up to the point of landing (Ziegler et al., 2016). Other sources, such as leaks of refrigerants with high atmospheric warming potentials, vessel construction and maintenance or gear manufacture, exist but show large variation and uncertainty in their contribution to the overall impact. Additionally, bottom trawling can disrupt benthic carbon sequestration by resuspending sediments and enhancing carbon remineralization and related geochemical processes (Atwood et al., 2024; De Borger et al., 2021). However, the exact magnitude of this effect is still uncertain as it depends on the sediment characteristics and frequency of trawling (Epstein et al., 2022; Tiwari et al., 2025; Zhang et al., 2024). As a result, bottom trawling is increasingly recognized as a potential indirect driver of climate change.

8.1 MSC APPROACH

The MSC currently does not account for the climate impacts of fisheries, as its assessment focuses exclusively on biodiversity impacts and the management of biological resources in this context. Likewise, there is currently no other voluntary ecolabel that consistently assesses greenhouse gas (GHG) emissions. However, the MSC is in the process of developing such a voluntary GHG emissions reporting standard, which followfood welcomes and intends to incorporate into future revisions.

8.2 FF APPROACH

By evaluating GHG emissions by fuel consumption as indicator for each fishery ff is sourcing from, ff aims to improve transparency and to prioritize the engagement with producers and products of lower emission intensity.

8.3 FF CRITERIA

8.3.1 OBJECTIVE

Considering that fuel use represents the major source of GHG emissions in fishery operations, the Fuel Use Intensity (FUI) is the key metric for this. The ff assessment ensures that the FUI, when broken down to L/t raw material, is within the scope of ff's mission. Thresholds are set relative to the global mean of 500 L/t of round weight landing volume of fish considering the approach from Parker et al., 2018.

8.3.2 CRITERIA

FUI is measured as fuel use (in liters) per ton of landed round weight fish. The categorization is based on a comparison with the global average FUI for fisheries, which is around 500 L/t of landed round weight (Parker et al., 2018). Data on FUI preferably comes from supplier-specific empirical data or are otherwise taken from the Fisheries Energy Use Database (FEUD) to assess the criterion according to Figure 6.

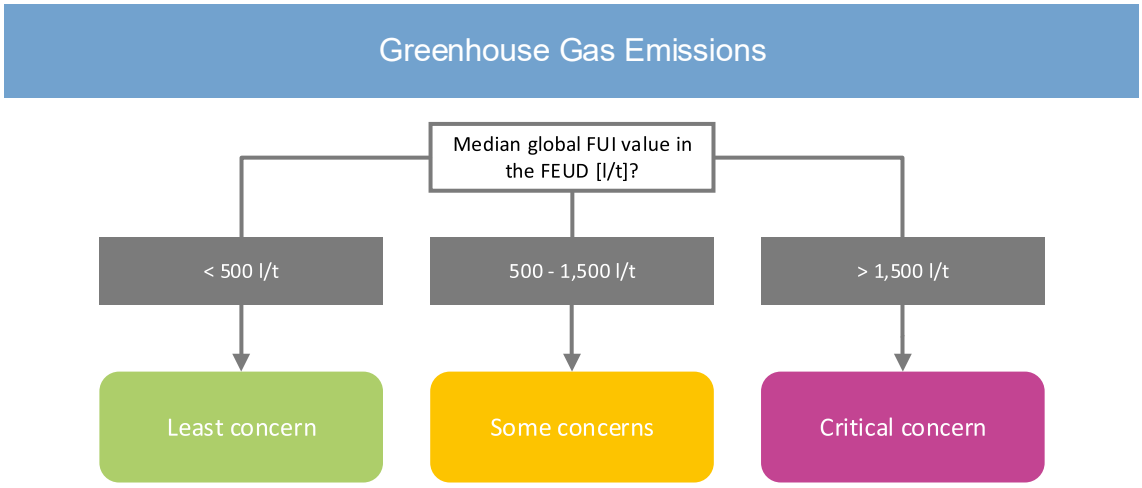


Figure 6. Decision tree for the GHG emissions criteria.

8.4 ASSESSMENT PARAMETERS

8.4.1 FUI DATA

ff considers fisheries with a FUI below this 500 L/t landed round weight as "least concern", corresponding to lower-than-average FUI. Fisheries with a FUI between 500 L/t and 1,500 L/t of landed round weight are considered as "some concern". A FUI of >1,500 L/t landed round weight considered as "critical concern" (Figure 6). The threshold of >1,500 L/t landed round weight would correspond to three times the global FUI average of fisheries, surpassing the estimated GHG of pork (Poore & Nemecek, 2018).

9 SOCIAL COMPLIANCE

Human welfare in fisheries has been historically neglected (Pennino et al., 2021). The nature of fisheries activities, often taking place far offshore where regulations are challenging to enforce, makes this industry highly susceptible to issues in social compliance. Recurring reports covering horrific working and living conditions on board the investigated fishing vessels illustrate clear signs of modern slavery, such as forced labor and human trafficking. Those violations of human rights mainly hit vulnerable individuals like migrant workers. The majority of the world's 34 million people employed in the fisheries sector are in the global south. Often, in countries where su*b*par working conditions are already prevalent (FAO, 2024). Although the International Labour Organization (ILO) already adopted a fishery-specific convention, C188 (Work in Fishing), in 2007, only 21 countries have ratified it to date. Additionally, certifications schemes on human welfare onboard are rarely implemented and mainly used by fisheries from the global north. Furthermore, more than 100 million people are estimated to be employed in the post-harvest sector, where work is frequently characterized by informal, low-paid and insecure labor conditions (FAO, 2016). Incorporating the social dimension in a fisheries' sustainability assessment is, therefore of critical relevance.

9.1 MSC APPROACH

While the MSC standard, as an ecological standard, does not include social criteria, all fishery clients have been required to complete the MSC self-reporting labor eligibility requirement template since 2023 (with earlier versions in place since 2018). The completed forms are uploaded to and are publicly available on the MSC website (Tindall et al., 2022). Because it is a self-declaration, no independent third-party audit is conducted, as for the environmental criteria. It includes confirmation that the client was not convicted for forced or child labor in the last two years and information regarding the policies, practices, and measures to prevent human rights violations. Latter is gathered through questions surrounding the legal minimum age, fish worker engagement, grievance mechanisms, recruitment practices, crew contracts, repatriation, debt bondage and identification documents. With this, the MSC covers the ILO convention C188 (ILO, 2007) only partially. All the following steps within the supply chain are covered by the MSC Chain of Custody standard. Within this, operators are not required to conduct an on-site third-party labor audit but can opt out by completing the self-assessment on forced and child labor and are only forced to carry out an audit if the MSC demands it (MSC, 2022d).

9.2 FF APPROACH

While a Code of Conduct including social criteria is signed by ff suppliers, a comprehensive fishery specific risk analysis is also conducted. Since violations of human welfare are not restricted to fisheries under the flag or operating in high-risk countries, ff gives sourcing preference to fisheries that obtained an internationally recognized social certification (*e.g.*, Fair Trade USA). These ensure regular third-party audits and lower the overall risk of social violations. However, social certifications remain the exception in the fishing industry, and ensuring adherence to social standards outside these frameworks is hindered by complex corporate structures, involving numerous vessel owners and operators per fishery with whom meaningful communication is virtually unattainable.

Therefore, compliance and assurance cannot be guaranteed.

Instead, a country-specific risk analysis is carried out if no social certifications are available, utilizing the Worldwide Governance Indicators (WGI) (World Bank, 2024) and the risk country definition by amfori BSCI . Therein, a country is classified as "high risk" if the average WGI rating is below 60 or if three or more individual dimensions are rated below 60. To estimate the risk, every fishery is asked to provide information to ff, complementing the MSC labor eligibility requirements. These are gathered by the ff assessor through a questionnaire developed by ff, which covers all aspects of the ILO C188. For every land-based operator in high-risk countries throughout the ff supply chain, a third-party social audit is a prerequisite. Furthermore, an independent assessment of every supply chain entity is conducted to identify any known social compliance issues, by searching for publicly available information related to human and labor rights violations.

9.3 FF CRITERIA

9.3.1 OBJECTIVE

The social compliance criterion aims to identify risks of violations against international labor standards during the fishing operation itself and ensure compliance during the different processing steps along the supply chain.

9.3.2 CRITERIA

The assessment is conducted for two components: the fishing operation (Figure 7) and the processing operation (Figure 8). In some supply chains, several processing operations can be involved. Each supply chain entity is assessed. The assessor verifies the existence of onboard social certifications (for fisheries) and land-based certifications (for processors). Furthermore, each component is evaluated by a country-based risk analysis based on the WGI. The details of every assessment parameter are described in the section below.

9.4 ASSESSMENT PARAMETERS

9.4.1 UBLISHED CONCERNS

The first step in assessing this criterion is the search for publicly available information on any known human and labor rights abuses by the fishing or processing company. If there were issues within the last five years, the ff assessor evaluates the severity and decides if these were critical non compliances or if this will result in a reduction in the final score.

9.4.2 FISHERY AND PROCESSOR VERIFICATION OF SOCIAL COMPLIANCE

Although independent third-party audits are always only a snapshot and cannot assure complete social compliance, it is considered to lower the risk and severity of human and labor rights violations and is the only desk-based analysis possible. Therefore, if a fishery holds a social certificate, such as Responsible Fishing Vessel Standard, the Fairness, Integrity Safety & Health

(FISH) Standard for Crew, Fair Trade USA, or AENOR Atún de Pesca Responsable, it is assumed to be in compliance or close to compliance with the ILO convention C188. Thus, fisheries can be considered of "least concern", disregarding the country the fishery is operating in or the flag of the vessel.

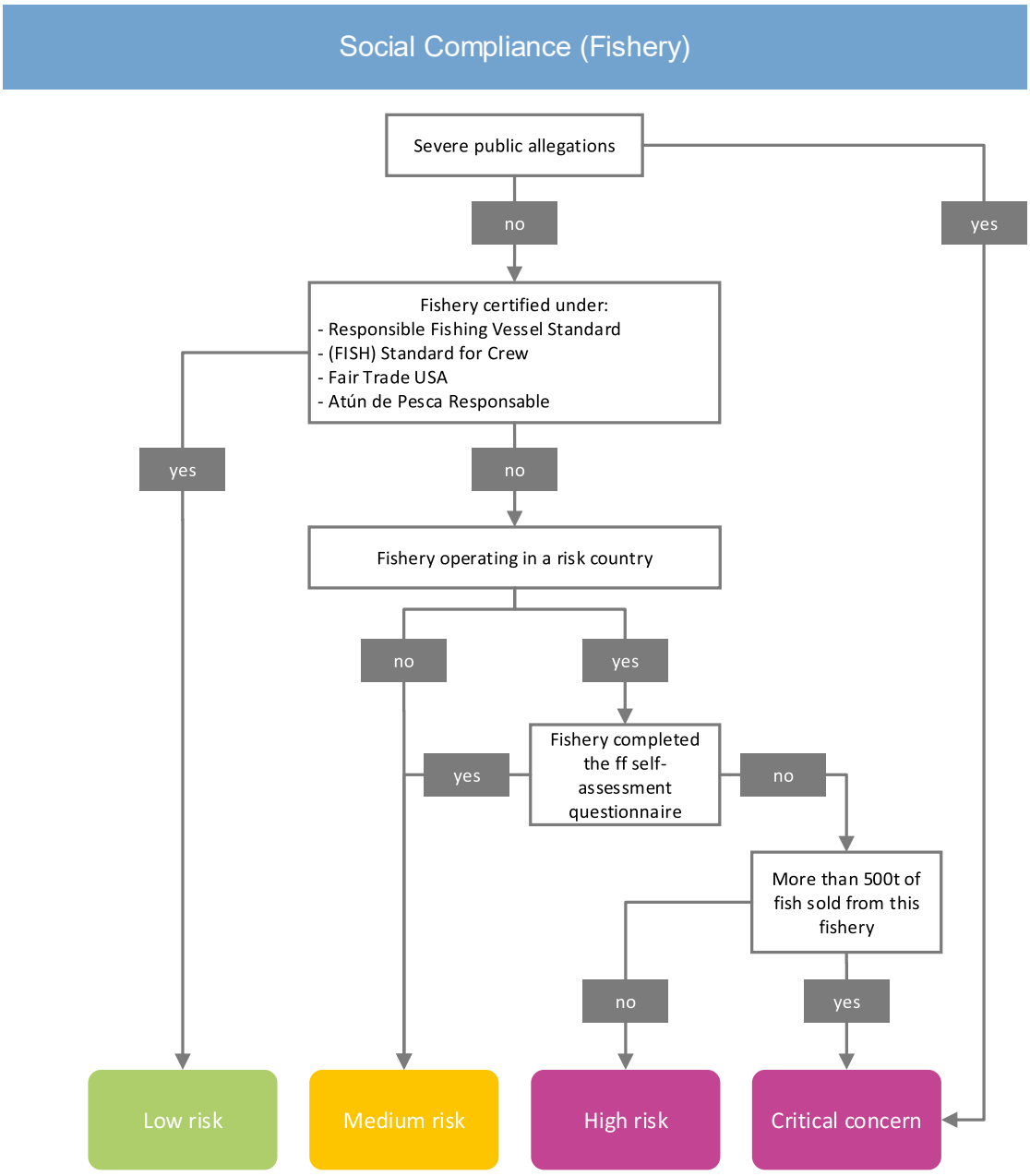


Figure 7. Decision tree to score the social compliance criterion for fisheries.

On the processing side, every ff supply chain entity that holds a social certification like Fairtrade or Naturland Fair, can be considered of "least concern", disregarding the country it is operating in. If no certificate is available, a social audit such as amfori BSCI,

SMETA, SA8000, BRCGS ETRS, or others recognized by the Sustainable Supply Chain Initiative can be required based on the location of operation.

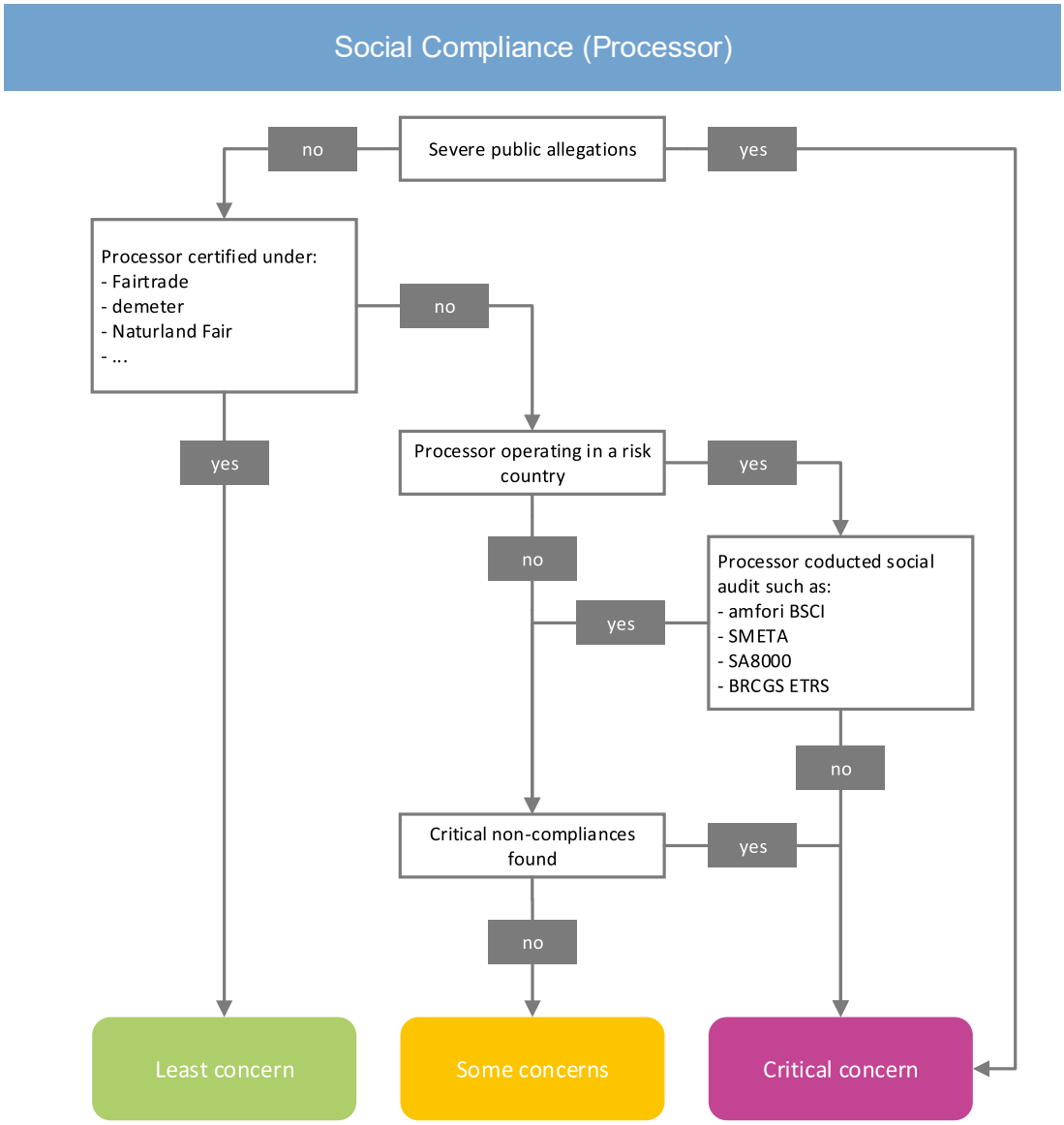


Figure 8. Decision tree to score the social compliance criterion for processors.

9.4.3 COUNTRY LEVEL

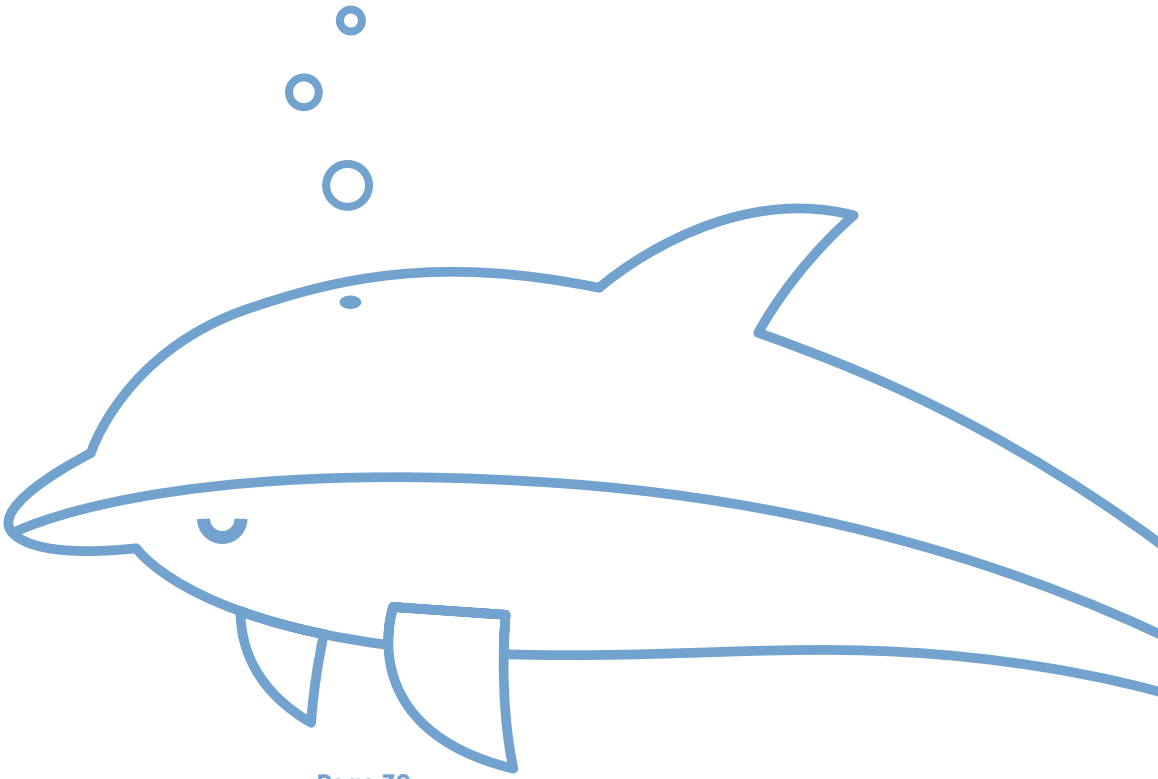
If a fishery does not hold any of the listed social compliance certifications or a processor did not conduct any of the mentioned social audits, the ff assessor first performs a country-specific risk analysis by considering the WGI. The indicators are open source, cover a broad geographical range, provide comparable cross-country data, and are updated annually. Based on data from think tanks, international organizations, NGOs and private firms, the information is aggregated to six governance indicators ranging from voice and accountability, political stability and govern-

ment effectiveness to regulatory quality, rule of law and control of corruption. Although the clear focus of the indicators is governance, it includes various sources with a social focus, *e.g.*, the Gallup World Poll which is also the foundation for the Global Slavery Index. Thus, it is reasonable to assume that the risks found are positively correlated with the country's performance in other human and workers' rights topics. While each indicator has its own internal ranking, an overall ranking is assigned by an average score of those for every country.

A processor without any verification of social compliance operating in such a high-risk country, is scored "critical concern", while processors in low-risk countries are considered as "some concern". Whenever a social audit report includes critical non-compliances such as indications of modern slavery, child labor, discrimination, or illegal business practices, the processor is also scored as "critical concern". Fisheries operating in or vessels flagged in low-risk countries are scored as "medium risk", while fisheries and vessels from high-risk countries are requested to complete the ff questionnaire on social welfare policies, practices and measures, which is explained in further details in the following section.

9.4.4 FF QUESTIONNAIRE ON SOCIAL WELFARE POLICIES, PRACTICES, AND MEASURES

ff developed a questionnaire on social welfare policies, practices, and measures (see Annex 12.3) to serve as a complement of the MSC At Sea Labour Eligibility Requirements Reporting template. Although it demonstrated to provide valuable insights about social compliance for MSC-certified fisheries (Tindall et al., 2022), it solely focuses on child and forced labor. Thus, the ff questionnaire covers a broader range of topics based on the amfori BSCI performance areas and the ILO convention C188. Considering the industry's complexity and operational variability, universal completion of the questionnaire is not feasible for all fisheries presently. Therefore, only fisheries with annual supply exceeding 500 t are obliged to submit the questionnaire or are otherwise scored as "critical concern". Every other fishery may provide information through a streamlined questionnaire which can lower the risk category from "high" to a "medium risk".



10 SUPPLEMENTARY MEASURES

While all above mentioned criteria are based on robust data-driven research other areas of concern have only recently been in focus of the scientific and stakeholder communities. Nevertheless, ff acknowledges their importance and includes first approaches for the monitoring and mitigation of animal welfare and ocean pollution. To gather relevant information, ff utilizes questionnaires that are distributed to the assessed fisheries to obtain direct insights into the current practices and encourage ethical and responsible operations.

10.1 STATEMENT LETTER ANIMAL WELFARE

followfood offers a wide variety of fishery products and is committed to handling natural resources as sustainably and responsibly as possible. The revised fishery sourcing guidelines reflects the effort to shape the supply chain for wild-caught fish according to these principles and address the most pressing ecological issues in the industry. One aspect that has not yet been addressed is animal welfare. Only after decades of debate the scientific evidence outweighs that fish can experience pain and stress (Kristiansen et al., 2020). The consequences of this finding have so far been predominantly observed in the aquaculture sector, while their impact on wild-caught fishing is scarce. However, in fishing practices, fish are exposed to stress during capture, hauling, handling on board, and ultimately slaughter or release (Emam & Xu, 2022). Various stressors come into play in these situations:

- Fatigue or exhaustion while trying to escape from net or while on the hook.
- Barotrauma from extreme pressure differences.
- Oxygen deprivation in the net or on deck.
- Temperature shock from cold water to warm surface.
- Osmoregulatory stress from different water layers.
- Crowding within net.
- Injuries (crushing, abrasions, cuts).
- Light exposure.
- Geographic displacement from release.
- Predation risk when released.

To counteract these factors, there are several suggestions. Here is an excerpt from the proposed measures by the Aquatic Life Institute (Emam & Xu, 2022):

- Reduce bycatch, fishing time, and catch size.
- Ban use of live bait, salt baths and ice slurries.
- Minimize time out of water.
- Prevent barotrauma *e.g.*, by setting maximum fishing depth.
- Stun before slaughter.

These findings are not yet reflected in legislation or standards such as the MSC. Uncertain, non-public data and the lack of scientific research prevents a comprehensive assessment based on species or fishing gear. Therefore, followfood wants to take the first step and recognize fish as sentient beings. In order to contribute to the needed process of creating fishery practices that prioritize animal welfare, data will be collected through a questionnaire to raise awareness among fisheries. Despite the challenges in acquiring information, followfood aims to create transparency for its consumers and pursue open communication in the next step.

10.1.1 QUESTIONNAIRE

- If bait is used, is it used dead or alive?
- If used dead, is it stunned before slaughter?
- How long is the average Haul duration (per fishing gear)?
- How big is the average catch size (per fishing gear)?
- What is the average catch depth?
- What technical measures are in place (per fishing gear) to reduce possible bycatch?
- How long does it take to process one haul and discard unwanted species?
- Is the fish stunned before it is further processed?
- Which slaughter method is used?
- What measures are in place to reduce the amount of lost fishing gear?

10.2 STATEMENT LETTER OCEAN POLLUTION

followfood offers a wide variety of fishery products and is committed to handling natural resources as sustainably and responsibly as possible. The revised fishery sourcing guidelines reflect the effort to shape the supply chain for wild-caught fish according to these principles and address the most pressing ecological issues in the industry. One aspect that has not yet been addressed in its entirety is the pollution of the oceans caused by fishing. The most well-known facet of this is pollution with plastics. About 47% of the yearly input of marine plastic come from fishing activities (Kaandorp et al., 2023) and approximately 50% of this material consists of abandoned, lost or discarded fishing gear (ALDFG) (Macfayden et al., 2009). Therefore, the Marine Stewardship Council (MSC) has included an interrogation of measures of the fishery to prevent the potential loss of fishing gear in the newly released version 3.0 of its standard (MSC, 2022c). Additionally, followfood also assesses the risk of the deployed fishing gear ending up as ALDFG.

Handling of all other waste generated on board has received little attention so far. However, according to the International Maritime Organization (IMO) this waste can locally contribute more to pollution than land-based sources4. To address this problem, the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) Annex V was developed, which has been signed by over 150 countries[2]. It prohibits the disposal of waste at sea and regulates the few exceptions (*e.g.*, fish carcasses). The signatory states commit to providing adequate waste reception facilities, as the effectiveness largely depends on their availability. Additionally, vessels of a certain size flying the flag of a signatory state are required to have a garbage management plan in place.

The MSC does currently not include this garbage management plan and its compliance in the standard, nor does it make any other statements regarding waste generated on board. However, it is possible for non-governmental organizations, such as the auditors working with the MSC, to monitor compliance with the MARPOL Annex V criteria. Due to the uncertain and fishery-specific data available, this factor cannot be incorporated into the followfood fishery guidelines. Instead, followfood aims to raise awareness of this issue among fisheries through a questionnaire.

10.2.1 QUESTIONNAIRE

- Is there a waste management plan for every ship in place?
- How is the waste stored on board?
- Are there measures in place to prevent waste being discharged into the sea?
- Are the reception facilities at the port adequate?

[2] Prevention of pollution by garbage from ships, International Maritime Organization. Available at: https://www.imo.org/en/ourwork/environment/pages/garbage-default.aspx (Accessed: 21 June 2023)

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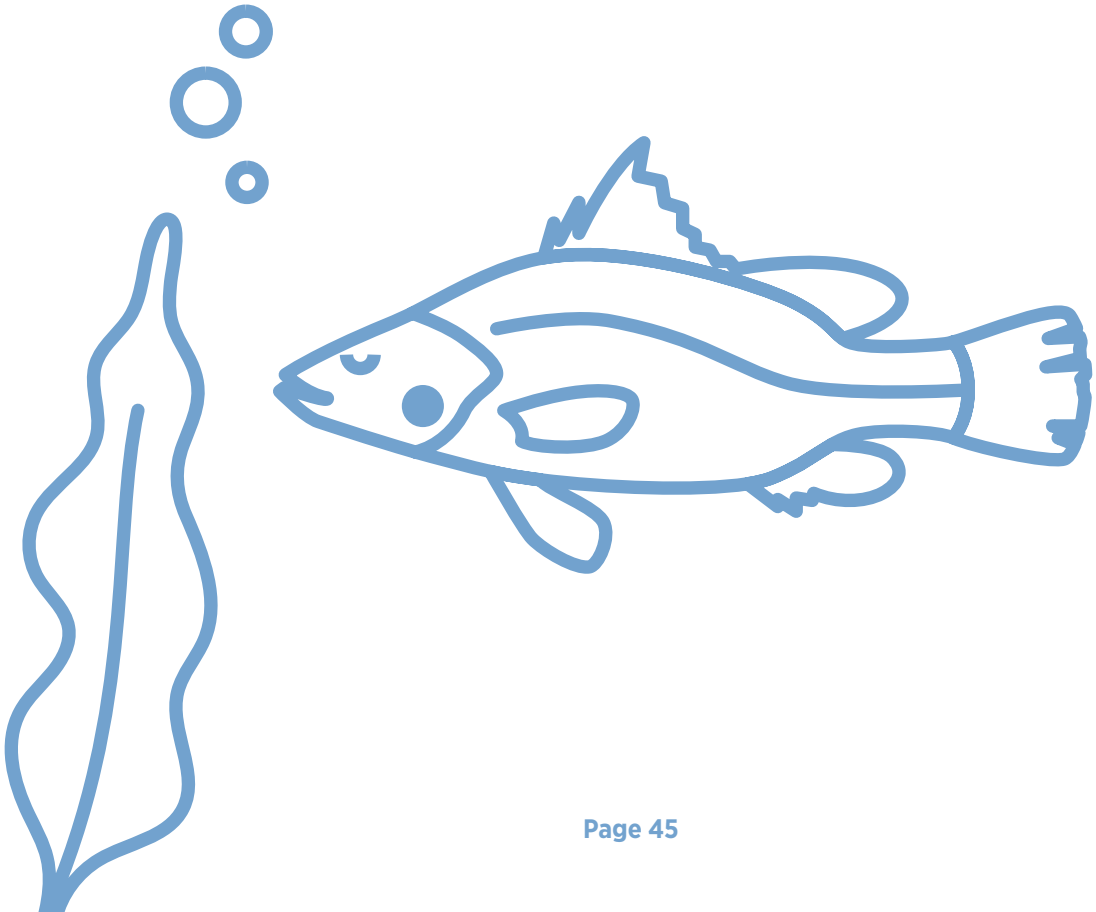


12 ANNEX

12.1 MSC STANDARD V 3.1 DESIGNATION OF ETP/OOS SPECIES

The MSC standard V 3.1 designates ETP/OOS species considering if the species bycaught by a fishery are:

- Mammals, birds, reptiles, or amphibians (OOS species) OR
- Fish or invertebrate listed on Appendix 1 of CITES or CMS, or the species is listed as "Critically Endangered" by the IUCN (updated assessment) OR
- The species is a chondrichthyan listed as "Endangered" by the IUCN or by national legislation OR
- The species is listed in Appendix 2 of CITES or CMS or listed as "Endangered" by the IUCN or a national ETP legislation without meeting at least two modification criteria (regarding life history, management, or stock status).

Once defined, the fishery is assessed in terms of the following:

- The fishery precautionary management strategies in place to minimize incidental catch of ETP species.
- The fishery does not hinder recovery to the Favorable Conservation Status[3] of ETP species.

The latter is done by evaluating the following traits and their information adequacy:

- The management strategy and its effectiveness.
- Reviewing alternative measures to minimize mortality of ETP/OOS species.
- There is no shark finning occurring.
- The measures taken to minimize ghost gear.

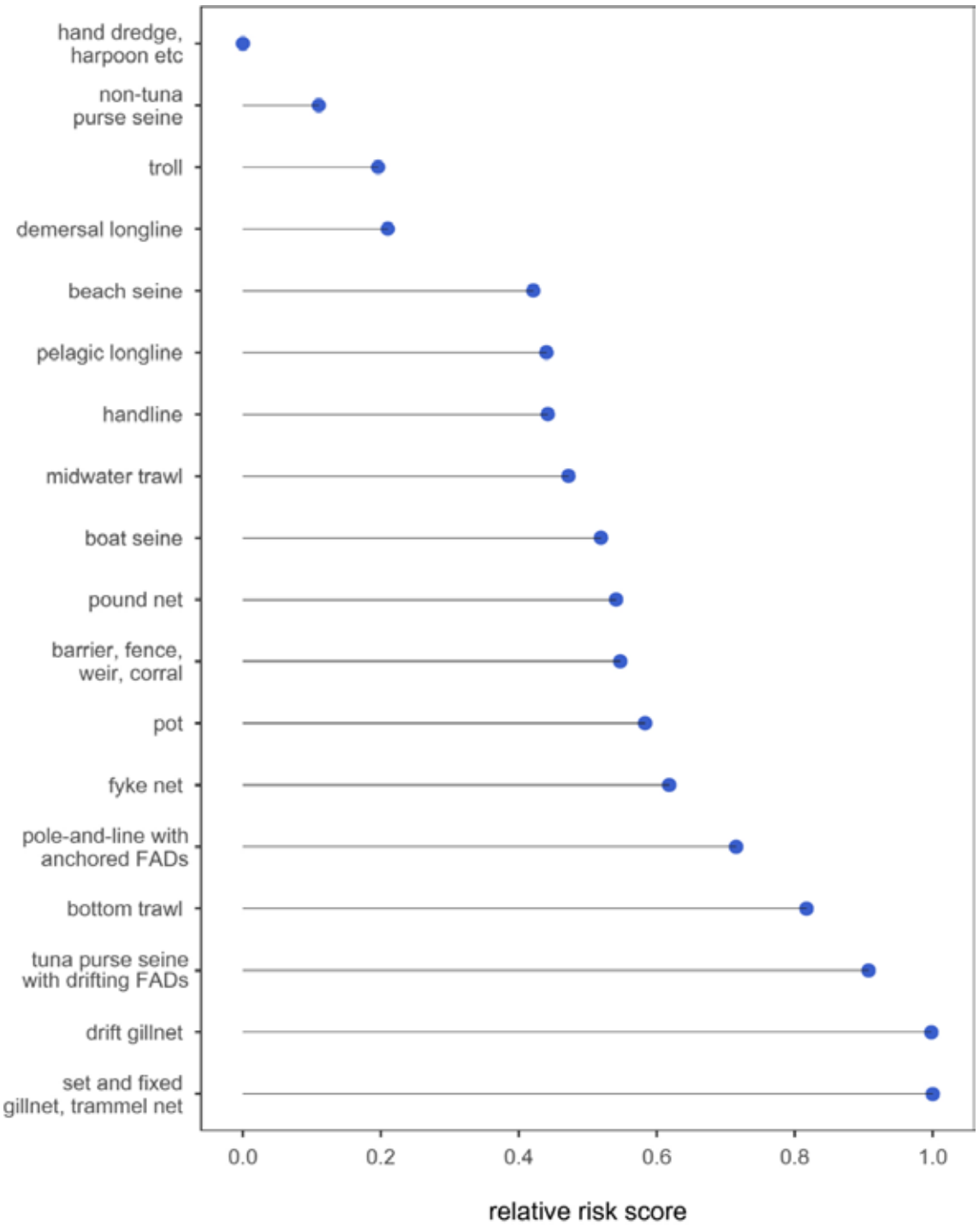
12.2 THE RELATIVE GHOST GEAR RISK INDEX

From: **Highest risk abandoned, lost and discarded fishing gear, Gilman et al. 2021**

The figure presents gear-specific scores of overall relative risks from ALDFG. The five highest-risk gears with scores in the 75% quantile and above (RR > 0.70) were: set and fixed gillnet and trammel net, drift gillnet, tuna purse seine with FADs, bottom trawl and pole-and-line with anchored FADs. The five lowest-risk gears with scores in the 25% quantile and below (RR < 0.43) were: beach seine, demersal longline, troll, non-tuna purse seine, and miscellaneous (hand dredge, harpoon etc.).

Gear-specific relative risk from ALDFG. From the top of the y-axis, fishing gears are listed from lowest overall relative risk score, which accounts for: (a) rate of production of ALDFG, ($_b$) fishing effort (accounts for gear-specific weight of total catch and geospatial area of fishing grounds), and (c) adverse ecological and socioeconomic impacts of ALDFG (accounts for: ghost fishing, dispersal and transfer of toxins and microplastic into marine food webs, dispersal of invasive alien species and microalgae that cause harmful algal blooms, habitat degradation, obstruction and safety risks to navigation and in-use fishing gear, and reduced socioeconomic, aesthetic and use values of coastal and nearshore habitats). The higher the relative risk score, the larger the amount of global adverse effects from ALDFG the gear is estimated to be causing, based on the quantity of derelict gear that gear leaks into the oceans and the relative adverse effects caused

[3] When the stock is at a level equivalent to the 50% carrying capacity based on reference point such as: Optimum Sustainable Population; Maximum Net Productivity Level; Maximum Sustained Fishing Mortality or other Fishing Mortality or Biomass-based reference points. MSC. (2024). MSC Fisheries Standard 3.1.



by ALDFG from that gear type. The first gear category includes boat and shore-based hand dredge, harpoon, spear, lance, tongs, rakes, and hand-collected, including diving.

12.3 SOCIAL WELFARE QUESTIONNAIRES

[NAME OF FISHERY]

MSC-F-[CODE]

SOCIAL WELFARE POLICIES, PRACTICES AND MEASURES

INTRODUCTION

Since 2018, fisheries and at-sea certificate holders in the Marine Stewardship Council (MSC) program are required to provide a self-description of policies and measures regarding the protection of the fishing crew from forced labour or child labour. This descriptive declaration is based on International Labour Organization (ILO) indicators of forced labour, but only covers the ILO Work in Fishing Convention No. 188 partially. While forced labour and child labour are certainly the most prominent and pressing issues for workers in fisheries, the MSC only covers a fraction of the social pillar of sustainability with this. Therefore, we at **followfood** see the urgence to gather information from the fisheries we are sourcing from in order to prove the sustainability of wild-caught seafood beyond the regulation of the MSC.

For that, every fishery within followfood's supply chain shall complete this template in good faith and based on information known and available at the time of completion. The information provided should be representative of the range of measures known by the certification holder. The completed form will not be published and will solely be used for risk management within the followfood GmbH (see **followfood information obligations**).

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SOCIAL WELFARE POLICIES, PRACTICES, AND MEASURES

Please complete all unshaded fields to the best of your knowledge and fill in N/A if a question is not applicable, including a short justification for why it is not applicable.

1 HUMAN RIGHTS POLICY

- Describe the internal human rights policy.
- How is it communicated to all employees?
- How is it endorsed by officials/management?

2 DISCRIMINATION, VIOLENCE, AND HARASSMENT

- Describe the actions taken against violence, harassment, and inhumane or degrading treatment in the workplace.

3 REMUNERATION

- Describe the requirements for remuneration that apply to the employees (due to national law or collective bargain agreements).
- Describe how salaries of employees are composed (base + bonuses).
- Are systems in place to identify a “living wage (gap)” and to close it?

4 WORKING HOURS AND REST TIME

- Describe the typical time an employee continuously stays onboard.
- Describe the typical working hours and rest time in week.
- Describe the actions taken to ensure decent working hours and sufficient rest time.

5 OCCUPATIONAL HEALTH AND SAFETY

- Describe the measures in place to prevent accidents, injuries, or illnesses to arise from, associate with, or occur during work.
- Describe how incidents are dealt with.
- Describe the measures to deal with medical emergencies on board.

6 LIVING CONDITIONS ON BOARD

- Describe the accommodation on board.
- Describe the provision of food and water on board.
- Is onboard WiFi available for the crew?

7 SOCIAL BENEFITS

- Describe the social benefits employees have access to.
- Describe the employees' access to healthcare.

8 AUDITS AND LABOUR INSPECTIONS/CERTIFICATIONS

- Have you considered any 3rd Party audit on labour? If so, which?
- Have you considered seeking social certification on labour (*e.g.* Responsible Fishing Vessel Standard, FISH Standard for Crew)? If not, describe why.

DATE OF COMPLETION

SIGNATURE

[NAME OF FISHERY]

MSC-F-[CODE]

SOCIAL WELFARE POLICIES, PRACTICES, AND MEASURES

INTRODUCTION

Since 2018, fisheries and at-sea certificate holders in the Marine Stewardship Council (MSC) program are required to provide a self-description of policies and measures regarding the protection of the fishing crew from forced labour or child labour. This descriptive declaration is based on International Labour Organization (ILO) indicators of forced labour, but only covers the ILO Work in Fishing Convention No. 188 partially. While forced labour and child labour are certainly the most prominent and pressing issues for workers in fisheries, the MSC only covers a fraction of the social pillar of sustainability with this. Therefore, we at **followfood** see the urgence to gather information from the fisheries we are sourcing from in order to prove the sustainability of wild-caught seafood beyond the regulation of the MSC.

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SOCIAL WELFARE POLICIES, PRACTICES AND MEASURES

Please complete all unshaded fields to the best of your knowledge and fill in N/A if a question is not applicable, including a short justification for why it is not applicable.

1	**HUMAN RIGHTS POLICY**	
	Are mechanisms established to communicate the companies' human rights policies?	☐ YES ☐ NO
2	**DISCRIMINATION, VIOLENCE AND HARASSMENT**	
	Are measures in place regarding violence, harassment and inhuman or degrading treatment in the workplace?	☐ YES ☐ NO
3	**REMUNERATION**	
	Are measures in place to guarantee fair remuneration?	☐ YES ☐ NO
4	**WORKING HOURS AND REST TIME**	
	Are measures in place to ensure decent work hours and sufficient rest time?	☐ YES ☐ NO
5	**OCCUPATIONAL HEALTH AND SAFETY**	
	Are measures in place to prevent accidents, injuries, or illnesses from, associate with, or occurring during work?	☐ YES ☐ NO
6	**LIVING CONDITIONS ON BOARD**	
	Are measures in place to ensure adequate accommodation as well as sufficient provision with water and food?	☐ YES ☐ NO
7	**ONBOARD WIFI**	
	Is onboard WiFi available?	☐ YES ☐ NO

8 SOCIAL BENEFITS

Do employees have access to healthcare and/or other additional benefits?	☐ YES ☐ NO

9 AUDITS AND LABOUR INSPECTIONS/ CERTIFICATIONS

Are there any 3rd party audits on labour conditions on board?	☐ YES ☐ NO

DATE OF COMPLETION

SIGNATURE