



# MSC Monitoring and evaluation Technical Report 2022

May 16, 2022

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The definitive version of this report is available at the following link:

<https://www.msc.org/what-we-are-doing/our-collective-impact/monitoring-and-evaluating>

This report has been developed following the ISEAL Impacts Code of Good Practice version 2.0. Please contact [research@msc.org](mailto:research@msc.org) to provide feedback or send requests related to this report.

# Glossary

**Condition** of fisheries certification is a requirement to make specific improvements by the next assessment cycle in order to achieve best-practice requirements against the MSC Fisheries Standard.

**Conformity Assessment Body** is the body that performs conformity assessment services against either the Fisheries Standard or Chain of Custody Standard, and that can be the object of accreditation.

**Evaluation** is the systematic and objective assessment of activities. It provides information that is credible and useful, enabling the incorporation of lessons learned into decision making processes. Evaluation determines the worth or significance of the MSC program in the context of direct impacts to assessed attributes of participating organisations, to the environments in which they operate and to broader societal benefits that eventuate.

**Impacts** (*ISEAL Impacts Code of Good Practice*) are the positive and negative long-term effects resulting from the implementation of a standards system, either directly or indirectly, intended or unintended.

**Indicator** (*ISEAL Impacts Code of Good Practice*) is a quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement of outcomes, to reflect the changes connected to a standards system, or to help assess the performance of an organisation.

**Monitoring** is a continuous function that utilises the systematic collection of data on specified indicators to provide management and stakeholders with information on the extent of program progress and the achievement of objectives.

**Monitoring and Evaluation Framework** describes key attributes of the MSC program to monitor. It specifies a set of indicators (which may be changed or updated periodically) that aim to describe how aspects of the MSC program are changing over time or compared to stated targets that relate to the sustainability of fisheries and seafood supply chains.

**Monitoring and Evaluation System** (*ISEAL Impacts Code of Good Practice*) is an ongoing process through which an organisation draws conclusions about its contribution to intended outcomes and impacts. A monitoring and evaluation system consists of a set of interconnected functions, processes and activities, including systematic collection of monitoring data on specified indicators and the implementation of outcome and impact evaluations.

**MSC Chain of Custody Standard** is the MSC International Standard applied for all Chain of Custody audits.

**MSC Fisheries Standard** is the MSC International Standard applied for all Fisheries audits.

**MSC fishery** consists of one or more Units of Certification. As a default rule, different stock units under a single fishery name are counted as different fisheries; different gear types used to catch such species are however included by default in the fishery for each stock and therefore not counted as individual fisheries.

**MSC fishery assessment** refers to a single report that assesses usually, but not always, all Units of Certification under a single fishery name. Occasionally, Units of Certification under a single fishery name are assessed in separate reports.

**Outcomes** (*ISEAL Impacts Code of Good Practice*) are the likely or achieved short-term and medium-term results from the implementation of a standards system's strategies.

**Performance Indicator** is the lowest level of sub-criterion of a MSC Criterion in the decision tree of the Fisheries Standard; the level at which the performance of the fishery is scored by the team.

**Principle** is a fundamental element, in the MSC's case, used as the basis for defining a well-managed and sustainable fishery. The three core Principles of the Fisheries Standard relate to: sustainable target fish stocks; environmental impacts of fishing; and effective management.

**Stakeholder** is any person or group with an interest or claim which has the potential of being impacted by or having an impact on a given project and its objectives. Stakeholders include governmental and non-governmental institutions, local, indigenous or tribal communities, universities, research institutions, development agencies and banks, donors, etc. Stakeholder groups that have a direct or indirect "stake" can be at the household, community, local, regional, national, or international level.

**Unintended effect** (*ISEAL Impacts Code of Good Practice*) is an unintended change, either a drawback or a benefit, due directly or indirectly to an intervention which may include the implementation of a standards system.

**Unit of Certification** defines the unique combinations of target stock(s), fishing method/gear and practice (including vessel type(s)) pursuing that stock, and if stated, also client group, that are listed on a MSC fishery certificate.

# Acronyms

AATC	auditors, assessors and Technical Consultants
ASC	Aquaculture Stewardship Council
ASI	Assurance Services International
BMT	Benchmarking and Tracking tool
CAB	Conformity Assessment Body
CFO	Customer-Facing Organisation
CoC	Chain of Custody
CPRDR	Client & Peer Review Draft Report
ETP	endangered, threatened or protected
FAO	United Nations Food and Agriculture Organization
FCP	Fisheries Certification Process
FIP	Fishery Improvement Project
IA	Independent Adjudicator
ISEAL	International Social and Environmental Accreditation and Labeling
ISO	International Organization for Standardization
ITM	In-Transition to MSC
M&E	monitoring and evaluation
MSC	Marine Stewardship Council
NGO	non-governmental organisation
PCR	Public Certification Report
PI	Performance Indicator
PRC	Peer Review College
QA	Quality Assurance
SSF	small-scale fisheries
TO	Technical Oversight
ToC	Theory of Change
TOVAR	Technical Oversight and Variations
UoA	Unit of Assessment
UoC	Unit of Certification

# Executive summary

The Monitoring and Evaluation System of the Marine Stewardship Council (MSC) aims to monitor diverse aspects of the MSC program and evaluate these with respect to whether the MSC is delivering on its vision, mission, and Theory of Change for the production of sustainable seafood. This technical report presents a series of indicators that reflect these diverse aspects and summarise potential outcomes and impacts of the MSC program. The indicators broadly fall into six themes used to structure this report:

- *Reach* — Over the past two decades, there has been a steady increase in the share of the global seafood value chain participating in the MSC program. Increases have been observed in certified fisheries and their landings, in chain of custody certificate holders, and in MSC-labelled seafood products.
- *Accessibility* — While MSC fisheries and seafood supply chains operate primarily in countries with developed economies, the level of access to the MSC program for fisheries and supply chains from countries with developing economies has increased over the last decade. MSC programs further incentivise access for countries with developing economies and for small-scale fisheries.
- *Environmental performance and improvements* — The MSC Fisheries Standard is designed to align with international best practice sustainability standards for target stocks, bycatch, and supporting habitats. Fisheries must achieve a high standard to become certified, often requiring improvements leading up to certification. Openings of conditions of certification even after several re-assessments suggest that fisheries must continue to meet high standards while active in the MSC program, while closing of conditions and scoring improvements between initial assessment and re-assessment reflect improvements in performance relative to sustainability criteria.
- *Assurance* — The MSC Theory of Change relies on the credibility that certification of fisheries and seafood supply chains meets the rigorous sustainability standards as claimed. Steady rates of non-conformities by Conformity Assessment Bodies, Technical Oversight findings in fishery assessment reports, and identified incidents in Chain of Custody processes suggest a continual level of scrutiny in identifying issues requiring attention to maintain confidence in the certification process.
- *Stakeholder input* — Input into the certification process by interested parties is key for the credibility of the MSC program. Assessments are transparent and open to comments from diverse stakeholders, with some comments leading to scoring changes. Filed objections to fishery certification have been transparent and frequent particularly in the last decade. Stakeholders are consulted on the design and operation of the MSC program following ISEAL definitions of best practice.
- *Unintended drawbacks and benefits* – Stakeholder interviews revealed that along with intended socio-economic outcomes of the program, certain unintended benefits and drawbacks were also observed.

For each indicator, data collected by MSC are summarised—as historical trends where available—to evaluate aspects of the MSC program in relation to its Theory of Change.

# Introduction: MSC monitoring and evaluation

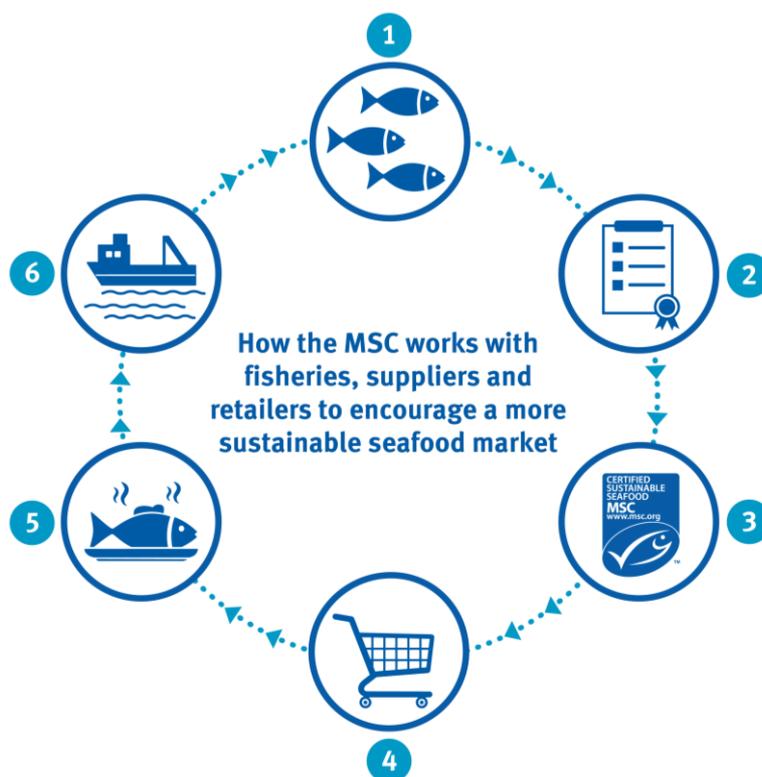
## 1 The MSC program and Theory of Change

The [Marine Stewardship Council](#)'s (MSC) vision is for the world's oceans to be teeming with life, and seafood supplies safeguarded for this and future generations. The mission of the organisation is to use its ecolabel and fishery certification program to contribute to the health of the world's oceans by recognising and rewarding sustainable fishing practices, influencing the choices people make when buying seafood, and working with partners to transform the seafood market to a sustainable basis.

Engaging in international consultation with stakeholders, the MSC has developed standards for environmentally-sustainable fishing and for assuring the chain of custody, both using an independent third-party assessment process. These standards ensure that MSC-labelled seafood comes from MSC fishery certificate holders. The [MSC Fisheries Standard](#) sets out requirements that a wild-capture fishery must meet to enable it to claim that its fish come from a well-managed and sustainable source. It comprises [performance indicators](#) related to the sustainability of target fish stocks, environmental impact of fishing, and effective management. The [MSC Chain of Custody \(CoC\) Standard](#) provides assurance that products sold with the MSC ecolabel or trademarks originated from a certified fishery. It ensures that certified products are purchased from certified suppliers, identifiable, segregated, and traceable with volumes recorded. Both MSC Standards have been revised multiple times throughout the MSC's history, periodically being updated to reflect changes in global best practice standards and improvements in the overall certification system. These revisions help the MSC to remain credible by "raising the bar" in an achievable manner, thereby incentivising fisheries and seafood companies to continually improve their practices to meet high standards.

The MSC's Theory of Change (ToC) describes how the MSC program intends to create market incentives to reward sustainable fishing practices (Figure 1; <sup>1</sup>). The same incentives also influence many fisheries that currently operate below the requirements set by the Fisheries Standard. If such fisheries want to benefit from these market rewards, they will need to reduce their environmental impact and improve their management practices to become eligible for certification. In turn, the need for all supply chain actors to become certified against the CoC Standard in order to reap the market benefits of the ecolabel creates an incentive to document and ensure that only seafood sourced from certified sources ends up with an ecolabel, and gives confidence to consumers that the MSC ecolabel is credible. The intention is that this "pull" towards certification will improve the stewardship of the world's oceans and enable many fisheries to better compete in a global marketplace that increasingly demands proof of sustainability<sup>1</sup>.

1. **Fisheries** that meet the MSC Fisheries Standard are independently certified as sustainable
2. **Retailers and restaurants** choose MSC certified sustainable seafood
3. **A traceable supply chain** assures consumers that only seafood from an MSC certified fishery is sold with the blue MSC label
4. **Consumers** preferentially purchase seafood with the blue MSC label
5. **Market demand** for MSC certified seafood increases
6. **More fisheries** choose to improve their practices and volunteer to be assessed to the Fisheries Standard



**Figure 1.** Summary of the MSC Theory of Change. Steps 1–6 are labelled in diagram. See descriptions of the MSC’s [Theory of Change](#) and [strategy](#) for more information.

According to the ToC, [stakeholders](#) in the seafood value chain will influence each other to produce, sell and consume certified seafood (Figure 1). Key stakeholders (Table 1) may contribute to the MSC delivering its ToC in different ways. In addition to those directly involved in the ToC, other stakeholder groups including governments and non-governmental organisations play important roles such as providing input into the certification process, implementing management reform, or supporting fisheries improving their practices so they eventually meet MSC sustainability benchmarks. This range of roles provides opportunities for evaluating the MSC program from diverse perspectives.

Under the MSC program, fisheries and seafood supply chain businesses can become certified if they meet the MSC Standards for sustainable fishing and product integrity. To maintain impartiality, the MSC itself does not issue certificates, they are issued by third-party [Conformity Assessment Bodies](#) (CABs) which are independently accredited by Assurance Services International (ASI) who operate a quality management system based on the ISO/IEC 17011:2017 requirements for accreditation bodies.

**Table 1.** Stakeholders in the MSC Theory of Change (ToC). Numbers in parentheses refer to ToC steps listed in Figure 1.

Stakeholder	Definition	Contribution to ToC
Commercial wild harvest fisheries	Involved with harvesting wild fish and invertebrate stocks for profit	(Steps 1, 6) Choose to improve their practices and volunteer to be assessed to the MSC Fisheries Standard
Supply chain	Involved with trading, processing, packing/repacking, and storage of seafood products	(2, 3) Provide assurance that products originate from an MSC-certified fishery by being assessed against the MSC Chain of Custody Standard
Conformity Assessment Body	Third parties involved with certifying fisheries against the Fisheries Standard or supply chain companies against the Chain of Custody Standard	(1, 2, 3) Contribute to credibility of the program by independently assessing fisheries and auditing supply chain actors
Retailers and restaurants	Involved with trading seafood products for sale to the end consumer	(2, 4, 5) Trade MSC-certified seafood products to meet consumer demand
Consumers	Customers and other consumers of sustainable seafood	(4, 5) Create market demand for MSC-certified products

## 2 Monitoring and Evaluation System

The MSC’s ‘[Monitoring and Evaluation \(M&E\) System](#)’ aims to describe the degree to which the MSC is delivering its ToC as a means of realising its vision. At its core is the ‘[M&E Framework](#)’, which describes key attributes of the MSC program that are monitored. It specifies a set of indicators (which may be changed or updated periodically) that aim to describe how aspects of the MSC program are changing over time or compared to stated targets that relate to the sustainability of fisheries and seafood supply chains. The indicators currently evaluated, covered in this report, relate to several steps of the ToC and apply to several different stakeholder types.

The M&E System is intended to reflect the MSC’s commitment to technically rigorous and transparent methods of tracking and evaluating outcomes and impacts of the MSC program. Accordingly, this M&E System has been designed in conformity with the International Social and Environmental Accreditation and Labeling ([ISEAL](#)) Code of Good Practice for Assessing the Impacts of Social and Environmental Standards (the [ISEAL Impacts Code](#)).

Monitoring a set of indicators that reflect diverse aspects of the MSC program allows for identifying whether the aspects represented by indicators have changed over time or differ among groups being compared. Evaluating these indicators in the context of the ToC allows for assessing whether observed changes align with intended outcomes and impacts of the certification system. Communicating the results of the M&E System provides accountability to the diverse stakeholder groups involved with the ToC and demonstrates transparency of the MSC program.

### 3 Contents and structure of this report

The MSC holds a wide range of datasets including time series that pertain to the:

- certification of fisheries assessed against the [Fisheries Standard](#), including outcomes of assessments against the Fisheries Standard, with scores relating to the:
  - status and harvest strategies of wild-caught fish stocks;
  - environmental impacts of fishing activity;
  - management of fisheries;
- certification of supply chain companies assessed against the [CoC Standard](#);
- distribution, recognition and sale of MSC eco-labelled products;
- assurance systems for providing confidence in the application of the Fisheries Standard and CoC Standard;
- records of online and in-person training activities focused on the MSC Standards;
- feedback from stakeholders through fishery assessments and external consultations.

This M&E Technical Report draws from these data (for more detail, see [Annex A1—Data sources](#)) and from additional research projects to present a series of [indicators](#) that relate to the sustainability of fisheries and seafood supply chains. These indicators are meant to demonstrate potential ‘[outcomes](#)’ (short to medium-term results) and ‘[impacts](#)’ (long-term effects) of the program. For each indicator, a definition and data sources are listed in the main text, and further methods for calculation are provided in [Annex A2—Indicator protocol](#). These indicators are used to show how measurable attributes of the MSC program have changed over time or among compared groups. These indicators are evaluated with respect to the MSC delivering on its ToC, providing assurance and credibility, and demonstrating transparency.

Indicators are presented within six themes that broadly represent effects or aims of the MSC program: ‘Reach’, ‘Accessibility’, ‘Environmental performance and improvements’, ‘Assurance’, ‘Stakeholder input’, and ‘Unintended drawbacks and benefits’ (Table 2). These indicators focus on key areas that have been identified as informative and requiring continuous monitoring using data sources that can be updated and tracked through time. Years reported below are calendar years unless otherwise stated to be financial years (April 1 to March 31). Reference to other data or research done to understand the impacts and outcomes of the MSC program is included where available and appropriate, though this report is not intended to be an in-depth, exhaustive accounting of all of MSC’s potential impacts and outcomes.

**Table 2.** Themes under which outcomes and impacts of the MSC program are evaluated.

Theme	Definition
<a href="#"><u>Reach</u></a>	The share of global fisheries and global seafood supply chains participating in the MSC program
<a href="#"><u>Accessibility</u></a>	The level of access to the MSC program for fisheries and seafood supply chains around the world, particularly in areas where achieving certification may be challenging
<a href="#"><u>Environmental performance and improvements</u></a>	The degree to which fisheries adhere to the Fisheries Standard before, during, and following certification. Improvements are often required leading up to, immediately after, and continuously throughout certification cycles
<a href="#"><u>Assurance</u></a>	The degree to which the MSC Fisheries and Chain of Custody assessment process is working as intended and meets international best practice standards in sustainable seafood certification
<a href="#"><u>Stakeholder input</u></a>	The level of input into the design and delivery of the MSC program by any person or group with an interest or claim which has the potential of being impacted by or having an impact on the MSC program
<a href="#"><u>Unintended drawbacks and benefits</u></a>	The social and economic effects on stakeholders, whether intended (i.e., as part of the ToC) or unintended (which may include either benefits or drawbacks), resulting from the implementation of the program on the ground

# Themes of MSC monitoring and evaluation

## 1 Reach

*The MSC aims to increase the share of global fisheries and global seafood supply chains participating in the program, and thereby to continue increasing the supply of and demand for sustainable seafood.*

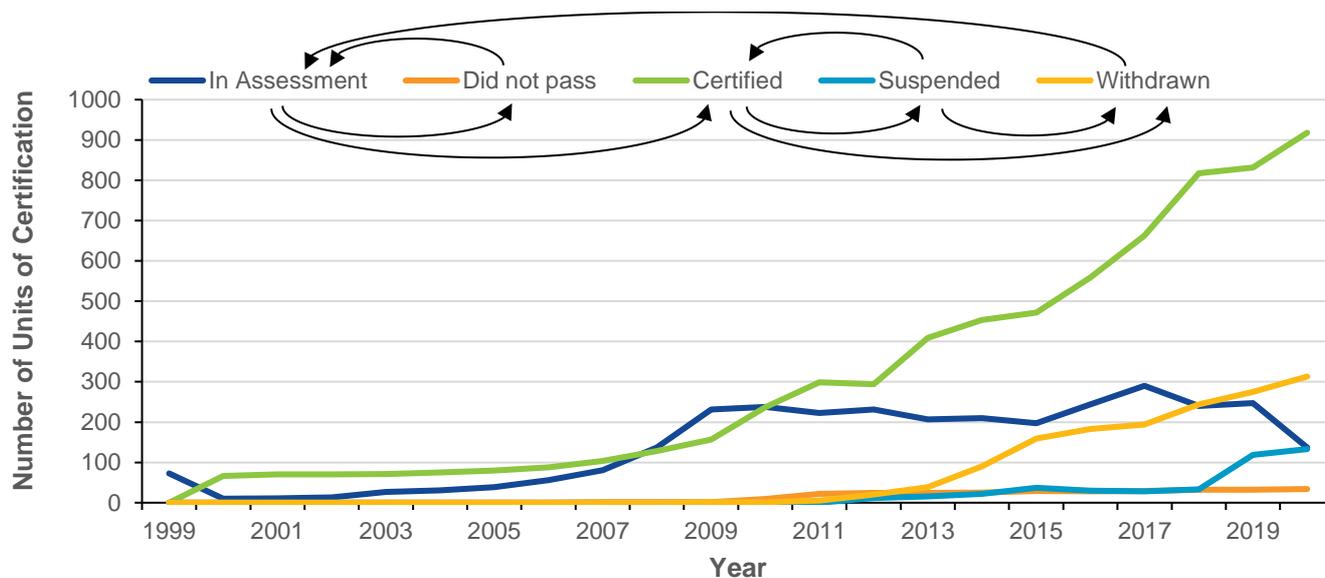
### 1.1 Number of, and landings from, MSC-engaged Units of Certification

<b>Definition</b>	(i) Number of Units of Certification (UoC) engaged in the MSC program by year (1999–2020);  (ii) Landed tonnage of UoCs engaged in the MSC program by year (1999–2020)
<b>Source</b>	Certificate holder database, Catch database, FAO wild-caught landings database; detailed in <a href="#">Annex A1.1</a>

This indicator reveals trends in the number of [Units of Certification](#) (UoC) under the fisheries that have interacted with the MSC program and the total landings of those engaged (certified, suspended, or in-assessment) fisheries. It directly pertains to the Theory of Change (ToC) as it indicates whether more fisheries over time are volunteering to be assessed against, and become certified to, the MSC Fisheries Standard. UoCs are the unique combinations of target stock, fishing method/gear, and fishing vessels/practices that make up an [MSC fishery](#). This provides clearer insights into the extent of the MSC program than would the number of fisheries alone, because it also considers the number of different fishery operations covered under an MSC certificate.

In 2020, 918 UoCs had a ‘certified’ status, having increased from 832 in 2019 (Figure 2). Taxonomic groups ‘cods, haddocks and hakes’ (22%), ‘salmon, trouts and smelts’ (21%) and ‘tunas, bonitos and billfishes’ (10%) make up over half of certified UoCs. The number of certified UoCs has grown throughout the program, increasing at an average rate of 9% per year from 1999–2009, and 15% per year from 2011–2020. In 2010, growth was unusually high with a 51% increase in the number of certified UoCs compared to the previous year (Figure 2), mainly the result of accelerated engagement of fisheries in the North Atlantic. Excluding 2010, annual growth rate over the full duration of the program has ranged from 0–39% (12% on average). Much of the recent growth has come from tuna fisheries, as the number of tuna UoCs increased nearly 4-fold between 2016 and 2020, likely resulting from increasing

sustainability commitments in the retail and service sectors driven by consumer demand for sustainably sourced tuna<sup>2</sup>.



**Figure 2.** Number of Units of Certification (UoC) in the MSC program by status and year. Five categories of UoCs (distinguished by colour) are mutually exclusive in any given year, but UoCs may change categories from one year to the next along the direction of arrows shown. Withdrawn refers to either UoCs that withdrew from assessment (pre-certification) or that withdrew from certification, not those transferred into different fishery certificates.

The number of UoCs in assessment remained fairly stable between 2009 and 2019, reflecting the continuous intake of fisheries beginning the certification process (Figure 2). However, the number of UoCs in assessment dropped notably in 2020; this is likely due to smaller or less complex fisheries (those with fewer UoCs per fishery) entering the certification process, as the total number of new and completed [fishery assessments](#) in 2020 was comparable to previous years despite the COVID-19 pandemic<sup>3</sup>.

Suspensions are triggered if a UoC no longer meets the requirements of the Fisheries Standard, and certificates are reinstated if compliance issues are resolved. The number of suspended UoCs remained stable for several years until 2019 when it increased from 33 to 119 (Figure 2). This increase was mainly due to: (i) the number of suspended UoCs targeting Atlantic cod increasing from nine to 17, mainly resulting from new stock assessment results showing that the North Sea cod stock had dropped below safe biological levels<sup>4</sup>; (ii) 54 UoCs from the British Columbia salmon fishery self-suspending due to concerns around the ability to meet milestones for [conditions](#) of certification<sup>5</sup>; and (iii) an additional 20 UoCs targeting Northeast Atlantic mackerel being suspended after the stock dropped below the precautionary limit ‘MSY B<sub>trigger</sub>’<sup>6</sup>. In 2020, the number of suspended UoCs further increased to 133 as the number of

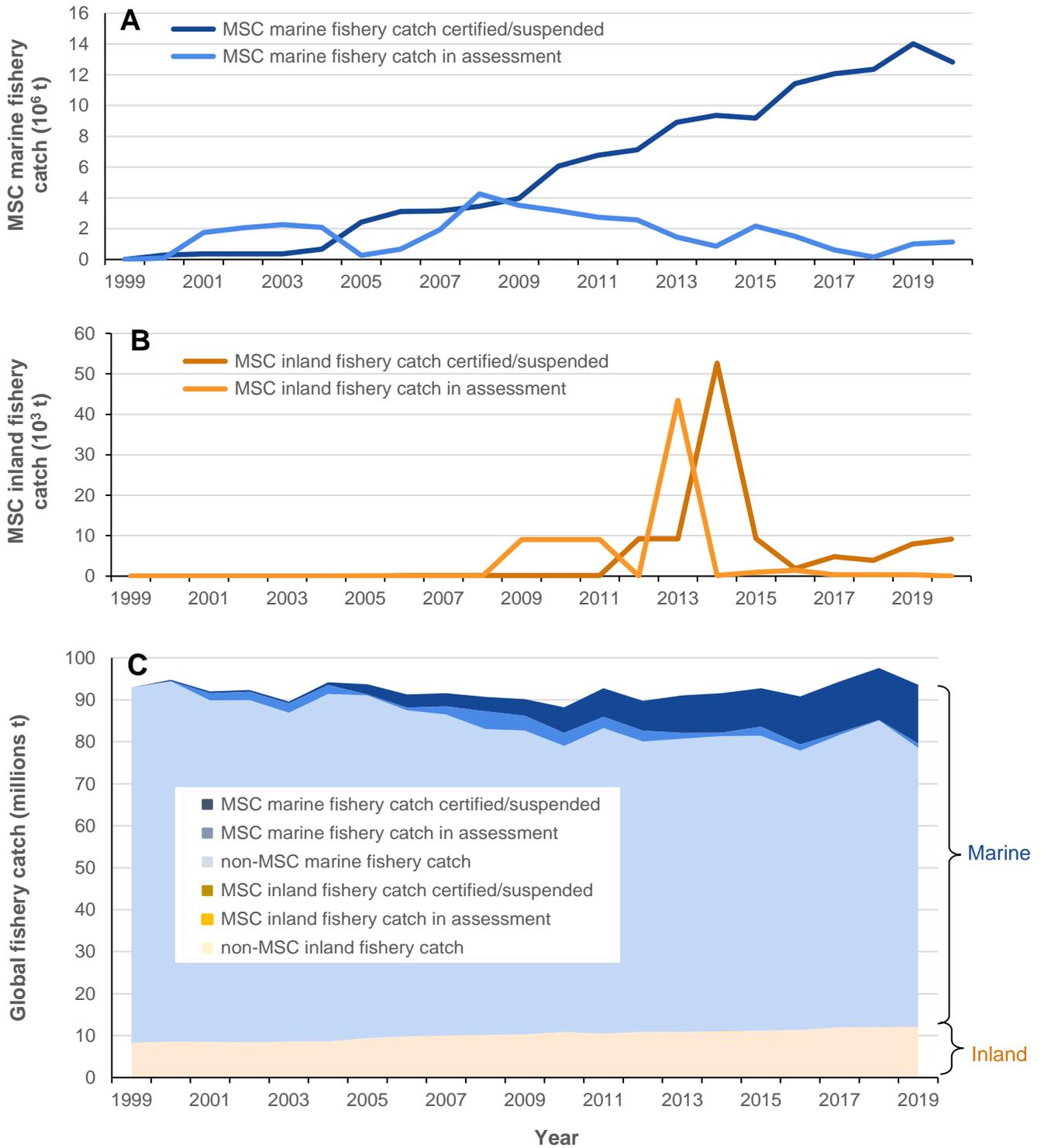
suspended Northeast Atlantic herring UoCs also doubled from 9 to 19 due to the ongoing lack of an international quota sharing agreement<sup>7</sup>.

Of the 1535 UoCs that have ever voluntarily been assessed for certification, 313 (20%) have left the program (and thus have withdrawn status). These UoCs either withdrew during assessment without ever being certified or withdrew at some time post-certification (in contrast to other cases in which UoCs simply re-organized administratively into other fishery certificates). The proportion of withdrawn UoCs increased from 0.2% of all UoCs in 2010 to 20% of all UoCs in 2020 (Figure 2).

Landed tonnage caught by MSC-certified UoCs (including those under suspension) has increased rapidly over the past two decades, reaching 14 million tonnes by 2019 (Figure 3A). In addition, landings of fisheries in MSC assessment have typically ranged between 1–2 million t during this period. MSC marine catches are on average nearly  $10^4$  times greater than MSC inland catches (Figure 3B). These MSC catch volumes are plotted along with ‘non-MSC’ catch volumes in the same fishing year in Figure 3C, with their total summing to global wild capture seafood quantities published by the United Nations Food and Agriculture Organization (FAO)<sup>8</sup>. Total wild-caught marine fishery landings reported to FAO were stable over the last two decades, ranging from 77–86 million t annually (Figure 3C). The subset of MSC-certified marine landings as a proportion of these global marine landings thus increased steadily and reached 15% of global marine wild capture production. An additional 1% of total FAO marine catch was in assessment against the Fisheries Standard in 2020, giving a combined 16% of FAO marine catch engaged with the MSC program in 2020. Global landed tonnage of inland fisheries increased from 8 to 12 million t over these two decades, of which MSC inland catch volumes represented only <0.5% of the total in all years (Figure 3C). This is to be expected as MSC is primarily a marine-focused organisation.

Three taxonomic groups—‘cods, hakes and haddocks’ (38%), ‘herrings, sardines and anchovies’ (20%), and ‘tunas, bonitos and billfishes’ (10%)—make up the majority of certified landings. Despite ‘salmons, trouts, and smelts’ making up a fifth of the program’s certified UoCs, their catch amounts to only 600,000 t. Again, growth in landings has mainly come from tuna fisheries, whose certified tonnage increased 4-fold from 456,000 t in 2016 to 1.8 million t in 2020. Growth in certified landings was continuous from 2010–2014, averaging 20% annual growth (range 5–52%), until 2015 when certified catch dropped by 2%. Since 2015, average growth of certified landed tonnage has increased at 7% annually (range, –9 to 24%).

The increase over time in the number of certified fisheries and their landings suggest continued delivery of step 6 of the ToC (Figure 1). External evaluations of the extent and potential growth of the MSC program in terms of fisheries and landings include Gulbrandsen (2009)<sup>9</sup>, Ponte (2012)<sup>10</sup>, Renckens and Aulds (2019)<sup>11</sup>, and Nyiawung et al. (2021)<sup>12</sup>. Internally, potential growth was evaluated for the [3<sup>rd</sup> Integrated Strategic Plan](#) (ISP) which identified key areas for program outreach that prioritised the most important biodiversity hotspots, species, and marine regions where challenges for meeting the MSC’s sustainability bar are greatest. Another review is ongoing for the 4<sup>th</sup> ISP.



**Figure 3.** MSC-certified and non-MSC wild-caught fishery landings by year, separated into marine and inland catches and further separated by MSC status (certified/suspended, or in assessment). MSC catch tonnage for (A) marine and (B) inland fisheries (note different axis units for A and B); (C) stacked area plot with MSC and non-MSC portions of annual FAO wild-caught production quantities.

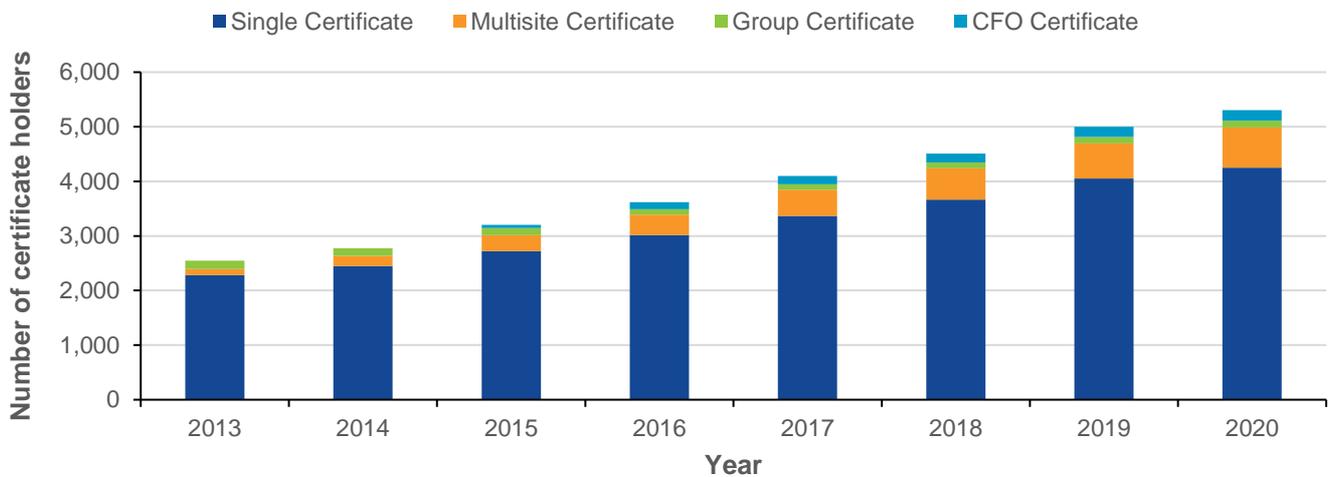
## 1.2 Reach of the Chain of Custody program

**Definition** | Number of MSC Chain of Custody certificate holders by year (2013–2020)

**Source** | Certificate holder database; detailed in [Annex A1.2](#)

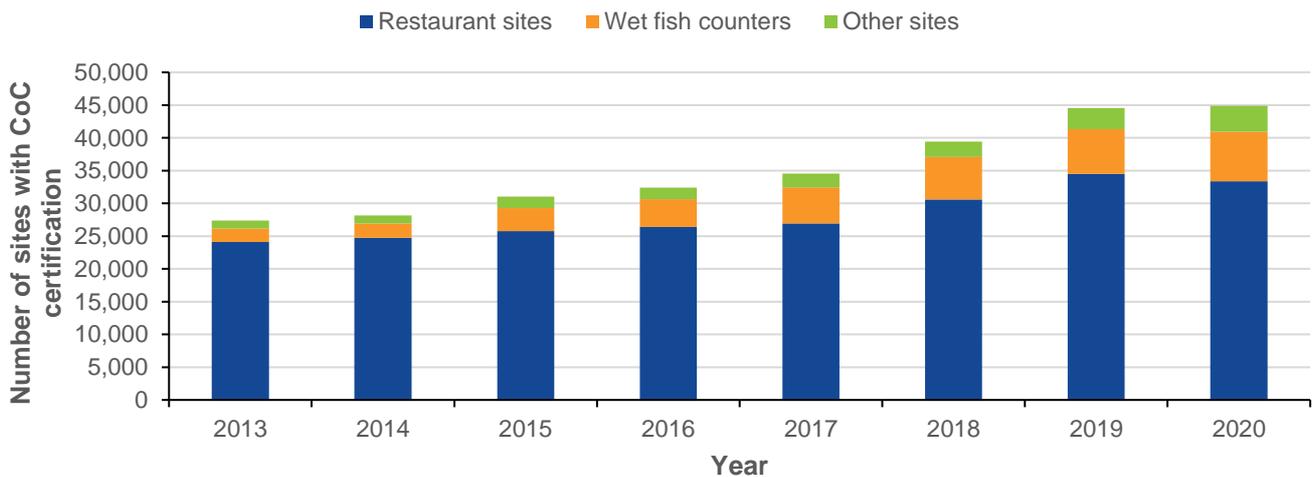
Companies in the supply chain wishing to actively sell MSC-certified seafood must be certified against the MSC Chain of Custody (CoC) Standard, which requires certified fish not be mixed with uncertified fish. Organisations handling MSC-certified seafood are also required to have a management system capable of proving the product as certified at the point of purchase, and eligible for sale as certified. This indicator tracks the number of valid CoC certificate holders each year, representing the number of companies providing assurance to their customers that their products come from a certified source.

The number of CoC certificate holders increased year-on-year at an average annual rate of 11% (range 6–16%) since 2013, including from 5,000 in 2019 to 5,302 in 2020 (Figure 4). In 2015, the CoC Standard was updated to include a Group version and a Customer-Facing Organisation (CFO) version alongside the Default version to cater to diverse supply chain business needs. The Default Standard is designed to be applicable to single or multisite companies; the Group Standard version is applicable to any company with many sites coordinated through a central office; while the CFO Standard version is applicable to retailers, restaurants, caterers and fresh fish counters selling directly to final consumers. Prior to this, the Group Standard was an annex to the Default Standard. Since 2015, the number of multisite certificates within the Default Standard has increased by 631 at an average annual rate of 33% (range, 12% to 71%), whilst the number of Group certificates has declined at an average annual rate of –2% (range, –19% to 14%). While issuance of CFO certificates declined, with 125 certificates issued in the two years after the CFO Standard was released (2015–2016) but only 63 additional certificates issued over the subsequent four years combined, the CFO Standard has the largest certificated site number as all restaurant and wet fish counter sites are now certified under this Standard (Figure 5).



**Figure 4.** Number of MSC Chain of Custody certificate holders by year. Data before 2013 are of lower reliability and are therefore omitted. CFO = Customer-Facing Organisation.

Default multisite, Group and CFO certificate holders may have numerous sites handling certified product. The total site number increased 1.6-fold between 2013–2020. Since 2013, the majority of sites with CoC certification have been restaurant sites certified under the CFO Standard version (Figure 5). The number of restaurant sites increased slowly at an average annual rate of 5% (range, –3% to 14%) between 2014 and 2020, whilst the fastest growth in site numbers has come from wet fish counters (also certified under the CFO Standard) which increased from 2056 to 7582 between 2013 and 2020.



**Figure 5.** Number of sites worldwide with Chain of Custody (CoC) certification by year. Data before 2013 are of lower reliability and are therefore omitted.

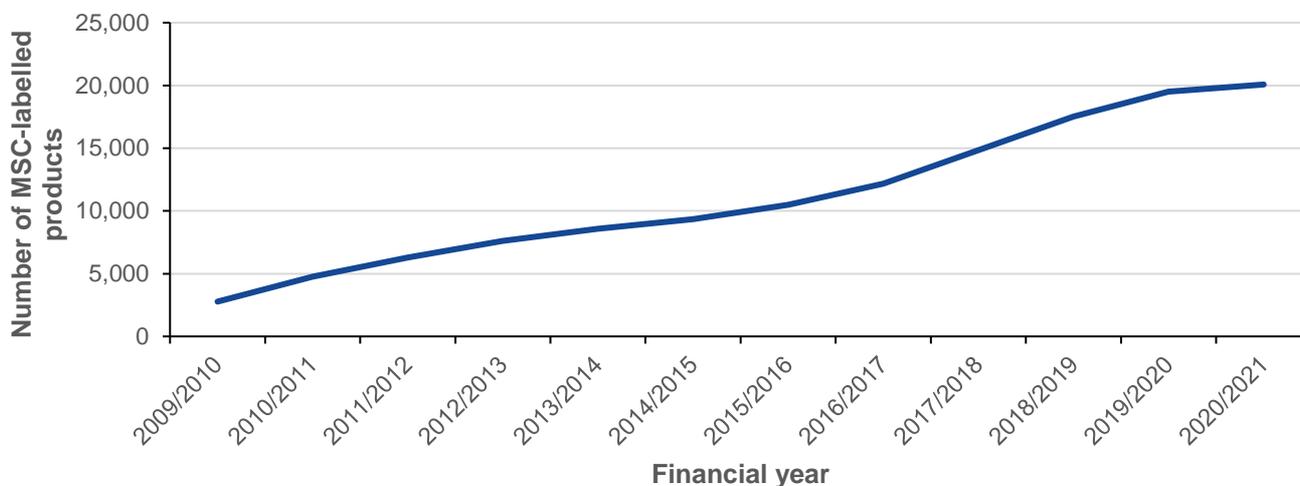
The increase over time in the number of CoC certificate holders and the number of sites with CoC certification suggest continued delivery of steps 3 and 2 of the ToC, respectively (Figure 1). Both internally and externally, global-scale evaluations of the current extent and potential growth of the CoC program are lacking. Internally, analysis of supply chains for specific countries and species have been performed on an ad-hoc basis when considered to be of strategic interest, often informed by perceived needs for improved sustainability. Externally, this area has received little interest outside of a few focused studies<sup>13,14</sup>. Further evaluation of global supply chains, particularly to identify the structure and characteristics of emerging market supply chains (e.g., independent restaurants, intermediaries, and small scale operators) that may present challenges for certification to the CoC Standard, could help develop new strategies to increase worldwide adoption of CoC certification.

### 1.3 MSC-ecolabelled products in the market

<b>Definition</b>	Number of MSC-labelled products available to consumers by financial year (2009/2010 to 2020/2021)
<b>Source</b>	MSC-International database; detailed in <a href="#">Annex A1.3</a>

The MSC ecolabel is [the most widely used seafood ecolabel globally](#), used by consumers to identify certified MSC products. This indicator tracks the availability of MSC-labelled products in global markets that were or are currently on sale and have had recorded sales against them. We note that not all MSC-certified product ends up being sold with the MSC ecolabel.

The number of MSC-labelled products has grown year-on-year at an average annual rate of 23% since 2009/2010, and has doubled over the past six years, rising from 9,352 in 2014/2015 to 20,072 in 2020/2021 (Figure 6). This continuous, steady growth slowed in 2020/2021 when the annual increase dropped to 3%. MSC seafood products are categorised into several product types. ‘Frozen’, ‘chilled’, and ‘canned’ products made up nearly 80% of the volume of MSC-labelled products in the financial year 2020/2021.



**Figure 6.** Number of MSC-labelled products available to consumers by financial year. Data before financial year 2009/2010 are of lower reliability and are therefore omitted.

The steady increase over time in the number of MSC-labelled products in global seafood markets suggests continued delivery of step 4 of the ToC (Figure 1). It demonstrates a consumer (and therefore market) case for certification in spite of individual setbacks such as ongoing suspensions. Additionally, the state of global markets in relation to MSC-labelled products is regularly evaluated on an internal basis in order to, for example, assess the impact of COVID-19 on the availability of different eco-labelled products.

## 1.4 Conclusions and information gaps

Understanding the current reach of the program is important to evaluate the potential for MSC to deliver on its ToC. Indicators of reach are a necessary (but not sufficient) factor for achieving intended outcomes and impacts. Incentives for achieving certification and demand for certified seafood products are inter-related, and low demand for sustainable seafood would likely limit the incentive for getting certified and making environmental improvements<sup>15</sup>. By understanding where the limitations are, strategies can be produced to target these areas and work towards improving fisheries and supply chains globally.

The indicators considered here show that the reach of the MSC program is generally increasing with respect to certification of fisheries and supply chain organisations as well as seafood products bearing the MSC ecolabel. In general, greater reach is expected to provide greater potential for generating desirable outcomes and impacts related to the sustainability of fisheries and seafood value chains. Evaluations of reach indicators<sup>9,10,11,12,13,14</sup> are readily available for fisheries and supply chains and can be used to prioritise regions of greatest need for improving sustainability that are currently not being reached by the program.

## 2 Accessibility

*The MSC aims to increase access to the program for fisheries and seafood supply chains around the world, particularly in areas where achieving certification may be challenging.*

### 2.1 Uptake of the Fisheries program in developing economies

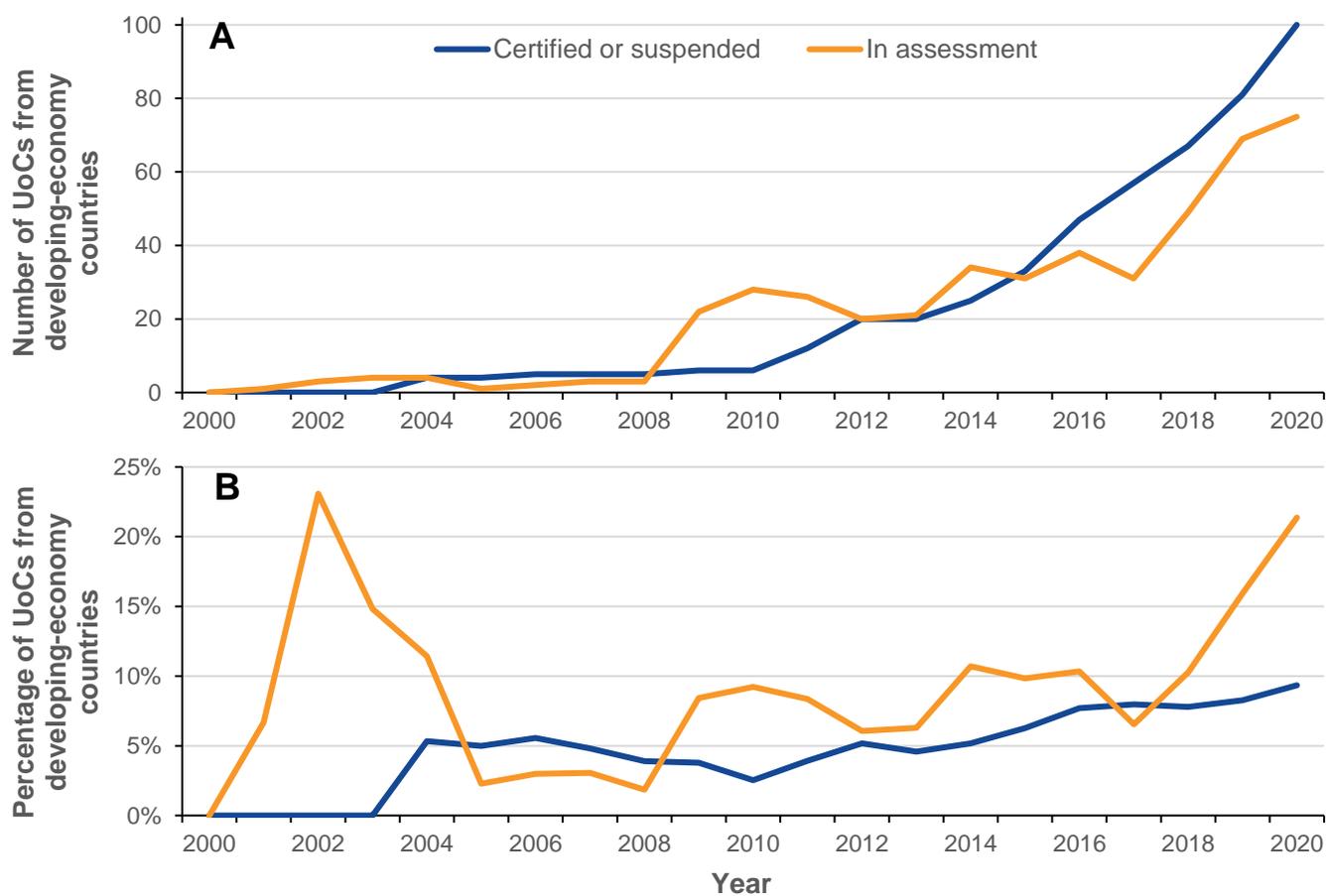
<b>Definition</b>	Number of Units of Certification (UoCs) from countries with developing economies engaged in the MSC program, and also given as a proportion of all UoCs; annual number and percentage by year (2000–2020)
<b>Source</b>	Certificate holder database; detailed in <a href="#">Annex A2.1</a>

The MSC recognises that certain fisheries face greater barriers in meeting Fisheries Standard requirements, in particular fisheries from developing economies (under [United Nations definitions](#)) or data-limited fisheries<sup>16</sup>. The MSC endeavours to enable fisheries to address and ideally surmount these barriers through its ‘Pathway to Sustainability’ program<sup>16</sup>. This program aims to support fisheries in their efforts to improve the environmental performance of their fishing practices by providing them with a collection of ‘Pathway tools’ to help drive progress towards sustainability objectives beyond their interest in potential MSC certification. These Pathway tools are aimed at addressing different types of challenges and include:

- Fisheries improvement tools, which can be used by any fishery working towards sustainability through a Fishery Improvement Project (FIP)
- In-Transition to MSC program, which provides a framework for fisheries that are committed to achieving MSC certification within five years. Through the program, fisheries will have their annual progress verified by an accredited CAB
- Capacity Building program, which helps fisheries that are working towards sustainability and MSC certification to build technical knowledge of the Fisheries Standard and implement successful FIPs

Fisheries in countries with developing economies were first certified in 2004, and for the next decade the proportion of UoCs from developing economies ranged from 2.5–5.6% each year (Figure 7). Since 2014, this proportion gradually increased reaching 9.3% in 2020. This proportion is expected to increase in future years based on the proportion of UoCs from developing economies that were in assessment in 2019 and 2020. Two years prior to the first UoCs from developing economies being certified in 2004, we observed the greatest proportion (23%, or 3 of 13) of UoCs in assessment from developing economies

(Figure 7). After 2004, the proportions of UoCs from developing economies were similar for UoCs in assessment and those certified (or suspended), until recently when the proportion in assessment increased from 10% in 2018 to 21% in 2020. Assuming a similar rate of passing certification, these recent increases of UoCs in assessment are expected to result in an increased proportion of certified fisheries from developing economies in the year or two following. Preliminary data for 2021 (not shown in Figure 7) are consistent with this expectation, with the proportion of certified UoCs from developing economies reaching 11%.



**Figure 7.** Number (A) and percentage (B) of Units of Certification (UoC) from countries with developing economies, by year. Counts and proportions are shown separately for UoCs in assessment and for active UoCs including those under suspension.

The gradual increase over time in the number and proportion of certified fisheries (as represented by UoCs) from developing economies suggests that fishery certification has become more accessible globally, pertaining to step 6 of the ToC (Figure 1). However, given that countries with developing economies (including ‘low’, ‘lower-middle’, and ‘middle’ income) together produce more than 70% of the world’s marine wild-capture landings, yet only 11% of UoCs are from developing economies, there is

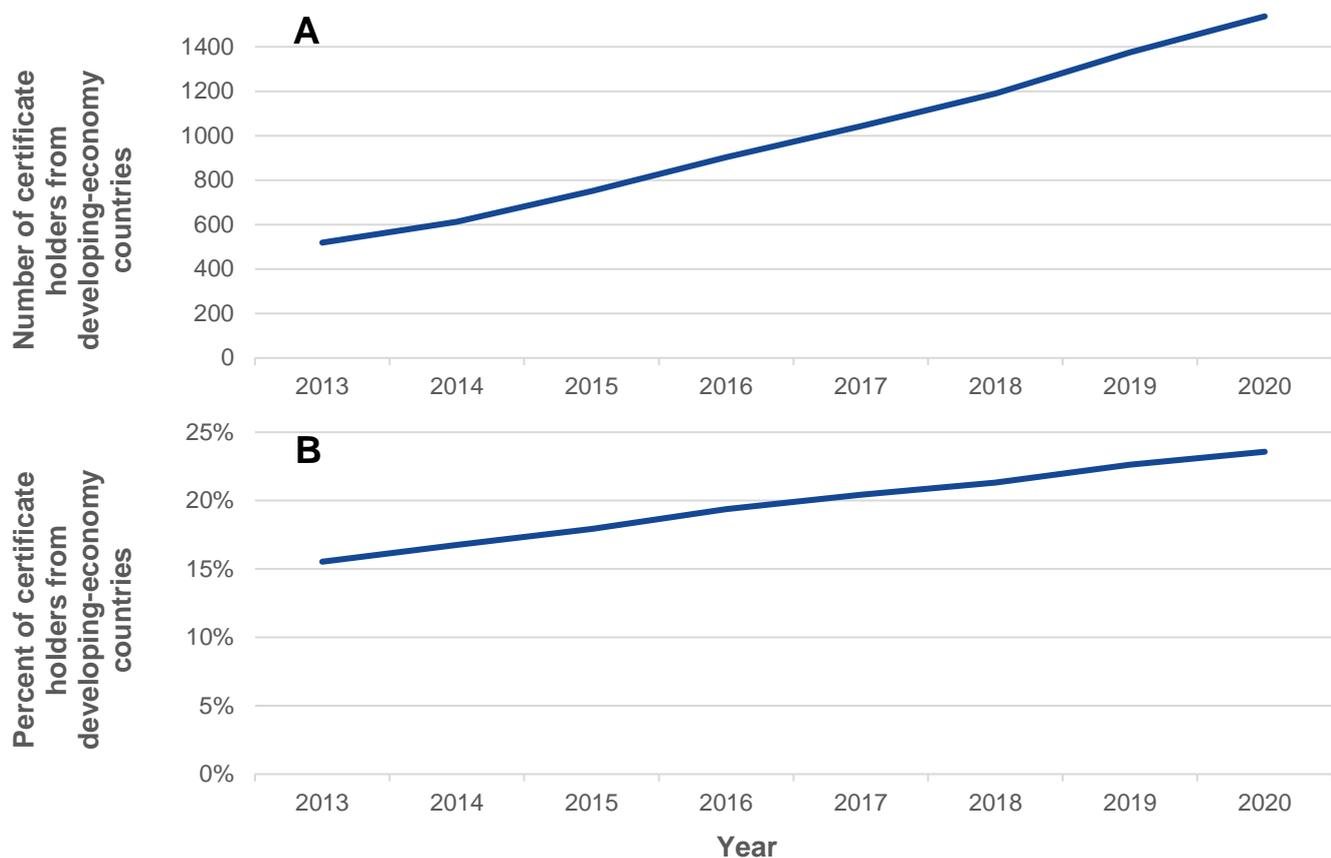
clearly scope for greater representation<sup>11,17</sup>. Accordingly, the Capacity Building program is currently being reviewed along with the ‘Assessors training platform’ (see also [2.4](#)). Pathway projects have also been recently evaluated (see public summary and related links [here](#) including a [project report](#)) with the intention of increasing global accessibility to fisheries.

## 2.2 Uptake of the Chain of Custody program in developing economies

<b>Definition</b>	Number of Chain of Custody (CoC) certificate holders in countries with developing economies, and also given as a proportion of all CoC certificate holders; annual number and percentage by year (2013–2020)
<b>Source</b>	Certificate holder database; detailed in <a href="#">Annex A2.2</a>

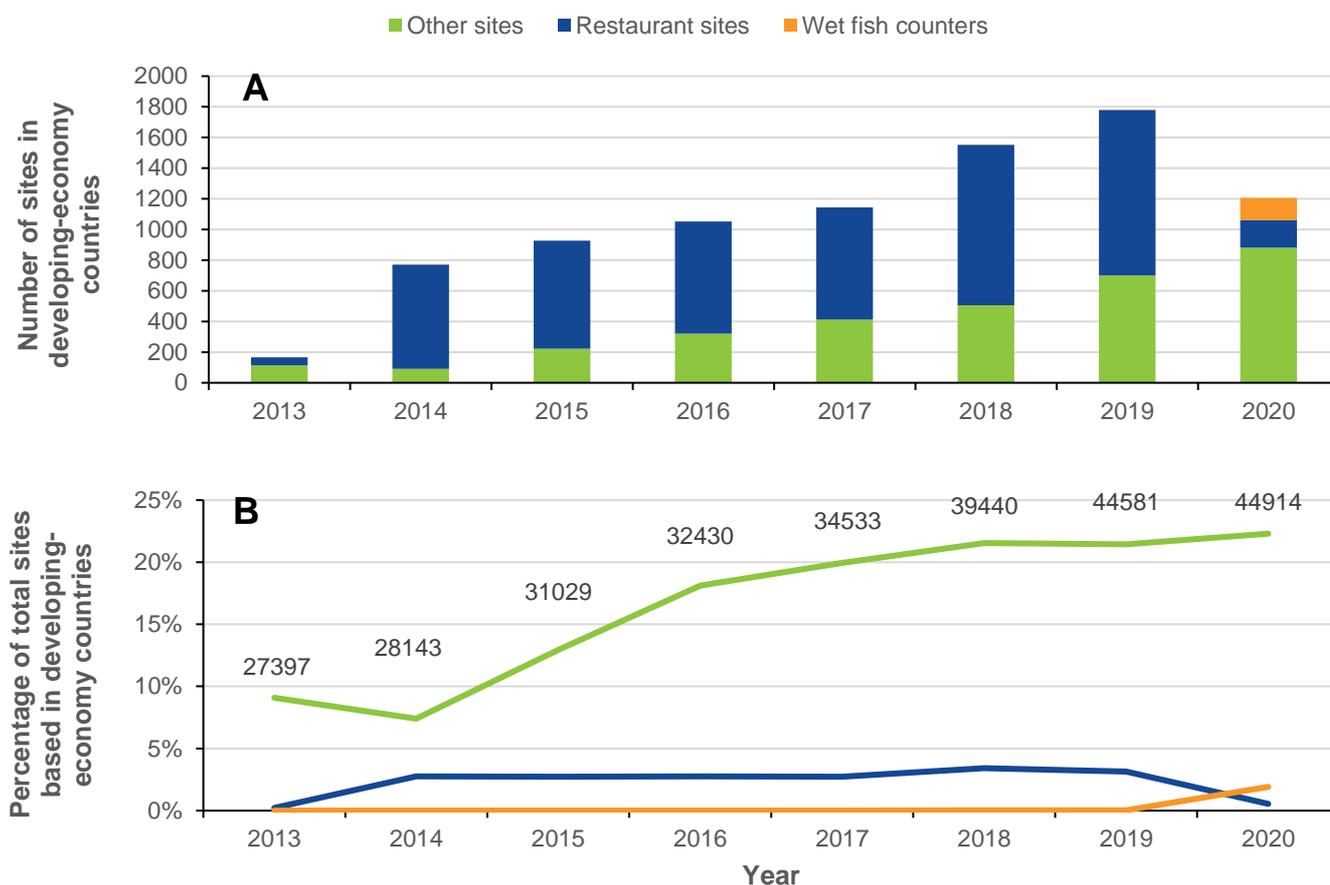
Aligning with aims for increasing certification opportunities for fisheries from countries with developing economies, the MSC also seeks to increase certification opportunities for seafood supply chains from developing economies. The CoC Standard applies equally to supply chains in developing economies, ensuring that only catch originating from MSC-certified fisheries is later designated as MSC-certified product along successive steps of seafood supply chains.

The proportion of CoC certificate holders from developing economies increased steadily from 15% in 2013 to 23% in 2020 (Figure 8). These CoC certificate holders can be involved in a range of activities and can each be associated with a number of point-of-sale sites such as restaurants and wet fish counters. Knowing how many customer-facing sites there are in developing economies can help understand how accessible MSC products are to consumers in developing economies and therefore the likely demand for certified products through supply chains.



**Figure 8.** Number (A) and percentage (B) of Chain of Custody certificate holders from countries with developing economies, by year (December value for each calendar year). Data before 2013 are of lower reliability and are therefore omitted.

Concurrent with the increase in the proportion of certificate holders from developing economies since 2013, both the number of certified sites worldwide and the proportion of these sites in developing economies have also increased (Figure 9). Over this period the number of sites from developed economies increased 1.6-fold while the proportion from developing economies increased 7.3-fold, indicating more rapid growth in developing economies. Two notable changes were observed in 2020: first, the decrease in the number of restaurant sites from 2019 to 2020 mainly resulted from a Brazilian certificate with several restaurant sites being withdrawn. Second, the increase in the number of wet fish counter sites was mainly attributed to 143 sites added under a South Korean certificate (however, with the 2021 recognition of South Korea as a developed economy, future summaries will no longer classify South Korean certificates in the ‘developing economy’ group).



**Figure 9.** Number (A) and percentage (B) of all Chain of Custody sites based in countries with developing economies, by year (December value for each calendar year). Labels indicate total number of sites summed across categories, as reported in Figure 5.

The gradual increase over time in the proportion of CoC certificate holders from developing economies suggests a greater uptake of MSC certification by supply chains in these countries, pertaining to step 3 of the ToC (Figure 1), which may reflect increased accessibility geographically. The proportion of CoC sites based in developing economies has generally followed a similar trend, pertaining to step 2 of the ToC. As for other steps in the ToC, increasing global accessibility of supply chains and of restaurants/retailers are likely to reinforce one another. Access to MSC-certified seafood products through local or regional supply chains may present lower cost barriers for consumers in developing economies, and in turn greater demand from consumers in developing economies may provide supply chain companies with a wider set of consumers and greater incentive to supply local markets with sustainable seafood products<sup>11,18</sup>.

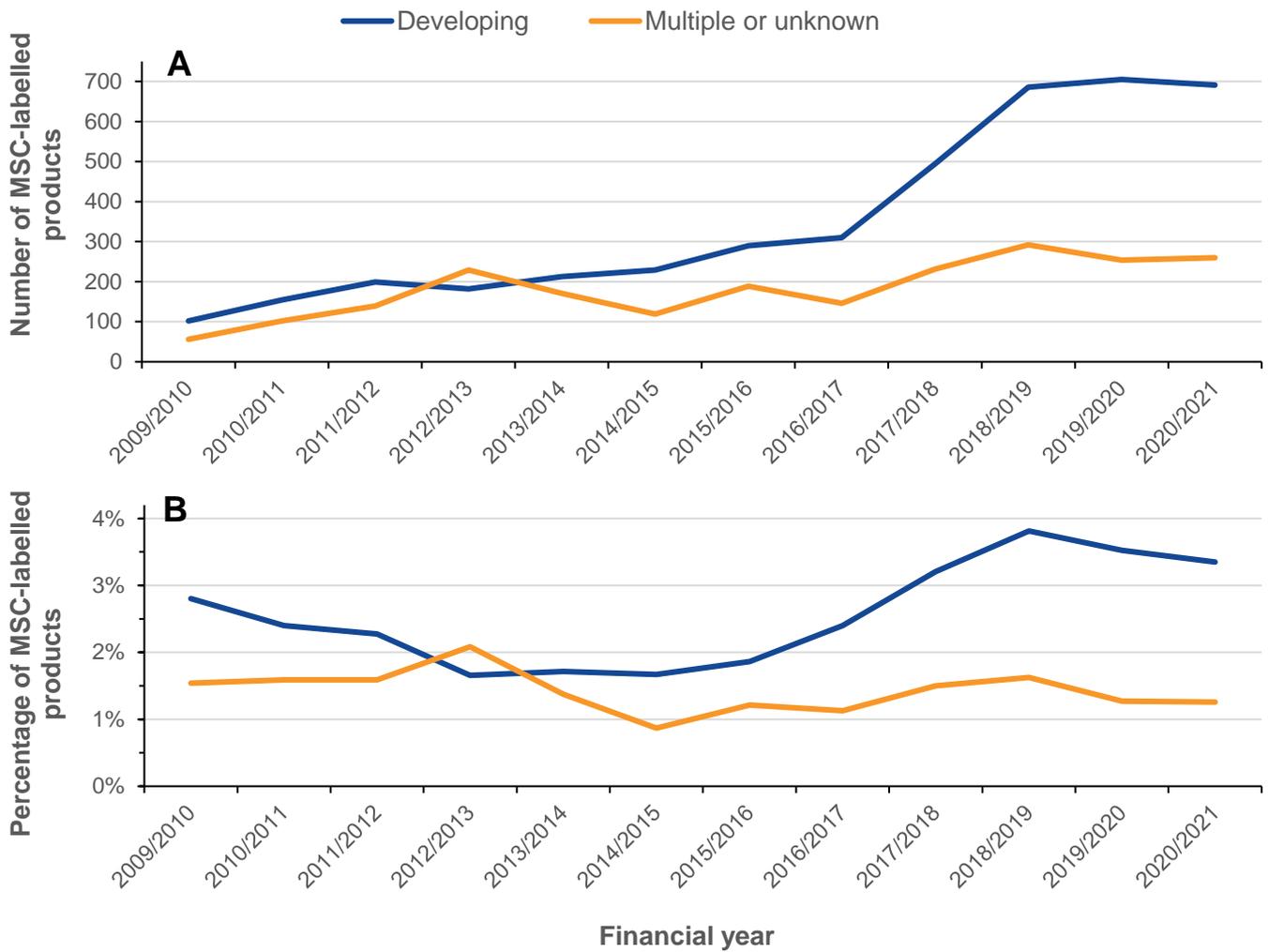
## 2.3 Uptake of MSC-labelled products in developing economies

<b>Definition</b>	Number of MSC-labelled products available in countries with developing economies, and also given as a proportion of all products globally; annual number and percentage by financial year (2009/2010 to 2020/2021)
<b>Source</b>	MSC-International database; detailed in <a href="#">Annex A2.3</a>

Aligning with aims for increasing certification opportunities for fisheries and seafood supply chains from countries with developing economies, the MSC also seeks to increase the availability of certified seafood products available to consumers in developing economies. While price premiums for sustainably certified seafood may present a challenge for many consumers in developing economies, many of these countries rely heavily on seafood for dietary needs. Having sustainable seafood products available for consumers in these countries contributes to advancing the ToC in developing economies. Equally rigorous labelling standards in developing economies ensures that the MSC ecolabel is only displayed on seafood from MSC-certified sustainable fisheries, wherever they may originate.

Over the past 11 years, the proportion of MSC-labelled products in developing economies ranged from 1.7% to 3.8% (Figure 10). The observed decrease in the first few years of this period resulted not from decreasing availability in developing economies, but rather from a greater rate of increasing availability in countries with developed economies (Figure 6). The number of products in developing economies has increased nearly 7-fold over this period, from 102 in financial year 2009/2010 to 705 in the 2019/2020 year, with the levelling off in the two most recent years possibly associated with the COVID-19 pandemic. In addition to these products from developing economies, the proportion of MSC-labelled products from multiple or unknown country classifications ranged between 1–2% of all products over this period (Figure 10).

The gradual increase over time in the number of MSC products sold in developing economies, and to some extent the general trends in the proportion of products from developing economies, suggest that MSC-labelled seafood products have become more accessible globally, pertaining to steps 2, 4 and 5 of the ToC (Figure 1). The proportion of MSC-labelled products from developing economies (Figure 10B), although increasing in recent years, is considerably lower than the proportion of MSC-certified fisheries (Figure 7B) or CoC certificate holders (Figure 8B) from developing economies. This lower proportion may reflect several possible factors. First, it could reflect a lower demand of certified product from consumers in developing economies associated with the challenge of affording price premiums. Second, it could suggest that a considerable portion of seafood caught by MSC-certified fisheries from developing economies and passing through CoC-certified supply chains in developing economies end up being sold with the MSC ecolabel in developed economies rather than in developing economies. Third, it could indicate that certified products sold in countries with developing economies are sold without the ecolabel.



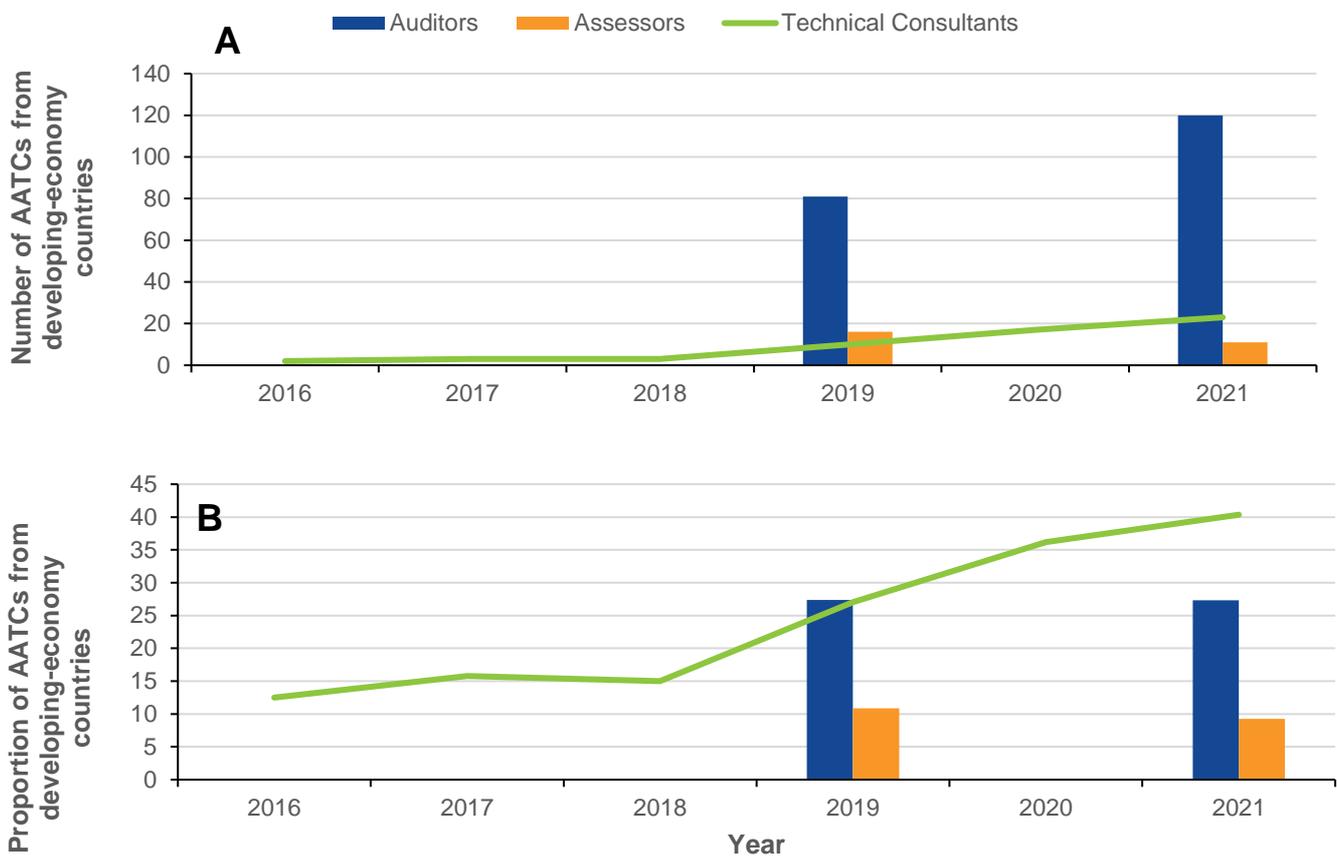
**Figure 10.** Number (A) and percentage (B) of MSC-labelled products from countries with developing economies, by financial year. Also shown is the proportion categorised as either ‘multiple’ (a mix of developing and developed) or ‘unknown’. Data before financial year 2009/2010 are of lower reliability and are therefore omitted.

## 2.4 Accreditation capacity in developing economies

<b>Definition</b>	(i) Number of auditors, assessors and Technical Consultants (AATCs) from countries with developing economies, and also given as a proportion of all AATCs; annual number and percentage by year (2016–2021);  (ii) Proportion of training events in countries with developing economies; annual percentage by year (2014–2021)
<b>Source</b>	Auditor registry, Technical Consultant registry, Training event database; detailed in <a href="#">Annex A2.4</a>

The role of Conformity Assessment Bodies (CABs) in the certification process requires training and expertise for evaluating fisheries or seafood supply chains against the MSC Standards. In aiming for increased global accessibility to the MSC program for fisheries, supply chains, and ecolabelled seafood products in countries with developing economies, the MSC also encourages development of technical capacity and expertise within developing economies. Auditors conduct MSC audits against the CoC Standard for supply chain companies, and assessors conduct assessments against the Fisheries Standard for fisheries. The services that may be provided by Technical Consultants are aimed specifically at fisheries working towards certification to the Fisheries Standard under a Fishery Improvement Project. Technical Consultants often progress to become assessors and auditors. In-country expertise across all these positions is expected to enhance the familiarity of CABs with local fisheries issues and reduce challenges associated with language barriers. Additionally, in-country or within-region expertise should result in more affordable costs of certification incurred by fisheries or supply chain companies in developing economies, from lower expenses of local auditors, assessors and Technical Consultants (AATCs), to improved competition and availability of local AATCs<sup>19</sup>.

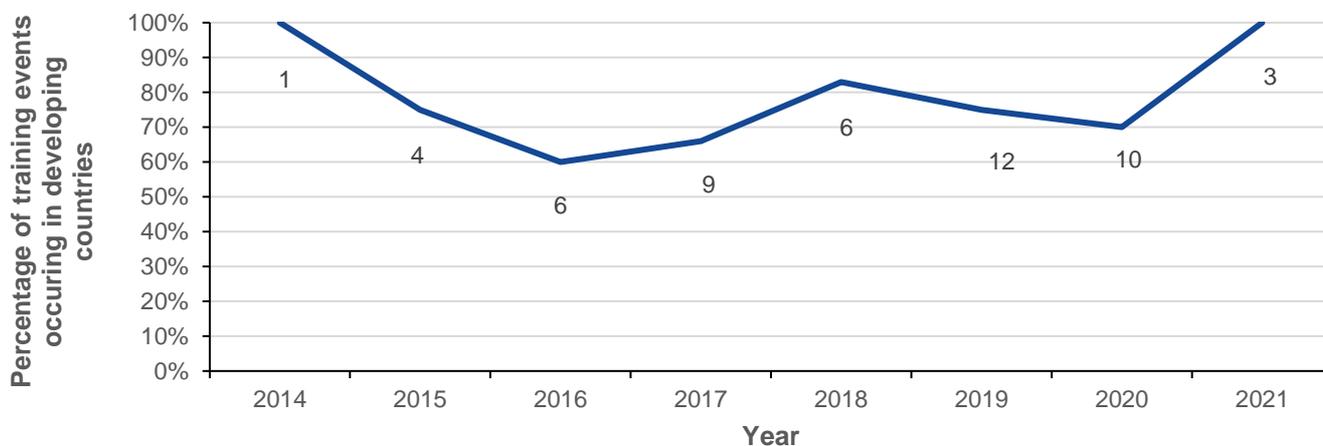
The proportion of MSC Technical Consultants from developing economies has increased substantially in the last five years (Figure 11), representing an increase from 2 consultants from developing economies in 2016 to 23 consultants in 2021. MSC Technical Consultants are currently based in 11 developing economies: Brazil, China, India, Indonesia, Kenya, Madagascar, Mauritania, Namibia, Panama, Peru, and South Africa. Data for MSC auditors and assessors are not as readily available, but two years of available data suggest the proportion of auditors in developing economies was similar in 2019 and 2021 (23.4% and 23.3%, respectively) whilst the absolute number increased from 81 in 2019 to 120 in 2021. Conversely, the proportion of assessors in developing economies declined slightly from 10.9% to 9.2%, representing a decline in the absolute number of assessors from 16 in 2019 to 11 in 2021 (Figure 11). MSC auditors represented 26 developing economies in 2019 and 22 developing economies in 2021 (both years classified under 2021 definitions of ‘developing’), with 20 auditors overlapping in both years.



**Figure 11.** Number (A) and percentage (B) of MSC auditors, assessors, and Technical Consultants (AATCs) from countries with developing economies, by year.

The presence of AATCs from developing economies has been facilitated by ‘Capacity Building Training’ events and ‘Calibration training’ events in developing economies. The capacity building workshops provide introductory, comprehensive and practical training on the Fisheries Standard, fishery improvement tools and the Risk Based Framework. Calibration training aims to increase the accuracy and consistency in applying the Fisheries Standard.

Since 2014, most MSC training events worldwide have taken place in developing economies (Figure 12). The number of training events worldwide generally increased since 2014 (before decreasing in 2020 and especially 2021, resulting from challenges associated with COVID-19), and throughout this time the proportion of these events in developing economies has been 60% or greater (Figure 12). An online ‘Assessors training platform’ has also recently been developed to help fishery stakeholders build the technical knowledge needed to make sustainability improvements and meet the requirements of the Fisheries Standard<sup>20</sup>.



**Figure 12.** Percentage of Capacity Building Training events and Calibration training events occurring in countries with developing economies, by year. Labels show total number of training events each year.

Evaluations of the current extent and potential growth of certifying bodies include Auld and Renckens (2019)<sup>21</sup> and Renckens and Auld (2019)<sup>11</sup>. They note that rising demand for MSC certification led to a rise in the number of CABs, although the vast majority of these are based in countries with developed economies. A lack of auditor competition in countries with developing economies may create barriers to participation through lack of competitive pricing of services, and this may be further exacerbated by language barriers in some countries with a lack of local auditors. The effect of this on uptake of the program, particularly in regions of the world where the potential for sustainability improvements may be greatest, could be an area to focus future evaluations to better understand the current limits of the MSC’s ability to drive global sustainability improvements.

The recent increase in the proportion of AATCs from developing economies, along with increased offering of training events in developing economies, together represent an increasing capacity of technical expertise in developing economies. This increased capacity is likely to allow for a greater capacity for in-country or within-region Technical Consultants and CABs to undertake assessments of fisheries and audits of supply chain companies, pertaining to steps 1 and 3 of the ToC (Figure 1). Increased capacity in developing economies is expected to help alleviate some of the imbalances in fisheries governance that have long existed between developed and developing economies<sup>11</sup>.

## 2.5 Conclusions and information gaps

Understanding the accessibility of the MSC program is important to evaluate the potential for MSC to deliver on its ToC not only in developed economies and markets, but also in developing economies which contribute the majority of the world’s marine fishery landings. Indicators of accessibility reflect a

necessary (but not sufficient) capacity for achieving intended outcomes and impacts in developing economies. Often fisheries least able to enter the program are ones with greatest need to improve their performance<sup>22,22</sup>.

Another aspect of accessibility which was not considered in the indicators above relates to small-scale fisheries (SSF). The MSC's Pathway to Sustainability program is also developed for incentivising accessibility to SSF<sup>23</sup>. Of all the certified (including suspended) UoCs in the MSC program in 2020, 15.2% were comprised of SSF<sup>24</sup> (noting that defining a SSF is a widespread challenge among fisheries researchers that extends far beyond the MSC). Future work could better quantify the change over time in the representation of SSF, revising the MSC's definition of SSF as needed to align with current global practices, and evaluate the success of these fisheries in terms of achieving and maintaining certification and completing any action plans that may be required associated with conditions placed on certification. The barriers for increased accessibility of SSF to engage with the MSC program (e.g., <sup>25</sup>) may differ from the barriers for increased accessibility of developing economies.

The indicators considered here show that the accessibility of the MSC program is generally increasing with respect to certification of fisheries and supply chain organisations as well as increased capacity for assessment and auditing in developing economies. In general, greater accessibility is expected to broaden the geographic potential for generating desirable outcomes and impacts related to the sustainability of fisheries and seafood value chains worldwide. Evaluations of global accessibility indicators show promise for increased access to developing economies in the certification system, while at the same time published case studies attest to the many challenges faced in advancing global accessibility<sup>12,27,26</sup>.

### 3 Environmental performance and improvements

*The MSC aims to ensure that fisheries adhere to the Fisheries Standard leading up to, during, and continuously throughout certification cycles, where the Fisheries Standard aligns with international best practice for the sustainability of target stocks and their supporting ecosystems.*

#### 3.1 Conditions of certification

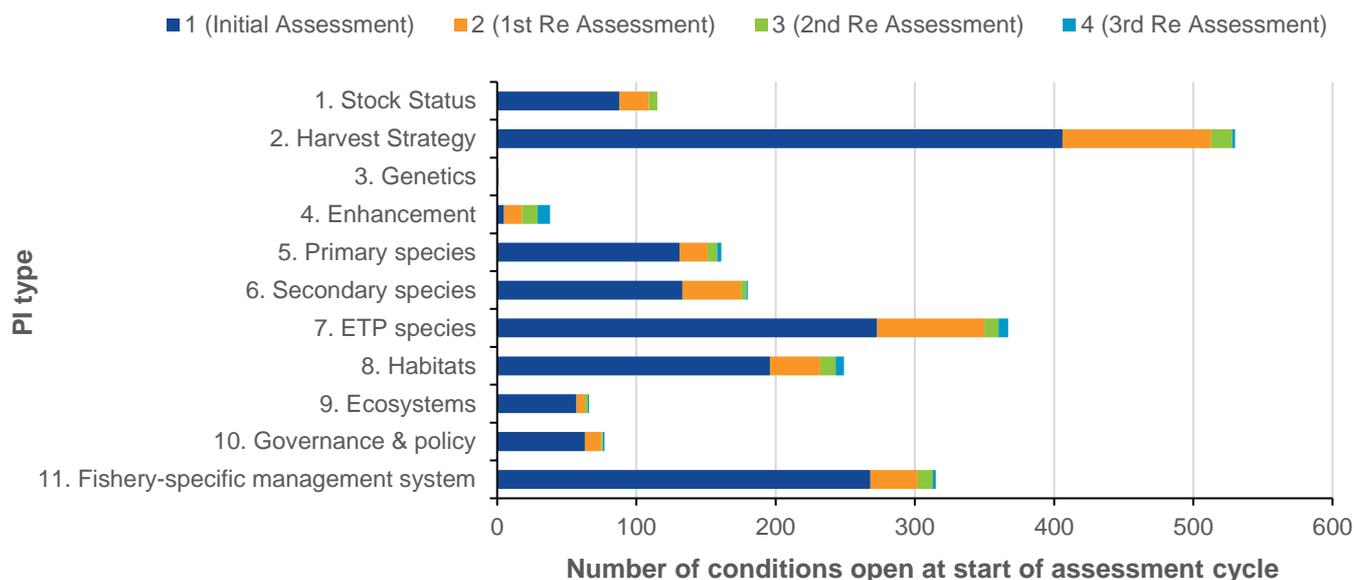
<b>Definition</b>	Number of conditions by Performance Indicator type at time of first, second, third, and fourth certification cycle
<b>Source</b>	Scoring database; detailed in <a href="#">Annex A3.1</a>

In order to obtain and maintain MSC certification, fisheries must meet the MSC definition of a sustainable fishery. This requires achieving a score of 60+ for each of the MSC Performance Indicators (PI) while also meeting ‘best practice’ (an average score of 80+) across each of the three core [Principles](#) of the Fisheries Standard (sustainable target fish stocks; environmental impact of fishing; and effective management). The UoC is required to meet ‘best practice’ for each of the individual PIs by the end of their 5-year certificate in order to be eligible for re-assessment (and potentially a new certificate). This is done through conditions of certification which are applied to each PI with a score below 80 and must be closed within the 5-year certification cycle, bringing the PI score to 80 or above. Through this process, the MSC program intends to incentivise positive changes in global fisheries.

This indicator tracks the number of conditions of certification developed for each PI type throughout the 5-year certification cycle, i.e., at initial certification and, if applicable, at successive re-assessment stages. Conditions are expected to be closed before the next re-certification, so new conditions at re-assessment reflect the changing nature of fisheries management and the Fisheries Standard. If new conditions are opened at re-assessment stages, this implies that fisheries must continue to make improvements while in the program, even 5, 10, or 15 years after initial certification. Grouping conditions by PI type also shows which PI types tend to have the greatest number of conditions opened and thus might present challenges for fisheries to retain certification. Later, a different indicator ([3.3](#)) will track the frequency with which conditions are closed. Only conditions assigned since 2009 are considered because the defined set of PIs in the Fisheries Standard’s assessment tree has been consistent since then.

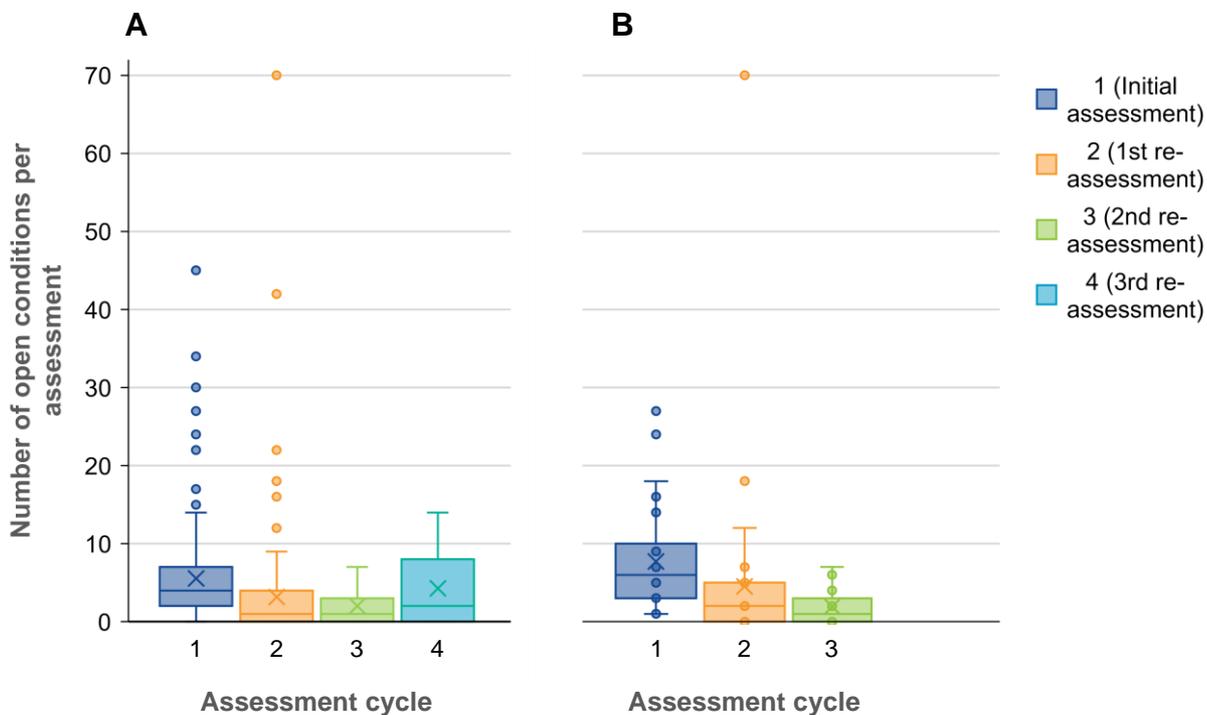
Among ten PI types, conditions were most commonly associated with ‘Harvest strategy’ (Principle 1), ‘Endangered/threatened/protected species’ (Principle 2), and ‘Fishery-specific management system’ (Principle 3; Figure 13). PI types for which conditions were least commonly opened include ‘Ecosystems’

(Principle 2), ‘Governance and policy’ (Principle 3), and ‘Stock status’ (Principle 1). ‘Genetics’ and ‘Enhancement’ (Principle 1) PIs also received few conditions, but these PIs are only scored for certain target species (bivalves and salmon respectively).



**Figure 13.** Number of conditions open at the start of each assessment cycle, grouped by Performance Indicator (PI) type. The number of assessment reports available decreases with successive assessment periods (in 5-year certification cycles), reflecting varying longevity in the MSC program. Sample sizes are 288, 94, 25 and 4 assessment reports for assessment cycles 1, 2, 3 and 4, respectively.

Most conditions are associated with initial assessment, and fewer conditions are present in successive re-assessment periods (Figure 13). This is partly the result of varying longevity in the MSC program, as fewer fisheries have been engaged for a long enough duration to have been through their 3<sup>rd</sup>, 2<sup>nd</sup>, or even 1<sup>st</sup> re-assessment period. However, this is also partly the result of a proportional decrease in the number of open conditions with successive assessment periods. Calculating the number of open conditions per fishery assessment, we see that on average, approximately 5.5, 3.2 and 2.0 conditions per assessment report were open at the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> assessment cycle, respectively (Figure 14A). Considering only the subset of fisheries that have reached assessment cycle 3, a slightly steeper decline is observed, with an average of 7.7, 4.5, and 1.9 conditions per assessment report, respectively (Figure 14B). This decrease in the number of open conditions per assessment over successive assessment cycles does not signify a relaxing of the criteria for certification in the Fisheries Standard; the stringency of the Fisheries Standard has generally increased rather than decreased over time<sup>27</sup>. Instead, this decrease is suggestive of sustained improvements over time as fewer conditions are required in later assessment cycles. At the same time, the existence of open conditions even at the 2<sup>nd</sup> or 3<sup>rd</sup> re-assessment suggests that fisheries which have long been engaged with the MSC program are faced with requirements for other improvements on the water.



**Figure 14.** Number of open conditions per fishery assessment at the beginning of each assessment cycle. Open conditions at re-assessment periods include those with ‘exceptional circumstances’ that were carried over from the previous assessment cycle as well as newly-opened conditions. (A) All fishery assessment reports are included, with sample sizes of 373, 152, 38 and 7 assessment reports for assessment cycles 1, 2, 3 and 4, respectively. (B) Reports are included only for fisheries that have reached assessment cycle 3, with sample sizes of 40, 40, and 38 assessment reports (some of the 40 fisheries in cycles 1 and 2 combined into singular fisheries during cycle 2). Data do not include conditions from fishery assessment reports that failed as those are not recorded.

The requirement for fisheries to continue to improve their performance even after being engaged with the MSC program for more than 5, 10, or 15 years suggests a continued rigour in step 1 of the ToC (Figure 1). At the same time, the decrease in number of conditions opened per fishery assessment over successive assessment cycles suggests that as fishery improvements are made (and conditions are closed), fewer conditions are required in later years. Contrary to criticism that only fisheries that are already performing at a high sustainability standard become certified and thus there is no incentive for further improvement once in the program<sup>28</sup>, Figure 14 shows that most fisheries receive at least one condition during their initial assessment cycle, and many fisheries have further requirements for improvements even after several years with the MSC program. Several studies have evaluated environmental concerns around MSC fishery certification and how the opening of conditions generally resulted in fishery improvements to close those conditions through action plans<sup>31,29,30</sup>.

## 3.2 Principle scores of Units of Certification

<b>Definition</b>	Scores for Principle 1, 2 and 3 of MSC-certified Units of Certification; distributions of scores at initial assessment and first re-assessment
<b>Source</b>	Scoring database; detailed in <a href="#">Annex A3.2</a>

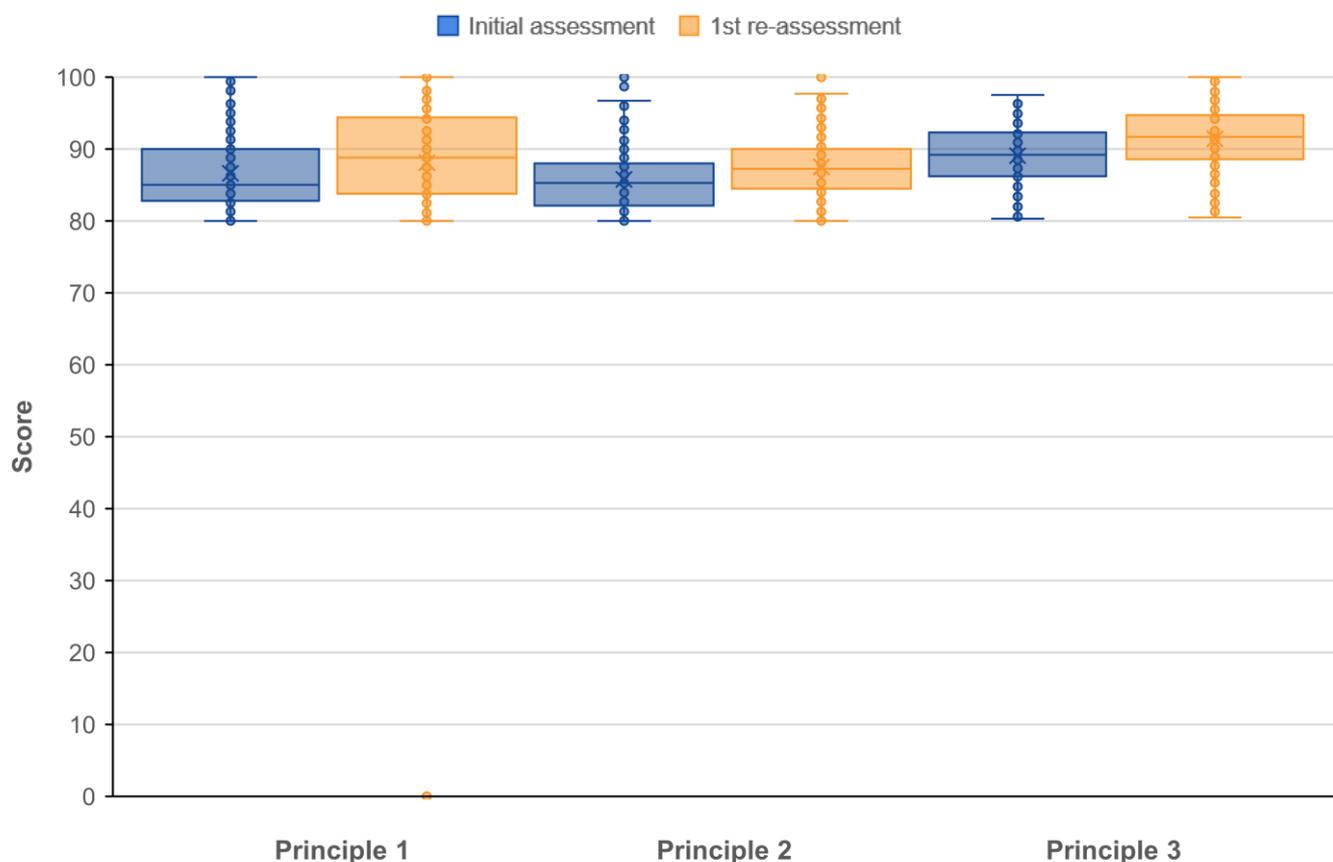
This indicator tracks how the Principle 1, 2 and 3 scores of MSC-certified UoCs change through a certificate cycle, i.e., in their first five years in the program. Principle scores can increase during an assessment cycle as fisheries make improvements to close their conditions. While fisheries might still be making improvements to close conditions by the 5<sup>th</sup> year surveillance report (end of the certification cycle), most improvements are expected to be complete at the start of the second certification cycle, except in exceptional circumstances in which additional time is allowed. Therefore, this indicator compares scores at the beginning of the first and second assessment cycles to evaluate whether the scores resulting from conditions being closed change as expected. To ensure consistency in the fisheries represented at both the initial and first re-assessment periods, only fisheries that passed initial certification are considered, and all possible outcomes for those fisheries at first re-assessment are accounted for, including those that failed. Some fisheries have been re-certified more than once, but only initial and first re-assessment scores are included here due to small sample sizes in later assessment cycles.

Between years 2000 and 2020, a total of 1121 UoCs were scored during an initial assessment against the Fisheries Standard. Of these, 1083 passed their assessment and became certified, while 38 achieved at least one Principle score of <80 and therefore failed the assessment overall (Table 3). Between initial assessment and first re-assessment, UoCs may split, merge, be transferred between certificates, or be added through scope extensions, such that while 1083 passed initial assessment, at the beginning of the following cycle (5 years later) 1091 UoCs were active and chose to undergo a second assessment against the Fisheries Standard. Of these UoCs, 1015 passed and 76 failed this re-assessment (Table 3).

**Table 3.** Number of Units of Certification (UoC) scored and included in the comparison for this indicator. Counts include all UoCs that underwent initial assessment and re-assessment between years 2000–2020.

Outcome	Total number	Number included in comparison between assessment periods
Passed initial assessment	1083	488
Failed initial assessment	38	0
Passed first re-assessment	1015	566
Failed first re-assessment	76	3

To compare scores between initial assessment and re-assessment, we focus on the UoCs that were in common in both assessments. Of the 1083 UoCs that passed their initial assessment, 488 also had scores available for their first re-assessment (assessment cycle 2) and are therefore included in Figure 15. The remaining 633 UoCs could not be included in the figure for various reasons: 38 UoCs failed their initial assessment as noted above; some have not been in the program long enough to have reached their second assessment cycle; some withdrew from the program before the end of the 5-year assessment cycle and therefore did not undergo a re-assessment; and others were omitted due to the complexity of their assessment history (see [Annex A3.2](#) for more details). Of the 1091 UoCs that entered first re-assessment, 566 of these were included in Figure 15, as well as 3 of the 76 that failed (see [Annex A3.2](#) for more details on failed UoCs not included). These 488 initial assessment UoCs and 566 re-assessment UoCs (Table 3) form the basis of comparing average scores between the two periods. Despite the addition of new UoCs in between the two assessment periods, the comparison across cycles is still conservative; these new UoCs are technically being assessed against the Fisheries Standard for the first time, and we might expect them to have lower scores than UoCs that have already been certified and in the program for five years.



**Figure 15.** Boxplots of Principle 1, 2 and 3 scores during initial assessment and first re-assessment periods. Scores are calculated for Units of Certification (initial assessment, n=488; re-assessment, n=566). ‘X’ indicates mean. Failing scores (<80) are recorded as 0.

For all three principles, scores were greater at first re-assessment than they were at initial assessment (Figure 15). The Fisheries Standard is typically reviewed every five years and tends to incrementally become more stringent over time, with each new Fisheries Standard raising the bar for select PIs in terms of the level of environmental performance required to meet sustainability criteria<sup>27</sup>. This means that, after initial certification, by the time of a fishery’s new assessment cycle, it may be audited against an updated Fisheries Standard. The observation that fishery scores are improving while being assessed at either the same or higher requirements at re-assessment implies that score improvements likely reflect real improvements in fishery practices.

Higher scores of fisheries at first re-assessment compared to scores at initial assessment suggest that those fisheries that remain in the program continue to show improvements across all three Principles in the five years following certification. A caveat is that UoCs which withdraw from the program before re-assessment do not have scores available for this comparison. In some cases withdrawals may be associated with fisheries anticipating a failure at re-assessments, thus the possibility of survivorship bias exists for this comparison. While the extent of this bias is currently unknown, the UoCs that eventually withdrew are not included in the ‘initial assessment’ group in Figure 15 for a fairer comparison. Future work will investigate the outcomes of all UoCs scored in all fishery assessments.

The Fisheries Standard is no less stringent at the time of re-assessment than at initial assessment, thus increased scores reflect fishery improvements in relation to sustainability criteria, pertaining to step 1 of the ToC (Figure 1). Previous reports and data summaries have consistently found similar results, with improved fishery performance while active in the MSC program<sup>31,29</sup>. Other reviews have found mixed results in some regions, with improvements in some respects but lack of improvement in others (e.g., related to bycatch and habitats<sup>31</sup>).

### 3.3 Closing conditions of certification

**Definition** | Proportion of conditions of certification that are closed in years following initial assessment or re-assessment; counts of conditions by certification cycle (2000–2020)

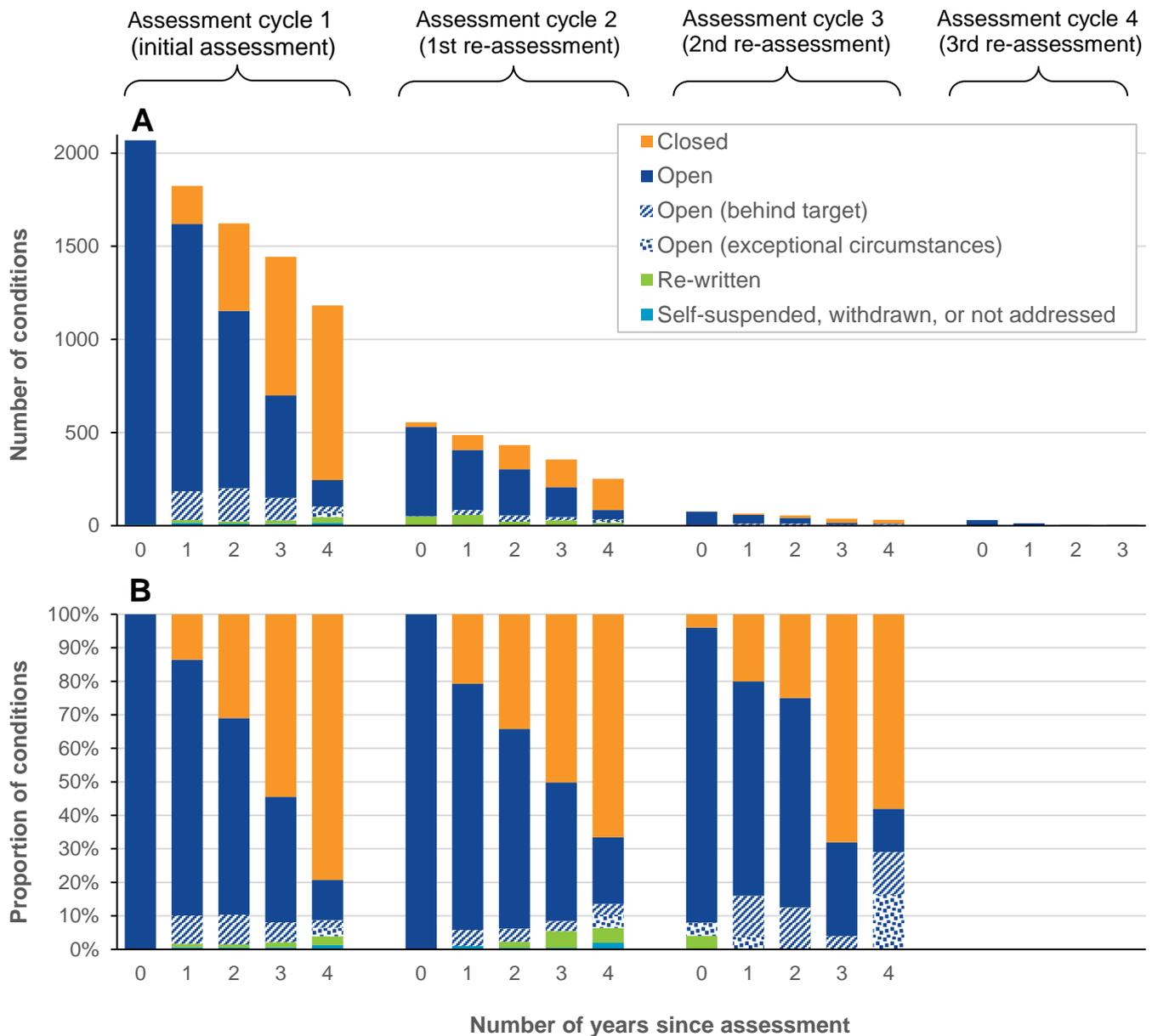
**Source** | Scoring database; detailed in [Annex A3.3](#)

A condition of certification is opened when a UoC assessed against the Fisheries Standard is determined to meet the minimum requirements for a Performance Indicator but not yet best practice. Fisheries then develop actions plans to address the condition and improve performance for the relevant PI(s). Normally conditions should be closed within five years, but in exceptional circumstances additional time is allowed. Exceptional circumstances can include delays due to natural ecological functions and response times, for instance when stock biomass is slow to rebuild; or when extra time is required for relevant research to be funded, undertaken, and published. Sometimes, when a fishery is re-assessed against a different version

of the Fisheries Standard than the one used for its previous assessment, existing conditions may no longer be appropriate and may thus be rewritten. Finally, when fisheries withdraw or are suspended, they are not required to continue making improvements. Despite these nuances, most conditions in the years after they were opened can be classified as either closed or still open, and the cumulative proportion of open conditions that become closed reflects fishery improvements against the Fisheries Standard.

Most conditions are opened in the first year of an assessment cycle, but occasionally, conditions may be raised later at surveillance audits or as a result of harmonisation with fisheries certified later. Across all MSC fisheries, 2062 conditions have been opened in the year of initial assessment (Figure 16A). Fewer conditions have been opened in the first year of 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> re-assessments as fewer fisheries have been active within the MSC program for these durations. Similarly, within each assessment cycle, the counts shown in Figure 16A decrease over time because fewer fisheries have been active in the program for these varying durations. When conditions were opened, whether during initial assessment or re-assessment, most were then closed over the remaining years of the assessment cycle until the next cycle began (Figure 16B). In the first three cycles, 50–79% of conditions were closed by the fourth or fifth year in the assessment cycle (Figure 16B). Some of the conditions that remained open were further categorised as ‘behind target’ or as having ‘exceptional circumstances’ (Figure 16). Some conditions were re-written, particularly during the two years prior to a re-assessment or in the year of a re-assessment, when up to 5% of conditions in the assessment cycle were re-written (Figure 16). Conditions involving suspensions, withdrawals, or those not addressed were relatively uncommon (Figure 16).

Consistent closure of conditions, whether they were opened at initial assessment or re-assessment, reflects continued improvements of fisheries within assessment cycles, pertaining to steps 1 and 6 of the ToC (Figure 1). While some reviews have been critical of the credibility claims of MSC certification in some fisheries (e.g., <sup>31</sup>), other evaluations have found MSC certification status to strongly reflect the sustainability status of fished populations and their supporting ecosystems. The MSC [Assurance Review](#) was launched in 2018, and has since contributed to MSC’s strategy on assurance, including accreditation and relevant policy development by the Fisheries team and Supply Chain team. An upcoming report summarising how conditions of certification are set, monitored and closed is set for release by the MSC Assurance team.



**Figure 16.** Status of opened conditions by assessment cycle and number of years since assessment. Status categories are assigned in each year and may change from one year to the next, and some conditions are opened after year 0 in each cycle. (A) Number of conditions. (B) Within each assessment cycle 1–3, proportion of the conditions with available data through the entire 5-year cycle. Sample sizes for the subsets in (B) range from 1074–1182, 202–251, and 24–31 for assessment cycles 1, 2 and 3 respectively (data not shown for assessment cycle 4, with  $n = 2-3$ ).

### 3.4 Actions taken to close conditions related to fisheries bycatch or habitat

<b>Definition</b>	Actions taken by fisheries that contribute to improvements in Performance Indicator scores associated with bycatch and habitat
<b>Source</b>	Scoring database; detailed in <a href="#">Annex A3.4</a>

Conditions of certification may be opened for one or more UoCs at any time—during initial assessment, during re-assessment stages of 5-year certification cycles, or during any interim annual surveillance audit. To close an open condition, certified fisheries must improve their performance in relation to that condition. Certified fisheries may undertake a variety of possible actions to achieve compliance, as the MSC is not prescriptive on the specific actions to be taken to achieve the required improvements. The Fisheries Standard requires clear and defined time-bound milestones for each action and the associated increase in scores to ‘best practice’ levels.

This indicator records the actions taken by certified fisheries that contributed to the closing of bycatch and habitat conditions. The focus on bycatch and habitat conditions was to address general stakeholder concerns relating to environmental impacts of MSC-certified fisheries. Actions taken do not necessarily occur because of certification, but nevertheless contribute to the rationale for the closing of at least one condition and the subsequent re-scoring of that PI from minimum requirement to best practice levels.

The majority of actions taken relate to increasing the certainty that the environmental impacts of a given fishery are within acceptable levels. When closing habitat conditions, this was most frequently done through new research to improve information availability (37% of actions; Table 4), specifically actions involving mapping of habitats or fishing locations. When closing bycatch conditions, actions related to setting up ongoing data collection for monitoring impacts were most frequent (47% of actions; Table 4), in particular actions related to mandatory self-reporting, sampling of bycatch or discards, and observer coverage. Technical actions, which represent change on the water, made up 16% of all actions taken, with spatial closures being used most frequently for closing conditions related to habitats, and gear modifications used most frequently for closing conditions related to bycatch.

**Table 4.** (next page) Number of actions taken to close conditions related to bycatch and habitat, grouped by five action types. Counts represent all conditions closed between 2000–2018 across 135 fishery assessment reports. For bycatch and habitats separately, percentages represent the number of actions taken to close each condition type as a proportion of the number of actions taken across all five action types.

**Table 4** (continued)

Action type	Action description	Bycatch	Habitats
<b>Monitoring</b>		<b>47.2%</b>	<b>18.3%</b>
	Bycatch population monitoring	1	0
	Bycatch/discard sampling	28	3
	Gear loss monitoring	1	1
	Mandatory self-reporting	42	14
	Monitor effectiveness of measures	13	4
	Observer coverage – implement/increase	25	4
	Species ID guide	12	5
	Tagging/DNA data collection	4	1
	Training crew – ID/handling	14	4
	Vessel tracking	1	5
	Video surveillance	3	0
<b>Research</b>		<b>23.9%</b>	<b>37.1%</b>
	Assess nutrient deposition	0	3
	Bycatch estimates	42	8
	Coastal development impact assessment	0	1
	Gear modification	5	4
	Habitat mapping	0	26
	Habitat recovery assessment	0	4
	Knowledge review/gap analysis	9	14
	Mapping location/intensity of fishing	1	23
	Population analysis	11	0
	Short-term research project	6	0
<b>Impact assessment</b>		<b>14.1%</b>	<b>23.2%</b>
	Assess gear loss	0	1
	Impact analysis	24	10
	Risk assessment	16	10
	Spatial overlap assessment	3	31
<b>Technical</b>		<b>14.1%</b>	<b>18.3%</b>
	Avoidance procedures	7	3
	Encounter protocol/move-on rules	2	7
	Full retention policy	2	0
	Gear modification	14	3
	Improved survivability measures – discards	8	0
	Licensing restrictions	1	9
	Quota implementation	6	2
	Spatial closure	3	17
<b>Governance</b>		<b>0.7%</b>	<b>3.1%</b>
	Establish advisory body	2	4
	International agreement signed	0	3

The wide range of actions taken by fisheries to close conditions related to bycatch and habitats reflect the diversity of tools in the toolboxes of fishing fleets and management systems that are available to address environmental concerns, pertaining to step 1 of the ToC (Figure 1). Evaluations relevant to this indicator include the papers referenced in section [3.1](#). Additionally, an MSC-authored paper is being prepared which expands on this dataset with information about the scale of changes made by fisheries to close conditions and the actors that are involved in funding or implementing those changes.

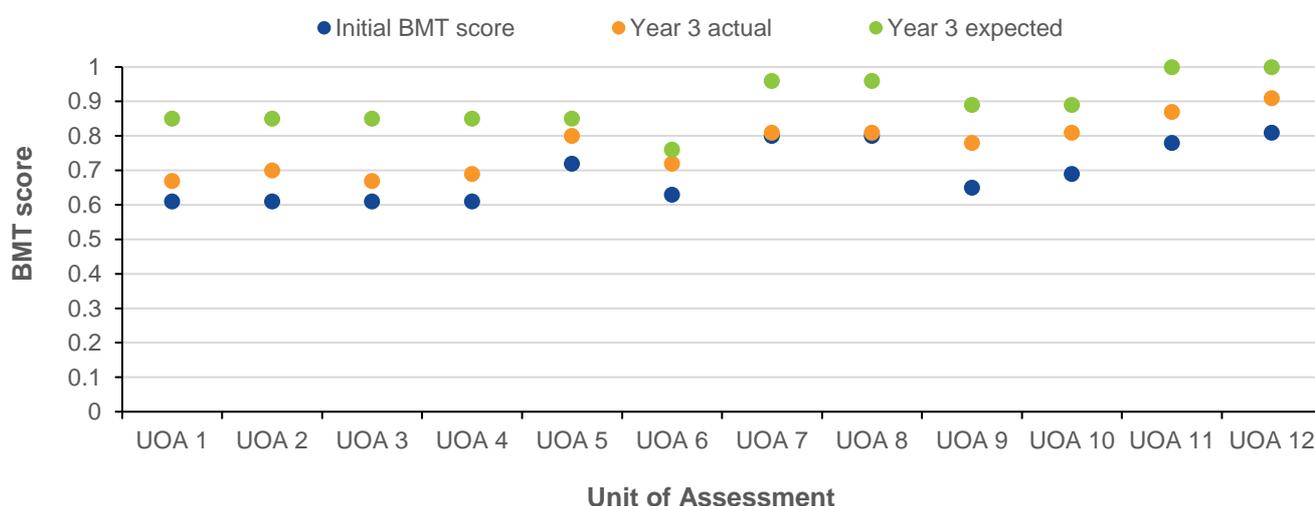
### 3.5 Pre-certification improvements

<b>Definition</b>	Benchmarking and Tracking Tool scores for Units of Certification in MSC-associated Fishery Improvement Projects; initial and year-3 scores in pre-assessment phase
<b>Source</b>	FisheryProgress.org; detailed in <a href="#">Annex A3.5</a>

Fisheries Improvement Projects (FIPs) are conducted for hundreds of fisheries around the world for a variety of reasons, one common reason being to increase performance to a level required for MSC certification. The Benchmarking and Tracking tool (BMT) was designed in 2010 to allow uncertified fisheries to benchmark their environmental performance and track improvements against the Fisheries Standard. The BMT is just one of multiple Pathway tools provided by the MSC to assist uncertified fisheries working towards improved environmental performance (see section [2.1](#) for more information). The BMT index provides a simple, consistent method for reporting information about the status of a FIP and comparing actual versus expected progress on Action Plans for improving performance to best practice as defined by the Fisheries Standard. This can help interested stakeholders, buyers and funders understand the progress being made.

A Pathway project is any project that uses MSC’s Pathway tools in a strategic way to engage with multiple fisheries at once<sup>16</sup>. Pathway projects can be based on either single species or a pre-determined multi-species collection, both in a defined area. The intended impact extends beyond the immediate project and aims to influence management at a more holistic level beyond fisheries that may initially pursue MSC certification. A Pathway project is characterized by a collective ownership and has the potential to become an enabling platform to generate improvements beyond the scope of the project itself. One such Pathway project is Project UK, a collaborative partnership between the MSC, Seafish, and the Shellfish Association of Great Britain<sup>32</sup>. Project UK FIPs use the MSC Pathway tools to help identify areas for improvement and develop Action Plans to address these, with the overall goal of achieving MSC certification after the FIP is completed. Project UK currently consists of eight FIPs, six of which are ‘Round 1 FIPs’ that began in 2017 and are due for completion in 2022: crab, lobster, and monkfish in the South West of England; plaice and lemon sole in the North Sea; and scallops in the English Channel.

This indicator focuses on the BMT scores of Round 1 Project UK FIPs, as they are some of the longest running Pathway project FIPs with recently updated BMT data readily available. The BMT scores for the 12 UoAs under these eight FIPs show that all UoAs have made progress against their Action Plans since beginning their FIPs. Changes in BMT scores range from 0.01-0.13 (Figure 17), with a larger score increase reflecting greater progress towards completion of the Action Plan. Specific improvements made are detailed in the [Project UK Annual Report](#)<sup>32</sup> and include improved assessments of stock status, production of comprehensive catch profiles and development of draft Fisheries Management Plans. However, all Project UK UoAs were behind target compared to their expected year-3 scores in December 2020, primarily resulting from the impacts of the United Kingdom’s exit from the European Union and the COVID-19 pandemic<sup>32</sup>. Steering Groups for some Project UK FIPs are discussing the potential need to extend their Action Plans by up to six months (more detail provided in the Project UK Annual Report<sup>32</sup>).



**Figure 17.** Benchmarking and Tracking tool (BMT) scores for Units of Assessment (UoA) included in Project UK Round 1 Fisheries Improvement Projects (FIPs). Initial BMT scores were recorded in 2017 and year-3 scores were recorded in 2020. Higher scores reflect greater progress towards completion of Action Plans. Note FIPs do not have an assurance system equivalent to that of the third-party verification and therefore scores may be less robust than those reported by certified fisheries.

The improvement in BMT scores between initial evaluation and year-3 scores in most of the UoAs within the Project UK FIP reflects pre-certification improvements in environmental performance, pertaining to the period leading up to step 1 of the ToC (Figure 1). Evaluations exploring improvements in the pre-certification space include Martin et al. (2012)<sup>29</sup>, which describes improvements made by fisheries prior to MSC certification, and Travaille et al. (2019)<sup>33</sup>, which evaluates the effectiveness of FIPs for promoting sustainability improvements and provides some evidence that MSC tools (alongside others) may help FIPs achieve desired outcomes globally. Further, upcoming MSC work by Rasal et al. (in prep)<sup>34</sup> and Shiffman

et al. (in prep)<sup>35</sup> aim to investigate the characteristics that influence a fishery’s likelihood to achieve MSC certification following a FIP or an MSC pre-assessment, and to understand the impacts of changes made to fishery operations both pre- and post-certification on endangered, threatened and protected species.

### 3.6 Conclusions and information gaps

Understanding the environmental performance of fisheries in the MSC program and the improvements they make both before and after achieving certification are important to evaluate whether the MSC is effectively delivering on its ToC and achieving the intended outcomes and impacts at the core of the MSC’s vision and mission.

Evidence from the setting and closing of conditions of certification, increases in benchmark indicators observed in some fisheries prior to certification, and the subsequent increases in fishery scores across assessment cycles (despite the common raising of the sustainability bar across cycles) suggests that MSC fisheries generally demonstrate improvements in their environmental performance. As with indicators in other themes, however, attributing causality to the MSC program and demonstrating the outcomes and impacts of those improvements is challenging to pinpoint. Research in preparation looking at the impacts of improvements made during pre-assessment periods and improvements in certified fisheries related to endangered, threatened or protected (ETP) species are expected to further contribute to understanding changes in environmental performance.

## 4 Assurance

*The MSC aims to meet international best practice in sustainable seafood certification, in both the fishery and supply chain assessment processes.*

### 4.1 Independent oversight of Conformity Assessment Bodies

<b>Definition</b>	Number of major and minor Assurance Services International (ASI) non-conformity findings for Conformity Assessment Bodies; annual average findings (2015–2020)
<b>Source</b>	ASI; detailed in ASI's <a href="#">annual report</a> and <a href="#">Annex A4.1</a>

Assurance Services International (ASI) is the oversight body for Conformity Assessment Bodies (CABs). They accredit CABs which allows them to conduct assessments for certification against the MSC Fisheries Standard and audits against the Chain of Custody (CoC) Standard. ASI provides oversight of CABs in the form of CAB assessments completed throughout the year, and any issues raised during these assessments results in non-conformities. A non-conformity of a CAB is the non-fulfilment of a requirement in any normative document or documents referenced therein, including:

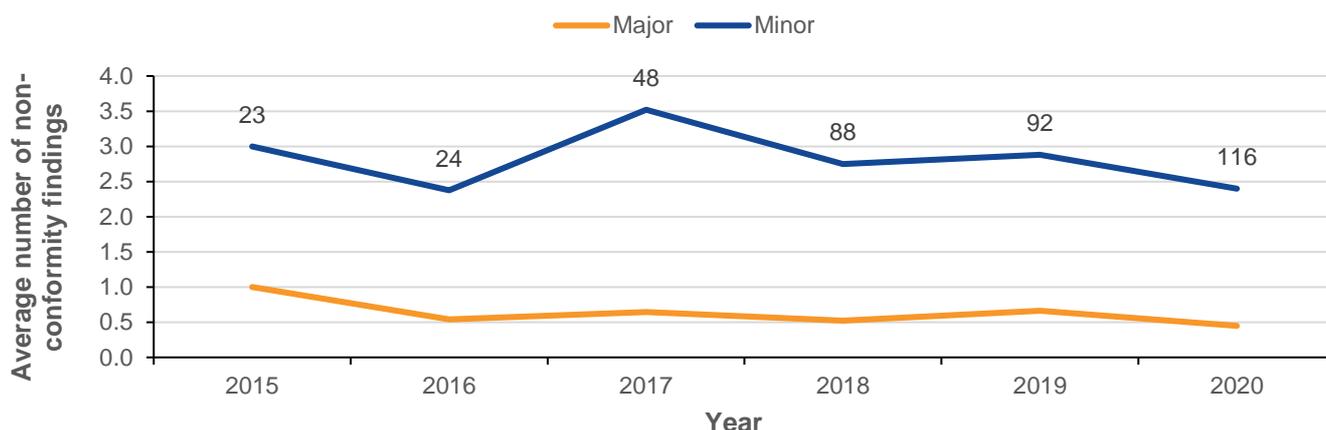
- Fisheries [Certification Requirements](#) and [Certification Process](#)
- Chain of Custody [Certification Requirements](#)
- General Certification Requirements for both the [Fisheries and CoC Standards](#)
- ISO Requirements [65](#), [19011](#), and [17065](#)
- Seaweed [Certification Requirements](#)

Non-conformities can be either major or minor. A non-conformity may be graded as major if it meets one of the following criteria:

- A non-conformity that persists over time
- A non-conformity that is repeated
- A minor non-conformity that is not adequately addressed within the established timeline
- An absence, or systemic failure, of one or more elements of the CAB's management system
- One or more major non-conformities of a certificate holder have demonstrably not been correctly identified, graded or addressed by the CAB, thus not fulfilling an accreditation requirement

A minor non-conformity is any non-conformity that does not meet the criteria of a major finding. These are usually isolated or non-systemic failures. When a non-conformity is raised, CABs are required to complete a correction (which responds to the issue raised), a root cause analysis, and a corrective action (which addresses the root cause of the issue). Minor non-conformities are common—it is only rarely that an ASI assessment results in no non-conformity findings against the CAB.

Between 2015 and 2020, the number of annual ASI assessments increased from 23 to 116 (Figure 18). In 2017, the joint ASC-MSC Seaweed Standard (with the Aquaculture Stewardship Council, ASC) was released, giving an additional standard against which CABs can be assessed. Despite this, there were no consistent changes in this indicator, though the duration is currently short and will continue to be monitored.



**Figure 18.** Average number of major and minor non-conformity findings per Assurance Services International (ASI) assessment. Labels above years show number of ASI assessments conducted each year and apply to both minor and major finding levels.

The average number of CAB non-conformities identified in ASI assessments has generally been steady over this short period of six years and, assuming that the level of scrutiny by ASI over this period has been consistent, the level of adherence by CABs to certification requirements has therefore also been steady. This suggests that CABs themselves are continually held to a certain standard for their own assessments and audits of fisheries and seafood companies, pertaining to steps 1 and 3 of the ToC (Figure 1). As well as requiring correction and corrective actions in response to non-conformity findings, ASI provides bi-annual and annual reports to the MSC covering these assessments and the findings raised, along with feedback on the auditability of current MSC program documents.

## 4.2 Technical oversight of fishery assessment reports

<b>Definition</b>	Number of major, minor, and guidance findings in Technical Oversight reviews of fishery assessment reports, by year; annual average number of findings per report (2011–2020)
<b>Source</b>	TOVAR database; detailed in <a href="#">Annex A4.2</a>

In addition to CAB oversight by ASI (see [4.1](#)), the MSC Fisheries team carries out Technical Oversight (TO) on a sample of fishery assessment reports. The sample is selected using a risk-based approach designed to manage MSC credibility risk associated with individual fishery assessments and application of MSC scheme requirements (Fisheries Certification Requirements and Fisheries Certification Process). This sample is taken alongside a random stratified sample to ensure a baseline number of reports across CABs are reviewed.

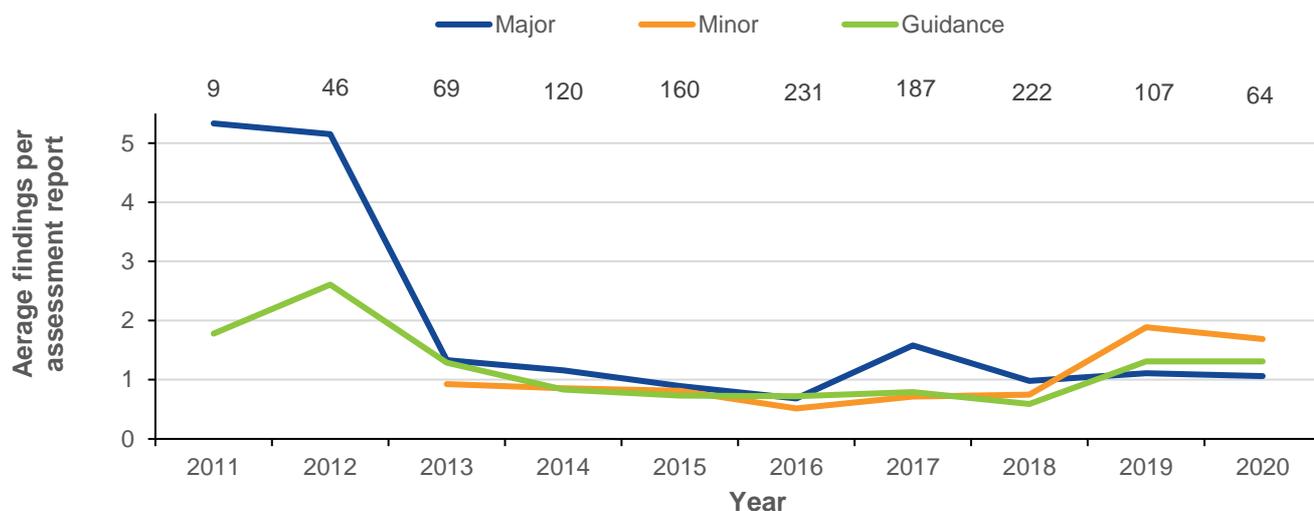
Technical Oversight consists of two stages. First, an initial basic content check is conducted to ensure all required sections of a fishery assessment report have been provided. Second, an in-depth review of the assessment report is done in order to evaluate the fisheries assessment work of CABs against MSC scheme requirements, verifying that the explanation or rationale provided by the CAB is sufficient to score the indicator. A checklist of critical elements to review is used for this secondary stage of TO. Any potential non-conformities are known as TO findings, which are graded as one of three types:

- **Guidance:** an area of concern, a process, document or activity that is not specifically outside the scheme requirements but could be improved (e.g. typographical errors in reports that make it difficult to interpret the report rationales or scoring of PIs)
- **Minor (*introduced in 2013*):** a lapse in the application of the MSC scheme requirements that is not in itself likely to cause a difference to the score of a particular PI or change in the status of a condition (e.g. not updating catch volume figures at the time of the most recent surveillance report)
- **Major:** a deficiency in an assessment that could result in a difference to the score of a particular Performance Indicator (PI) or change in the status of a condition. This is a trigger for an ASI investigation (e.g. scoring rationale is not sufficient to justify the score given for a PI)

If any detected issue requires further investigation, MSC raises this to ASI using the ASI Incidents Log.

Counts of TO findings were pooled across different types of assessment reports (Public Certification Reports (PCRs); Public Comment Draft Reports; and Surveillance Reports). Overall, the average number of TO findings per assessment report was greater in 2011 and 2012 (ranging from 7.1–7.6) than in years since 2013 (ranging from 1.9–4.3) (Figure 19). The average number of findings per report remained fairly stable since 2013, with a slight increase in 2019 and 2020. Over the entire period, common TO findings

related to: requirements for determination of the point(s) at which fish and fish products enter the Chain of Custody (26% of TO findings); scoring of a fishery (12%); and setting conditions (6%).



**Figure 19.** Average number of major, minor, and guidance Technical Oversight (TO) findings recorded per fishery assessment report (pooling together Public Certification Reports, Public Comment Draft Reports and Surveillance Reports). Labels on chart indicate total number of fishery assessment reports sampled to receive TO each year. Minor TO findings were only introduced in 2013. Prior to the TO Strategy review in 2013, 100% of assessment reports are assumed to have been reviewed. Under the current TO Strategy and risk-based model, no such assumption is made; ‘No review undertaken’ may be recorded.

Similar to indicator 4.1, the steady rate of TO findings since 2013 suggests that CABs are continually held to a consistent level of technical rigour in their assessment reports of fisheries, pertaining to step 1 of the ToC (Figure 1). TO findings are reported internally on an annual basis to inform continuous improvement of CAB performance. The findings are also used in the annual revision of the checklist of critical elements that should be reviewed when performing oversight of fishery assessment reports.

### 4.3 Independent peer review of fishery assessment reports

**Definition** | Number of Quality Assurance reviews conducted on peer reviews, by year; annual count (2018–2020)

**Source** | Peer Review College database; detailed in [Annex A4.3](#)

Expert peer review is an integral part of the MSC fishery assessment process where the draft assessment report for every initial and re-assessment is reviewed by independent fishery scientists with a similar level of expertise to that of the assessment team. In order to provide a standardised peer review process and to improve the efficiency of peer review within the fishery assessment process, the MSC established a [Peer Review College](#) (PRC) in 2017. In the MSC's [peer review process](#), the CAB is not responsible for identifying and appointing peer reviewers – this is done by the PRC to ensure independence. While the practice of peer review preceded the PRC, establishing the PRC removed the potential for conflict of interest in which CABs previously selected their own peer reviewers. The PRC consists of an Oversight Committee, four third-party experts that assist with the shortlisting of peer reviewers and conduct Quality Assurance (QA) reviews on the peer reviewers' work, and the peer reviewers themselves.

In December 2020, there were 116 active peer reviewers in the PRC (72 at Level 1 and 44 at Level 2). Level 1 peer reviewers are fisheries experts, but may have limited experience with actual MSC assessments. Level 2 peer reviewers have conducted at least three full assessments for CABs or a combination of 10 peer reviews or annual surveillances. Thirty-one new PRC members were recruited at the start of 2020, eight of these on a probationary basis (accepted as members provisionally, subject to checks on their first reviews via the QA process). Two previous Level 1 members were removed in 2020 following poor QA results.

The peer review process involves a review of the justifications and scores given to the fishery after a draft assessment report is completed by the CAB's assessment team. Two peer reviewers are typically selected to carry out each review, though the number may vary depending on the size and complexity of the fishery. A shortlist of peer reviewers is made public prior to the review, allowing any stakeholders to flag any potential issues with conflict of interest. CABs respond to peer review comments in the subsequent Public Comment Draft Report. Peer reviewers are required to check the CAB's responses to their initial comments, and occasionally request further changes to be made. Comments are published in the Final Draft Report.

Following the PRC's establishment in 2017, all fishery assessments are subject to peer review. Therefore, the number of Client & Peer Review Draft Reports (CPRDRs) submitted each year is dependent on the number of fisheries entering assessment that year. For fisheries entering assessment late in the year, CPRDRs might not be submitted until the following year. Between 2017 and December 2020, 136 fishery assessments were submitted for peer review (Table 5). Since 2017, the number of QA reviews has also increased annually (Table 5).

Despite its short history, the PRC has become an integral part of the MSC Fisheries assurance process, earning further credibility for step 1 of the ToC (Figure 1).

**Table 5.** Numbers of fisheries entering assessment, Client & Peer Review Draft Reports (CPRDRs) published, and quality assurance (QA) reviews conducted by third-party experts since 1 September 2017. Years run from 1 Sep to 31 Aug. More than one CPRDR may be submitted per fishery depending on the structure of the assessment report(s). For fisheries entering assessment late in the year, CPRDRs might not be submitted until the following year.

Year	No. of fisheries entering assessment	No. of CPRDRs submitted	No. of CPDRs included in QA review
2017/18	49	27	0
2018/19	57	47	26
2019/20	53	62	36

#### 4.4 Assurance in the Chain of Custody

<b>Definition</b>	(i) Number of submitted variation requests relating to the Chain of Custody (CoC) Standard, by year; annual counts (2014–2020)
	(ii) Number of reported incidents relating to the CoC Standard, by year; annual counts (2017–2020)
<b>Source</b>	TOVAR database; detailed in <a href="#">Annex A4.4</a>

##### Variations

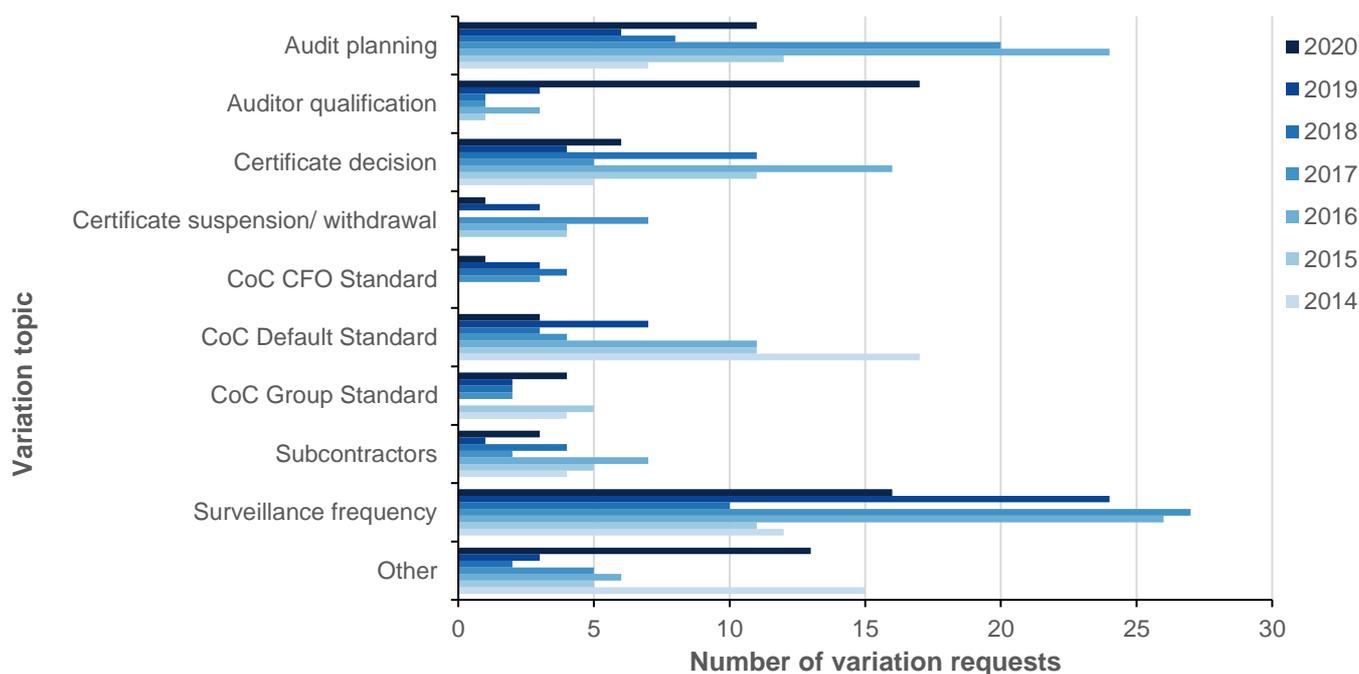
Variation requests are submitted to the MSC by CABs when a CoC certificate holder or applicant needs to vary from a requirement specified in the CoC Standard, Certification Requirements, or Certification Processes (a similar process also applies to fisheries). If a variation request is to be approved, the CAB must explain how it does not alter the conformity of the certificate holder or applicant with the relevant standard. The MSC considers the justification given by the CAB explaining how the variation will deliver consistency with the MSC requirements and, if approved, will include conditions to ensure the risk of allowing a variation is limited and the intent of the requirement is still met.

The total number of variation requests received each year has fluctuated between 45–97 over the years 2014–2020, with no clear directional change over time (Table 6). The majority of variation requests submitted were related to frequency of surveillance audits (26% of requests submitted), audit planning (18%), and certification decisions (12%, Figure 20). Variation requests relating to the CoC Group

Standard (19) and CoC CFO Standard (11) were the least frequent types due to the small number of certificate holders certified to these standards (see [1.2](#)).

**Table 6.** Variation requests and reported incidents submitted to MSC, by year. Annual totals and averages per Chain of Custody (CoC) certificate holder are given (averages are relative to number of CoC certificate holders in December each year, and include certified, suspended, or in-assessment certificates). Incident data from pre-2017 are not reported due to lower reliability of data.

Year	Total number of variation requests	Total number of incidents	Average number of variation requests	Average number of incidents
2014	64	N/A	0.02	N/A
2015	65	N/A	0.02	N/A
2016	97	N/A	0.03	N/A
2017	76	34	0.02	0.01
2018	45	30	0.01	0.01
2019	56	43	0.01	0.01
2020	75	24	0.01	<0.01

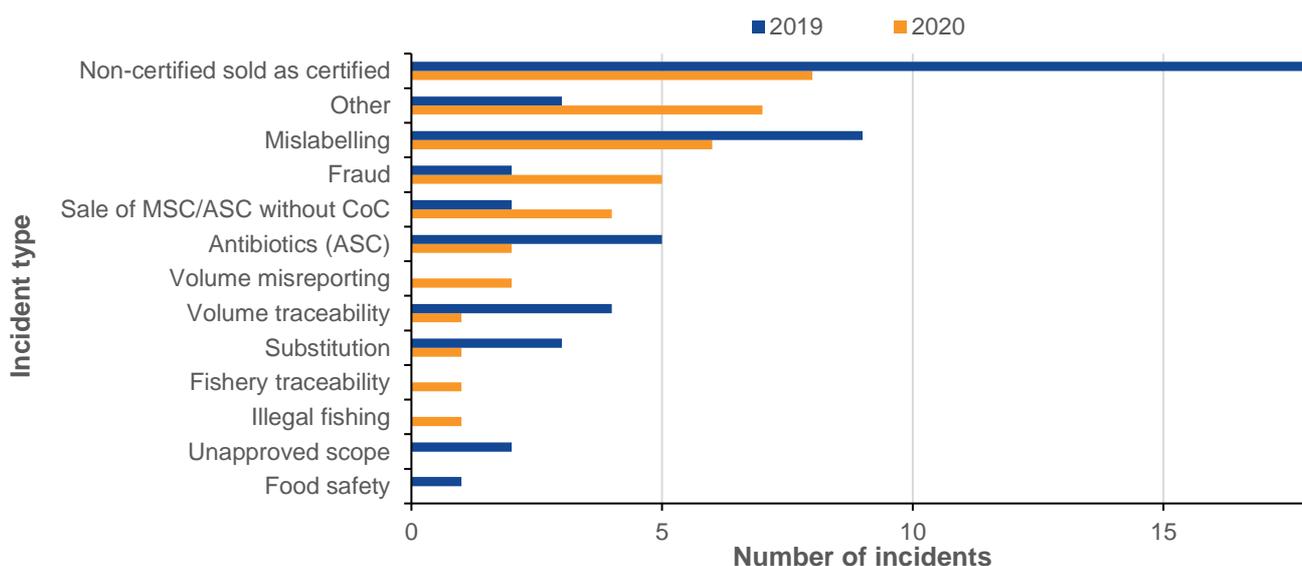


**Figure 20.** Number of submitted Chain of Custody (CoC) variation requests by topic and year. CFO = Customer-Facing Organisation.

## Incidents

A Chain of Custody incident is an event that threatens the CoC program’s credibility, reputation, or integrity<sup>36</sup>. An incident may be communicated to the Supply Chain Standards Team by any member of internal staff, CAB, ASI, ASC or any external stakeholder. Alternatively, an incident might originate as a complaint which, based on a review by the Team, can be escalated to an incident. When an incident is identified, the MSC and ASC gather evidence, notify the relevant CABs, and assess the level of risk associated with the incident to determine the priority level<sup>36</sup>. The Team uses all available and relevant information to determine which incident investigation tools should be used for conducting the investigation, resolving the issue, and closing the incident. These tools include product tracebacks, product authentication testing, desktop reviews, supply chain reconciliation, integrity assessments, raising the issue with ASI, and requesting that the CAB conduct an expedited audit.

Only incidents data from 2017 onwards are reported here due to the lower reliability of data collected prior to the revision of the incidents log in 2016. The number of incidents reported fluctuated year-on-year with no consistent trend (Table 6). The low number of incidents reported in 2020 relative to earlier years may be associated with the [MSC allowing remote audits during the COVID-19 pandemic](#). In-depth analysis of incidents began in 2019 (Figure 21). Results of this analysis show that in recent years, non-certified product being sold as certified product was the most frequently reported incident (26 incidents reported in 2019 and 2020), followed by mislabelling of product (17) and alleged fraud, such as manipulation of catch certificates, inaccurate certification claim or misreporting on fish stocks (7).



**Figure 21.** Number of reported Chain of Custody incidents by type. Data are limited to 2019 and 2020 as in-depth analysis of incidents only began in 2019.

Annual reviews of variation requests and biannual reviews of incidents are used to determine whether any variations or incidents need consideration as part of policy developments. The handling of variation requests and incidents is also reviewed to evaluate the functioning of the MSC CoC Variations Procedure and the MSC CoC Incident Management Procedure, and learnings from these reviews are taken into consideration when reviewing the Procedures.

The number of CoC certificate holders increased consistently in recent years 2017–2020 (Figure 4), but the number of reported incidents has not increased concurrently (Table 6; although more years will be required to evaluate directional trends). While no targets have been established for the rate of incidents per CoC certificate, this rate appears to be stable. Lack of identified incidents for approximately 99% of CoC certification holders is at least suggestive of continual and widespread adherence to CoC Standard requirements, pertaining to steps 2 and 3 of the ToC (Figure 1).

Internally, there has been a recent peer comparison of the CoC Standard and audit protocols with other supply chain standards globally in 2020. This has provided an opportunity to learn from best practices, create efficiencies and address existing risks or issues. Externally, other recent evaluations relevant to supply chain assurance include Barendse et al. (2019)<sup>37</sup>, which found that 99% of tested MSC-certified products had the correct species label, and Cusa et al. (2021)<sup>38</sup>, which investigated the potential for successful point-of-origin testing using genetic and stable isotope analysis.

## 4.5 Conclusions and information gaps

Assurance is a critical aspect of the MSC's ToC, ensuring that both fisheries and supply chain companies meet the requirements of the MSC Standards, and in providing confidence in the program to consumers. Using diverse indicators to measure the current level of assurance of the program is important to evaluate the MSC's ability to provide that consumer confidence and deliver on its ToC.

The indicators considered here, although short in duration, show relatively steady rates of non-conformities, Technical Oversight findings, and Chain of Custody incidents. Assuming constant levels of scrutiny in these assurance mechanisms, this suggests that issues are routinely identified as requiring attention and improvement, contributing to the continued adherence of CABs and CoC certificate holders in the certification process.

Assurance that the MSC Standards themselves reflect best practice is provided through [regular review](#) of the Fisheries and CoC Standards and Certification Processes, as well as ad-hoc reviews in response to stakeholder concerns and emerging issues, such as the ongoing Labour Policy review.

## 5 Stakeholder input

*The MSC aims to foster input into the certification process by any person or group with an interest or claim which has the potential of being impacted by or having an impact on a given project and its objectives.*

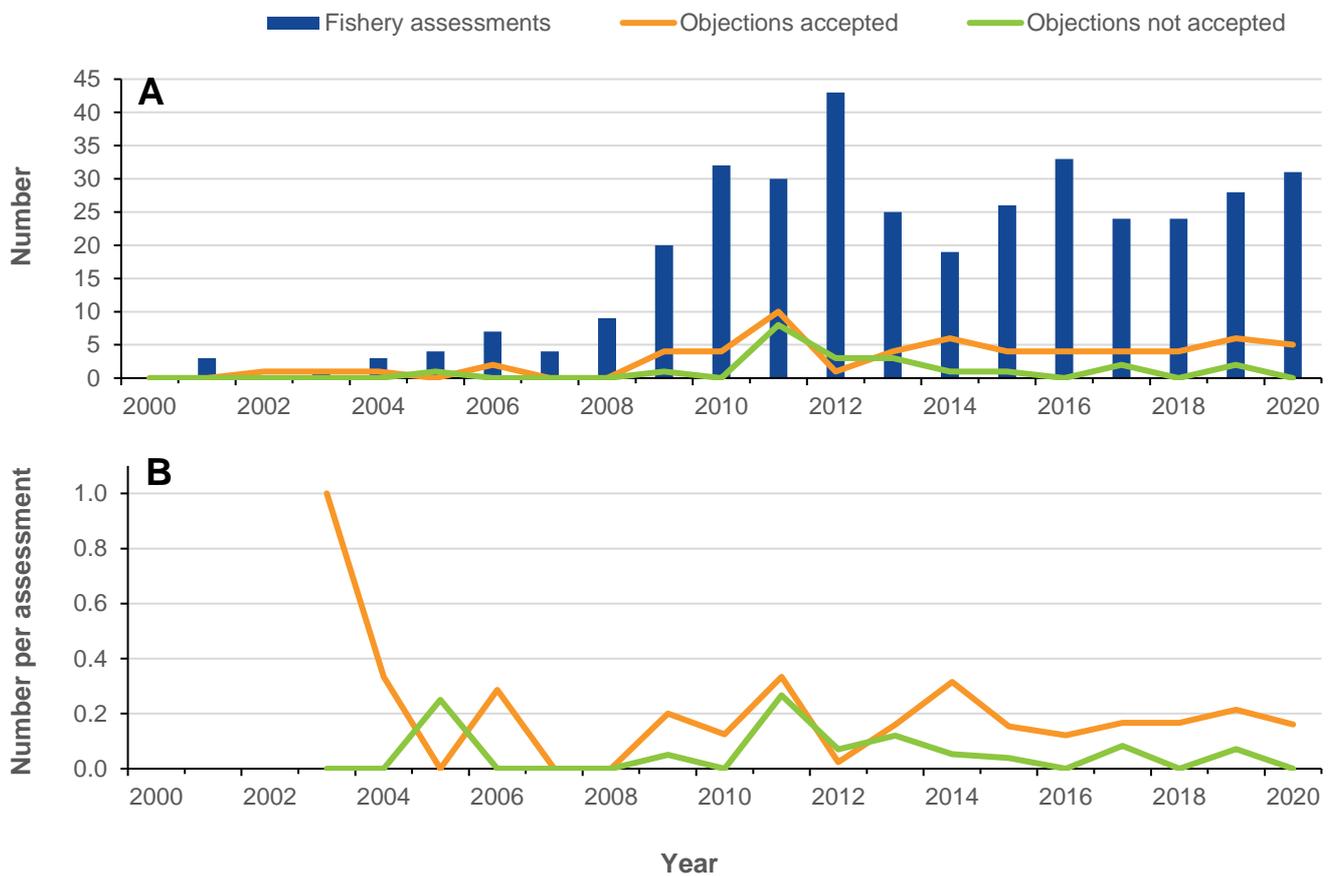
### 5.1 Objections to MSC fishery certification

<b>Definition</b>	Numbers of objections accepted and not accepted in relation to the number of fishery assessments resulting in certification; annual counts (2000–2020)
<b>Source</b>	Objections database; detailed in <a href="#">Annex A5.1</a>

The MSC certification process allows [stakeholders](#) who have participated in the assessment process to file an objection to the final report produced by the [Conformity Assessment Body](#) (CAB). The aim of the MSC’s objections procedure is to provide a structured framework by which specific concerns about certification decisions can be formally reviewed and resolved. Considering and potentially accepting these objections from diverse stakeholders ensures that diverse worldviews are represented. Disclosing objections publicly within the reports produced by CABs ensures transparency in the certification process.

Once received, an objection is reviewed by an Independent Adjudicator (IA)—a legal expert in dispute resolution and regulation. The IA will decide whether or not to accept the objection based on numerous criteria outlined in the [MSC Disputes Process](#). Criteria include whether the objection is determined by an IA to be spurious or vexatious, and whether evidence is presented that would allow the IA to determine if the CAB made an error that is material to the determination or the fairness of the assessment. These may include errors of procedure, scoring, or when reviewing the Client Action Plan.

In years 2000–2008, there were fewer than 10 fishery assessments resulting in certification each year. Since 2009, the number of assessments resulting in certification per year ranged between 19–46, with little indication of any directional trend (Figure 22A). Over the same period, the number of accepted objections from stakeholders in assessments ranged between 4–6 in most years. Other objections are submitted by stakeholders but not accepted by IAs, and these are usually fewer than the number of accepted objections (Figure 22A). On average since 2009, for every 10 fishery assessments there has been 1.7 accepted objections and 0.63 objections not accepted, again with little evidence of any directional trend (Figure 22B). The final report can receive more than one notice of objection from different stakeholders, and up to three objections have been accepted for a single assessment.



**Figure 22.** (A) Number of objections to MSC certification received, which were each either accepted or not accepted, in relation to number of fishery assessments resulting in certification, by year. (B) Number of objections (accepted or not accepted) per fishery assessment resulting in certification.

The majority (70%) of objections received were submitted by non-governmental organisations (NGOs; Table 7), 22% of which came from a co-ordinated group of NGOs as opposed to individual NGOs. Most of the received objections were accepted, including acceptance rates of 84% from NGOs and 64% from the fishing industry (Table 7). Rarely, multiple stakeholder groups would co-ordinate a submission (4% of objections). In 7% of cases, the stakeholder type was unknown, typically as the submission came from a single person without an affiliation, but occasionally because more detail on the identity of the objecting entity could not be obtained.

**Table 7.** Number of objections submitted and rate of their acceptance, by stakeholder type.

Stakeholder type	Number of objections accepted	Number of objections not accepted	% accepted
Fishing industry	9	5	64%
Government	1	0	100%
NGO	53	10	84%
Multiple	2	2	50%
Research/Academia	1	1	50%
Unknown	5	1	83%

The consistent acceptance of stakeholder objections in fishery assessment reports over the last decade suggests that external views are considered during the certification process, pertaining to step 1 of the ToC (Figure 1). However, an alternative view to one of stakeholder engagement and transparency is that any objections to certification could be seen as a potential failure of the certification process. Previous evaluations have both criticised<sup>39</sup> and defended<sup>40</sup> the objections procedure. Concerns raised related to the cost, complexity, and results of the procedure, with only 1 in 19 objections at the time having led to a fishery not becoming certified<sup>39</sup>. Gulbrandsen and Auld (2016)<sup>41</sup> also discuss whether the MSC’s internal accountability mechanisms (including the objections procedure) adequately address the need for those stakeholders concerned about the outcome of fisheries assessments to influence certification decisions.

In response to Christian et al. (2013)<sup>39</sup>, Brown et al. (2015)<sup>40</sup> argued the value of the objections procedure, noting almost half of objections resulted in significant changes to the fishery assessment such as changes to scores and modified or new conditions, and that a survey of stakeholders who had been involved in the procedure demonstrated support for retention of the procedure without significant changes to it. They suggest that few objections lead to failed assessments as the MSC’s certification process requires CABs to account for all stakeholder comments as part of the assessment process. Thus, assessments typically already consider the views of those stakeholders who later become objectors. In cases where the objection procedure finds that the CAB has inadequately addressed stakeholder comments, the CAB is required to go back and make changes in line with these comments which may include modifying scores or adding conditions—neither of which necessarily results in the fishery failing the assessment.

## 5.2 Stakeholder comments on fishery assessments

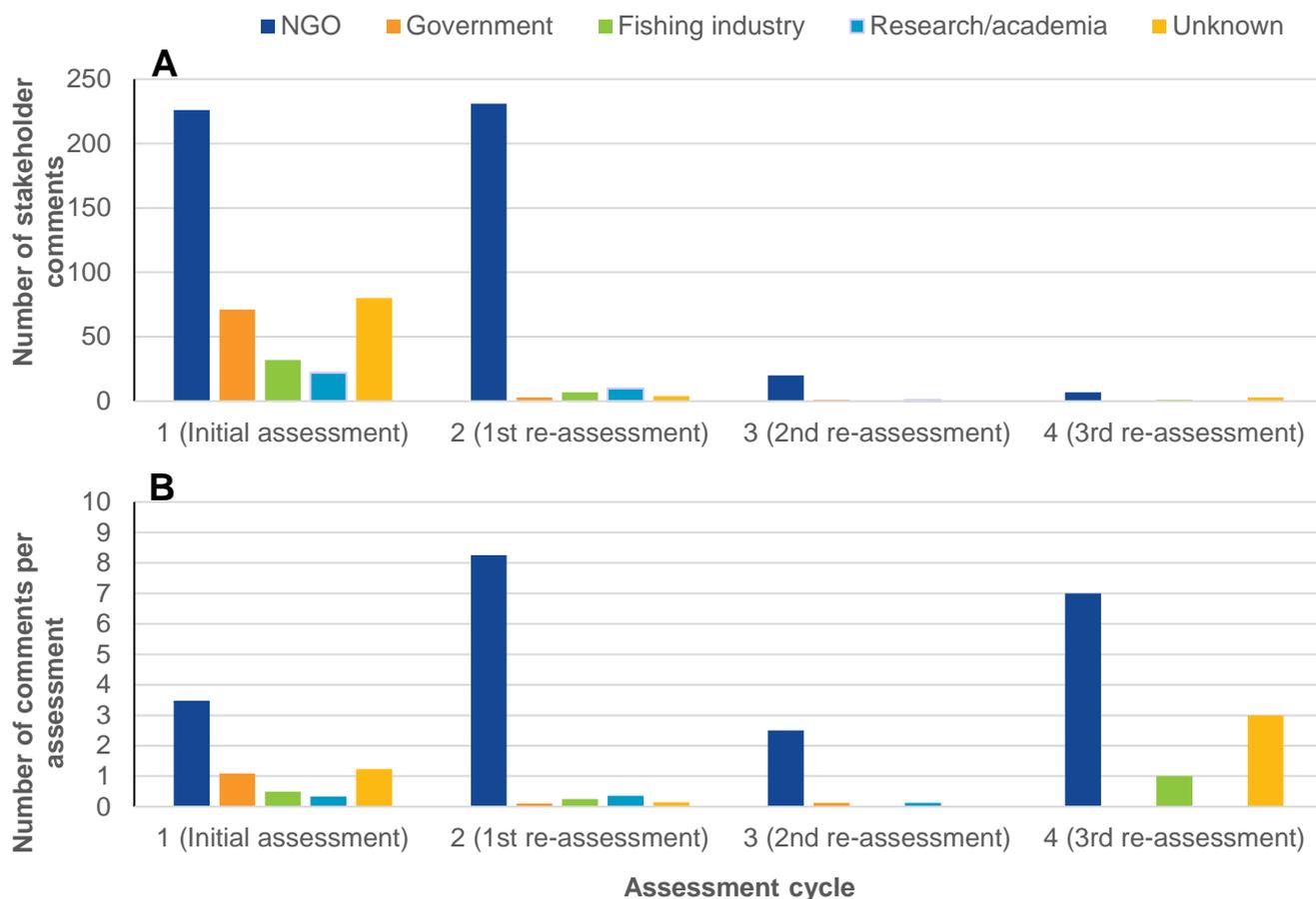
<b>Definition</b>	(i) Number of stakeholder comments on fishery assessments at Public Comment Draft Report stage by stakeholder type  (ii) Responses from Conformity Assessment Bodies to stakeholder comments
<b>Source</b>	Stakeholder comment database; detailed in <a href="#">Annex A5.2</a>

Stakeholders' input helps to ensure that fishery assessments are well-informed and comprehensive, that assessment outcomes are consistent with the rigorous Fisheries Standard, and that issues important to stakeholders are taken into consideration throughout the assessment. It is the CAB's duty to take all comments into consideration following stakeholder consultations, and account for or respond to those comments in subsequent reports. This indicator is comprised of two parts: the first classifies comments on fishery assessments at the Public Comment Draft Report stage into different stakeholder groups, and the second categorises the types of actions that CABs took in response to those comments.

As part of the release of v2.0 of the MSC's Fisheries Certification Requirements, a revised version of the template for stakeholder input into MSC fishery assessments was developed. Between September 2015, when the first v2.0 assessment report was published, and December 2019, when the stakeholder comment database was last updated, 719 comments were noted on 102 fishery assessments using this revised template (Figure 23A). Comments were submitted by diverse stakeholder types, particularly by NGOs which submitted two thirds of all comments overall. NGOs were particularly well-represented in comments submitted during re-assessments; while they submitted approximately half of all comments during initial assessments, they submitted over three quarters of all comments during re-assessments. Other stakeholder groups submitting comments on fishery assessments included government representatives (10% of all comments, primarily during initial assessment), fishing industry representatives (6%), and researchers (5%). As a proportion of all assessments in each cycle, the relative rate of comments per assessment was greatest at first re-assessment from NGOs (Figure 23B).

Of the 719 comments submitted across stakeholder groups, CABs responded to 94.9% of them in fishery assessments (Table 8), although 2.5% of responses were unclear. In 5.1% of cases, the CAB included the response in an assessment report but did not include a response to the comment. For more than half of the submitted comments, CABs did not accept the comment, implying that either the CAB disagreed and further justified their position with no change in scoring rationale or score, or else the stakeholder comment was considered to be a complaint submitted without supporting evidence. This proportion of 52% was skewed by certain fishery assessments which received a disproportionately high number of complaints that were often not backed by evidence or did not relate to points assessed under the Fisheries Standard. Approximately 40% of stakeholder comments were accepted by CABs, with 15% of these leading to a change in assessment scores (Table 8). Some of these scores were reduced, including a few

cases where reductions were sufficient to cause the UoC to fail certification, and in other cases scores were increased as a result of submitted comments.



**Figure 23.** (A) Number of stakeholder comments across 102 assessments and (B) number of comments per total number of assessments in each cycle, by stakeholder type and certification cycle. Comments on all fishery assessments from December 2015 to December 2019 are considered. Total numbers of assessments in each certification cycle are 65, 28, 8, and 1, respectively.

Similar to stakeholder objections, the transparent reporting of stakeholder comments published in fishery assessment reports demonstrates that stakeholders are able to voice concerns during the certification process. Similarly, the 40% acceptance rate of these comments by CABs, some of which led to scoring changes in assessments and ultimately on pass/fail outcomes, clearly demonstrates the potential influence these stakeholders actually have in the process. These observations pertain to step 1 of the ToC (Figure 1). As part of the recent Fisheries Certification Process (FCP) Review, stakeholder comments and CAB responses to those comments were reviewed with an aim to improve the process and reduce the frequencies of ‘No response’ or ‘Unknown response’.

**Table 8.** Types of responses from Conformity Assessment Bodies (CABs) to stakeholder comments on 102 fishery assessments from September 2015 to December 2019.

CAB response type	Num. of comments	Percent
<b>Accepted (consequential score reduction)</b>		<b>3.9%</b>
Score reduced to <60 (Performance indicator (PI) fail)	3	
Score reduced to <60 resulting in Principle score reduction to <80 (Unit of Certification (UoC) fail)	1	
Score reduced to <80 (PI conditional pass)	23	
Score reduced to <80 resulting in Principle score reduction to <80 (UoC fail)	1	
<b>Accepted (no score change)</b>		<b>33.0%</b>
CAB agrees with stakeholder comment but made no changes to report as a result of the comment, or CAB agrees to consider new information offered by stakeholder in the final report	86	
Changed scoring rationale with no score change	72	
Condition adjusted	5	
CAB agrees but justifies position with no change in scoring rationale or score	74	
<b>Accepted (non-consequential score reduction)</b>		<b>2.2%</b>
Score reduced but PI and Principle scores remain above 80	16	
<b>Accepted (score increased)</b>		<b>1.0%</b>
Consequential score increase to >80, no longer conditional pass	1	
Non-consequential score increase, score was already above 80	6	
<b>No response</b>		<b>5.1%</b>
No response to stakeholder comment included in report	37	
<b>Not accepted</b>		<b>52.3%</b>
CAB disagrees and further justifies position with no change in scoring rationale or score, or stakeholder complaint submitted with no supporting evidence	376	
<b>Unknown</b>		<b>2.5%</b>
Unclear if response agreed, disagreed, or resulted in any change	18	

### 5.3 Stakeholder consultation in the design of the MSC program

<b>Definition</b>	Number and diversity of stakeholders participating in a review of the MSC program
<b>Source</b>	MSC consultation summary reports and stakeholder engagement reports; detailed in <a href="#">Annex A5.3</a>

The MSC policy development process aims to value authenticity, fairness and inclusiveness, secure strategic insight and build consensus and credibility. It has a core principle that stakeholder consultations should be useful to the MSC in achieving its mission and useful to the participants in seeing how their views are considered. To that end, the MSC’s processes for consultation follow the [ISEAL Standard Setting Code of Good Practice](#) and the [FAO Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries](#)<sup>42</sup>. Participation is open to all stakeholders, and the MSC aims to seek contributions from disadvantaged stakeholder groups and ensure geographic representation.

In 2020 the MSC released [a stakeholder engagement report](#) tallying individuals who contributed to the revision of the Fisheries Certification Process (FCP). An analysis of participation data for the public consultations in support of the Fisheries Standard Review held June–August 2020 revealed:

- A total of 487 responses across all workshops and surveys from 214 individuals representing over 150 different organisations in 33 different countries.
- The proportion of stakeholders based in regions dominated by developed economies (Europe, North America and Oceania) was slightly higher (83%) than in past public consultations on the 2019 CoC Program Review (79%) and the 2020 review leading up to the release of the Fisheries Certification Process v2.2 (82%). Stakeholders from the UK, USA and Canada were particularly well represented in consultations.
- While representation from Latin America increased and there was some representation from Indonesia, there was no representation from Russia or the Middle East/North Africa. However, the number of participants/responses from outside Europe, North America and Oceania is approximately twice that in the Custody Program Review and over three times higher than in the revision of the FCP.
- While the MSC offers translated documents and one-to-one interviews to any stakeholder wishing to provide feedback in a language other than English, few stakeholders take this opportunity.

A Fisheries Standard Review Stakeholder Engagement Report will be published following the conclusion of the ongoing Fisheries Standard Review. The results of this report will feature in a future M&E Technical Report.

The proportion of consultation responses from stakeholders in countries with developing economies and other under-represented groups remained near 20% in the 2021 consultation events held as part of an ongoing review of the Fisheries Standard. Language remains a significant barrier to participation in the MSC consultation process.

## 5.4 Conclusions and information gaps

Understanding the level and diversity of stakeholder engagement in the certification process is important to evaluate the potential for a transparent and better-informed certification process. Indicators of stakeholder engagement are important to ensure not only that diverse stakeholders are consulted, but that their input is carefully considered in the certification process, potentially influencing the outputs of assessments.

The indicators considered are derived from a wide range of stakeholder groups that have provided input into the certification process. Where data are available, these indicators show a consistent level of stakeholder input on fishery assessments for more than a decade. In 2021, a MSC Stakeholder Survey was conducted, asking stakeholders about the MSC, ocean issues, and their own priorities. Summarised survey results are expected to be released in mid-2022. Opportunities remain for broadening the geographic scope and reducing language barriers for stakeholder consultations.

## 6 Unintended drawbacks and benefits

*The MSC aims to monitor unintended effects—either negative or positive—emerging from stakeholders’ engagement in the certification processes, so as to facilitate benefits and mitigate any drawbacks that are within its area of influence.*

### 6.1 Socioeconomic effects

**Definition** | Socioeconomic effects on stakeholders, including unintended drawbacks or benefits

**Source** | MSC stakeholder interviews; detailed in [Annex A6.1](#)

The ToC suggests that environmental outcomes arise through a series of changes in interactions and behaviours among stakeholders that are social and economic in nature. Investigating these interactions and effects of these mechanisms allows for testing whether the ToC is operating as expected. In addition, these mechanisms may also generate other unexpected effects on the actors more closely involved in the program’s fisheries and supply chains. These [unintended effects](#) may be positive (benefits) or negative (drawbacks).

Public socioeconomic data are often not at the relevant scale to study certified entities, not comparable across different fisheries, or simply unavailable. To allow for program-wide monitoring that is reproducible over time, the MSC developed a qualitative data collection program based on key informant interviews and deployed by external research experts which involves fisheries, first buyers in the supply chain, NGOs, and managers. The survey instrument used for the interviews is designed to test a set of hypotheses around potential unintended effects<sup>15,43</sup> so as to systematically document perceived benefits or drawbacks for the stakeholders involved. Here we present results from interviews with representatives from producer associations, fisheries management agencies, environmental NGOs, first buyers in the supply chain and fisheries in France, U.S.A., Portugal and Australia (for further details see van Putten et al. 2020<sup>15</sup> and Anderson et al. 2021<sup>43</sup>). The interviewees were asked about their perceptions of economic and non-monetary benefits expected compared to benefits received, changes in employment and supply chain structure, and changes in collaboration or conflict with other stakeholders since receiving MSC certification.

The interview results show that all fisheries were satisfied with the benefits obtained by certification, including a fishery that had to leave the program due to failing to maintain sustainability requirements (Table 9). Yet not all fisheries realised all of the market benefits they had expected, and their overall satisfaction was due to a combination of both market and non-market benefits, some of which were described as unexpected. Almost all fisheries described unexpectedly acquiring improved relationships or

social license to operate from the public or managers. While fisheries in France, Portugal, and USA described certification as being associated with market access, increased revenue and any price premiums could not be unambiguously associated with use of the label. The increase seemed linked to fisheries taking entrepreneurial initiatives to develop value-added products and gaining control of price-setting at the first-buyer stage of the supply chain.

As the ToC posits that certification will provide a market advantage for fisheries and supply chains that become certified, this implies a degree of market exclusion for non-certified entities and, possibly a change in supply chain pathways as producers shift selling their catch towards certified supply chain actors. While this is intended to create an incentive for more actors to become certified, it may unintentionally cause economic hardship in local communities if, for example, traditional middlemen roles are displaced or small-scale harvesters that cannot afford the costs of certification lose access to their traditional markets. However, none of the fisheries interviewed reported any change in employment structure (Table 9). In the case of Western Australia, since none but the toothfish fishery sell products with the ecolabel, several of these hypotheses did not apply as no certified supply chain was involved. No stakeholders described conflicts arising as an effect of certification. In the case of the albacore tuna USA and Canada associations, though these organizations had a history of conflict, they shared a certificate for financial convenience but this neither improved nor worsened their relationship.

This rapid assessment approach has shown, in the cases tested so far, that it can provide an overview of changing socioeconomic dynamics and multi-stakeholder relationships before and after the certification process. While not exhaustive of all possible unintended drawbacks or benefits, and labour-intensive to reproduce at scale across the program, there are few other sources that can provide this level and nuance of insights. The rapid approach presented here can be treated as an intermediate-level monitoring system, more in depth than what MSC certificate or external large-scale datasets can capture, but less in depth than detailed, location-specific studies<sup>44</sup>; it can point to key issues to investigate further serving as a launching point to inspire further research, (e.g., combined with economic data in the case of Anderson et al 2021<sup>43</sup> to document shifts in the supply chain, or with an investigation framework to investigate social license<sup>45</sup>). The same semi-structured interview approach can also be adapted to expand on priority topics and combined with quantitative data, as done in [the case of Cornish sardine](#), focusing on price premium and including trade data.

The global COVID-19 pandemic has prevented the MSC from expanding the data collection further to new case studies, both due to the difficulties of experts travelling in person to conduct the interviews, and stakeholders not needing to prioritise other activities at a time of crisis. Yet, the social and economic shocks across supply chains caused by the pandemic<sup>46</sup> have illustrated the importance of understanding the links between producers and buyers, and the different mechanisms and pathways of change.

**Table 9.** Summary of observed effects in the four regions studied, organised by hypothesis group. Cells marked as ‘no’ (or ‘yes’) indicate the hypothetical effect was not (or was) observed; where descriptive text is provided it gives details on the type of effect observed. Changes are highlighted in blue if considered positive by the actors involved, yellow if negative, or grey if neutral. Cases marked with (\*) indicate they have exited the program (but effects applied while certified); cases marked with (\*\*) did not use the MSC ecolabel on their products, and there was no certified supply chain to survey, so the hypothesis does not apply.

			Country	USA	France	Portugal	Australia		
			Fishery	<i>NAFE/AAFA albacore tuna</i>	<i>Brittany sardine purse seiners</i>	<i>Portuguese sardine seiners</i>	<i>Western rock lobster</i>	<i>Antarctic toothfish</i>	<i>6 other fisheries</i>
Group	Process	Hypothesis description							
0	Enabling conditions:	Satisfied with certification benefits		yes	yes	yes*	yes	yes	yes
		Unexpected benefits arising		no	social license	fishers-managers cooperation	social license	social license	fishers-managers cooperation
1	Market mechanisms:	Supply chain structure changes		yes	yes	yes*	no**	yes	no**
2		Changes in markets and/or product forms		yes	yes	yes*	no**	yes	no**
3		Changes in employment structure		no	no	no*	no**	no	no**
4	Social mechanisms:	Change in stakeholder relationships: cooperation & conflicts		no effect	yes	yes	yes	yes	yes
5	Governance mechanisms:	Changes in management		no	no	no	yes	no	yes

## 6.2 Conclusions and information gaps

Understanding the mechanisms through which certified actors are incentivised to join and remain in the MSC program can help improve how MSC works with stakeholders engaged in the certification process. Importantly, it can help identify unintended drawbacks that may be mitigated.

The case studies investigated for intended and unintended socioeconomic effects revealed several positive outcomes. However, this type of study should be expanded to better represent the diversity of fishery and supply chain types engaged in the program, and avoid the risk of cherry-picking success stories. For example, it could include more small-scale fisheries or fisheries from countries with developing economies, and broaden the range of stakeholders and supply chain elements covered. This would require refining the approach so that it may be more time and cost-effective, so that it may be scaled up to a larger number of fisheries and/or actors interviewed, for example through an online survey. This more agile approach could be paired with more in-depth studies that focus on a specific topic or fishery, also using quantitative information where possible, such as economic indicators.

# Next steps in MSC monitoring and evaluation

The MSC periodically reviews its monitoring and evaluation process. Along with being an ISEAL requirement, this review provides the MSC with an overview of how aspects of the program relating to the sustainability of fisheries and seafood supply chains have changed over time or in relation to other criteria. This M&E Technical Report has presented a series of indicators intended to reflect these aspects, drawing from a wide range of datasets maintained by the MSC. This set of indicators represents the current M&E Framework.

Along with this M&E Technical Report, the MSC is preparing an overview of its Standard, Assurance, and M&E System which will be publicly available in July 2022. This system overview will describe:

- The MSC Standards, how they are implemented, and how they are monitored and reviewed to ensure their relevance
- The strategies employed by the system to meet its sustainability objectives
- How the system demonstrates a commitment to improvement and maintains responsibility for decisions taken about that commitment

With the recent completion of the [Fisheries Standard Review](#), the MSC views this as an opportune time to perform a thorough re-evaluation of the M&E System. As such, the MSC is conducting a formal review of the process during 2022–2023. This upcoming M&E Review will seek opportunities to improve the effectiveness of the M&E System and the credibility of the MSC program, enhancing the MSC's ability to deliver on its vision, mission, and Theory of Change. The main outputs are expected to be:

- A thorough review of the M&E Framework, with suggested revisions where needed to the indicators and data summaries representing this framework to make them more informative
- A thorough review of the M&E System, to critically assess the process used by the MSC to monitor data, summarise indicators, assess how M&E is utilised by the MSC, and evaluate the extent to which these indicators align with the ToC and reflect MSC objectives
- A targeted stakeholder consultation where stakeholders will be asked for feedback on a revised M&E framework and for their views on the MSC's M&E system
- A report summarising the review which will include recommendations, made in private, to the MSC Executive Committee

In addition to informing the MSC's monitoring and evaluation process, the data summaries presented in this report have revealed key questions, limitations, and gaps in the M&E System that require further investigation. These will also be addressed as part of the upcoming M&E Review.

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# Annex A: Materials and methods

This annex contains a description of all data collection and analysis methods used to reach every result and conclusion presented in this report.

## 1 Data sources

Data sources used for indicators and other supporting data summaries are listed in Table A1.

**Table A1.** Data sources used for summaries presented in this report.

Dataset	Contents	Data source
Assurance Services International (ASI)	Non-conformity findings against requirements of relevant normative documents	Maintained by ASI
Auditor registry	CoC auditors; fishery assessors; locations of auditors and assessors	Maintained by MSC
Catch database	Certified catch volume by species, gear, vessel country and ocean region	Maintained by MSC. Entered into eCert* by CABs and verified by MSC using fishery assessment reports that are publicly available on <a href="#">Track-a-Fishery</a>
Certificate holder database	Client; CAB; fishery; Chain of Custody; species; gear; ocean region; certification status	Maintained by MSC. Certification information entered into eCert by CABs and MSC
FAO wild-caught landings database	FAO global wild-caught landings for marine and inland fisheries	<a href="#">FAO landings database</a> maintained by United Nations FAO
<a href="#">FisheryProgress.org</a>	Fishery Improvement Project (FIP) documentation and progress tracking	Maintained by <a href="#">FishChoice</a> . Documentation provided by the FIPs; data validated by FishChoice
MSC-International database	Number and volume of MSC-labelled products by category, species, brand; turnover	Maintained by MSC. Entered into eCert by Logo License holders

Dataset	Contents	Data source
Objections database	Objections; objectors; Independent Adjudicators; final decision on objections	Maintained by MSC
Peer Review College database	PRC reviewers; Quality Assurance reports	List of reviewers maintained by MSC. Quality Assurance reports produced by third-party experts
Scoring database	CAB; assessment team; assessment report metadata; scores; conditions	Maintained by MSC. Entered using fishery assessment reports that are publicly available on <a href="#">Track-a-Fishery</a>
Stakeholder comment database	Stakeholder commenting; stakeholder type; stakeholder comments; comment topic; CAB response	Maintained by MSC. Entered using fishery assessment reports that are publicly available on <a href="#">Track-a-Fishery</a>
Stakeholder engagement	Stakeholder interviews; consultation summary reports; stakeholder engagement reports	Maintained by MSC. Interview data collected by MSC staff and external researchers; reports produced by MSC
Technical Consultant registry	Technical Consultants; Associate Technical Consultant	Maintained by MSC
Technical Oversight and Variations (TOVAR) database	Technical Oversight; variations	Maintained by MSC. Technical Oversight conducted and recorded by MSC staff; variations and responses publicly available on <a href="#">Track-a-Fishery</a>
Training event database	Capacity Building Training events; calibration training events	Maintained by MSC

\* eCert is the MSC's certificate management software

## 2 Indicator protocol

This section contains additional detailed descriptions that explain how indicators presented in this report were constructed. These descriptions supplement the definition and source information provided in the main text below each indicator's section heading. This section may include additional metrics needed for each indicator, units of measure, definitions for key terms, data sources, data collection frequency and approach, scope, or other technical references. Section numbering below corresponds to section numbers of the main text.

### *A1.1 Number of, and landings from, MSC-engaged Units of Certification*

Indicator 1.1.i shows the number of UoCs each year over years 1999–2020 by five status categories. Because UoCs can change status categories from one year to the next, the number of UoCs in any given status category can decrease from one year to the next. Data were drawn from the certificate holder database.

Indicator 1.1.ii shows the annual landed tonnage of UoCs engaged in the MSC program over years 1999–2020, in tonnes. Certified UoCs and UoCs under suspension in any given year are pooled together and are separated from UoCs that were under assessment in the same year. Landed tonnage is separated between UoCs operating in marine waters (>99.5% of total) and UoCs operating in inland waters (<0.5% of total). Data were drawn from the MSC catch database.

The MSC landed tonnage quantities from indicator 1.1.ii are shown relative to global landed tonnage including non-MSC certified catch, also in tonnes. Global totals are also separated into marine and inland portions for comparison with MSC landed tonnage in each portion. Global landed tonnage data are drawn from the FAO wild-caught landings database. Non-MSC values are calculated by subtracting MSC portions from the global totals.

### *A1.2 Reach of the Chain of Custody program*

Indicator 1.2 shows the number of valid CoC certificate holders each year over years 2013–2020. Certificate holders are separated into four certificate types, and their total each year is also shown as the sum across certificate types. Here, the number of CoC certificate holders could decrease from one year to the next if more certificate holders leave the program than join the program. Data were drawn from the certificate holder database.

As supporting material for this indicator, the number of sites with CoC certification is also shown over the same period, separated by site type, and stacked visually to show the total number of sites. The pattern in the total number of CoC sites is similar to the pattern over time in the number of CoC certificate holders.

### *A1.3 MSC-ecolabelled products in the market*

Indicator 1.3 shows the number of MSC-labelled products worldwide each financial year (ending March 31) over financial years 2009/2010 to 2020/2021. Products with no reported sales in the latest year are excluded. This was done to avoid cumulative overestimation over time, as products drop out of the market and are replaced by others, ensuring the values more accurately reflect products ‘on the shelf’ in any given year. Here, the number of MSC-labelled products could decrease from one financial year to the next if more products cease production than are added. Data were drawn from the MSC-International database.

### *A2.1 Uptake of the Fisheries program in developing economies*

Indicator 2.1 shows the number of UoCs from countries with developing economies each year over years 2000–2020. The count is separated into fisheries with active certification (including those under suspension) in any given year and those in assessment in the same year. Because UoCs can change from ‘in assessment’ to ‘certified’ from one year to the next, the number of ‘in assessment UoCs’ could decrease. Similarly, because certified UoCs could withdraw from the program, the number of ‘certified or suspended’ UoCs could decrease. Data were drawn from the certificate holder database.

The number of UoCs from countries with developing economies is also shown as a proportion of all UoCs globally each year over these same years 2000–2020. To calculate this proportion, annual counts for indicator 2.1 were divided by corresponding counts from indicator 1.1.i. These calculations were performed separately for different status categories ‘certified or suspended’ and ‘in assessment’, resulting in two time series of proportions.

### *A2.2 Uptake of the Chain of Custody program in developing economies*

Indicator 2.2 shows the number of CoC certificate holders from countries with developing economies each year over years 2013–2020. Because certificate holders can withdraw from the program, the count could decrease from one year to the next. Data were drawn from the certificate holder database.

The number of CoC certificate holders from countries with developing economies is also shown as a proportion all CoC certificate holders globally each year over these same years 2013–2020. To calculate this proportion, annual counts for indicator 2.2 were divided by corresponding counts from indicator 1.2.

As supporting material for this indicator, the number of sites with CoC certification from countries with developing economies is also shown over years 2013–2020. Similar to the supporting material for indicator 1.2, these counts are separated by site type and visually stacked to show the total number of sites. For each of these three groups of site types, the number of sites with CoC certification from countries with developing economies is also shown as a proportion of all CoC sites worldwide for the site type in each year. To calculate these proportions, for each site type separately, the annual numbers of CoC sites

from countries with developing economies were divided by the corresponding counts from the supporting material for indicator 1.2.

### *A2.3 Uptake of MSC-labelled products in developing economies*

Indicator 2.3 shows the number of MSC-labelled products from countries with developing or multiple/unknown economies in each financial year (ending March 31) over financial years 2009/2010 to 2020/2021. The category ‘multiple or unknown’ contains products that can be linked to a mix of developed and developing-economy countries, or products with missing country information. Here, the number of MSC-labelled products could decrease from one financial year to the next if more products cease production than are added. Data were drawn from the MSC-International database.

The number of MSC-labelled products from countries with developing or multiple/unknown economies is also shown as a proportion all MSC-labelled products globally each financial year over these same financial years 2009/2010 to 2020/2021. To calculate this proportion, annual counts for indicator 2.3 were divided by counts from indicator 1.3. These proportions are similarly separated by known countries with developing economies and countries with ‘multiple or unknown’ economies, and they share the same denominator representing the global annual total.

### *A2.4 Accreditation capacity in developing economies*

Indicator 2.4.i shows the number of CoC auditors, fishery assessors, and Technical Consultants (AATCs) from countries with developing economies each year, over years 2016–2021 for Technical Consultants and for years 2019 and 2021 for auditors and assessors. Here, the counts could decrease from one year to the next if more AATCs left the program than joined the program. Data were drawn from the Auditor registry and Technical Consultant registry.

The number of AATCs from countries with developing economies is also shown as a proportion of all AATCs worldwide each year over these same years, 2016–2021 for Technical Consultants and 2019 and 2021 for auditors and assessors. To calculate these proportions, annual counts for indicator 2.4.i were divided by corresponding counts across all countries (the denominator was not represented as its own indicator).

Indicator 2.4.ii shows the proportion worldwide training events that occurred in countries with developing economies each year over years 2014–2021. Training events including both Capacity Building Training events and Calibration training events. To calculate this proportion, the annual total numbers of events from countries with developing economies were divided by corresponding counts across all countries (neither the numerator nor the denominator were represented by their own indicators). Data were drawn from the MSC training event database.

### *A3.1 Conditions of certification*

Indicator 3.1 shows the number of conditions open at the start of an assessment cycle for assessment cycles 1–4 (i.e., initial assessment and first, second, and third re-assessments). Counts of conditions are separated by PI type. Only fishery assessment reports assessed on Fishery Assessment Methodology or Default Standard trees are included. Counts of assigned conditions are pooled across years since 2009, so counts in earlier assessment periods may be underestimated for UoCs that have been active >12 years. Assessment reports may apply to multiple UoCs and conditions may apply to one or more of these UoCs. For re-assessment periods, counts include both newly-opened conditions as well as conditions carried over from the previous assessment period. Counts do not include conditions from fishery assessment reports that failed as those are not recorded. Some conditions applied to multiple PIs so may be counted twice. Data were drawn from the scoring database.

The number of assessment reports declines with increasing assessment cycles simply as a result of longevity in the program. The number of conditions opened at the start of successive cycles is therefore also shown as a standardised measure. The number of open conditions from indicator 3.1 was divided by the number of fishery assessments conducted at the start of each assessment cycle. This resulted in a number of open conditions per assessment, which was more comparable across assessment cycles.

### *A3.2 Principle scores of Units of Certification*

Indicator 3.2 shows distributions of scores during certification of UoCs. Scores are separated by Principles 1, 2 and 3, and for each Principle, are compared between the first two assessment cycles (initial assessment and first re-assessment). Data from 2000–2020 were pooled, pairing UoCs from the two assessment cycles. To avoid potential influences of data subsetting (i.e., having some UoCs included only in cycle 1 or only in cycle 2), we aimed to include UoCs with available scores at both cycles. Data were drawn from the scoring database.

While we aimed to only include UoCs with available scores at both cycles for as fair a comparison as possible, there are nuances in the dataset which prevented a perfectly-paired comparison. Between initial assessment and first re-assessment, UoCs may split, merge, be transferred between certificates, withdraw, or be added through scope extensions. Due to this and the difficulties (that are currently being addressed) in tracking the scores of individual UoCs across assessment cycles, scores for some UoCs may be included in one assessment cycle but not the other.

One notable example is the Joint Demersal Fisheries (JDF) in the North Sea and adjacent waters. The JDF certificate is made up of a number of UoCs previously certified under 10 separate fishery certificates, all at various stages of their certification cycle, plus a large number of UoCs (up to 500) that had not been previously certified. As it is currently not possible to distinguish which JDF scores in the database relate to UoCs in their first, second, or third assessment cycles, and as there were such a large number of UoCs scored for this fishery, scores for all UoCs for JDF and the 10 originally certified fisheries were excluded

from the dataset to avoid heavily skewing the comparison across assessment cycles. Further, the majority of UoCs in Table 3 that failed “re-assessment” were actually UoCs attempting certification for the first time as part of the JDF, hence their exclusion from the comparison.

### *A3.3 Closing conditions of certification*

Indicator 3.3 shows the proportion of opened conditions of certification that are closed in years following initial assessment or re-assessment. For each of four assessment cycles (initial assessment and first, second and third re-assessment), the number of conditions open in the year of assessment (year 0) and in the following four years are shown. Successive counts in these years following year 0 show the number of conditions that were closed, the number that remained open (with two sub-classifications), the number that were re-written, as well as a pooled count of conditions for UoCs that were suspended or withdrawn, or conditions that were not addressed. Counts do not include conditions from fishery assessment reports that failed because those are not recorded. Some conditions were opened in years following year 0 within an assessment cycle, but these are less common than conditions opened in year 0. Conditions were pooled across fishery assessment reports in years 2000–2020 and were drawn from the scoring database.

The number of opened conditions across the five years of an assessment cycle, as well as counts across successive assessment cycles, are both expected to decrease simply due to longevity within the program. To compare across assessment cycles, the counts of conditions over the five years of an assessment cycle are also shown as a proportion of the conditions that had been opened in year 0 of that cycle. This was restricted to conditions with a full five years of data availability for a given assessment cycle so that the outcome of each opened condition in year 0 could be assessed across the remaining four years. Within an assessment cycle, the proportions of year-0 conditions therefore sum to 100% across the 5-year period, allowing for a clearer understanding of the proportion of opened conditions that are closed over time.

### *A3.4 Actions taken to close conditions related to fisheries bycatch or habitat*

Indicator 3.4 summarises the types of actions that were taken by fisheries which allowed for previously-opened conditions associated with bycatch (non-retained species and Endangered, Threatened and Protected species) and habitats to be closed. These actions thus contributed to improvements in PI scores related to bycatch or habitats. All opened conditions related to bycatch or habitats that were subsequently closed were pooled across 135 fishery assessment reports across years 2000–2018. These counts of actions taken to close conditions were separated by five types of actions and further separated by several specific actions within each type. Separately for bycatch and habitats, the counts of actions taken within each of the five types were summed to calculate the proportion of actions taken for each of the five types (summing to 100% across the five types). Data were drawn from the scoring database.

### *A3.5 Pre-certification improvements*

Indicator 3.5 shows the BMT scores for 12 UoAs in ‘Project UK’, a FIP associated with MSC. Scores are shown at initial scoring in the pre-assessment phase and 3 years later (‘year 3 actual’) to demonstrate improvements. The expected score at year-3 is also shown for comparison. Data were drawn from FisheryProgress.org and will also be contained in the upcoming MSC pre-assessment database scheduled for release later in 2022. For more detail on how BMT scores are calculated, see the [Guidance for using the MSC Benchmarking and Tracking Tool](#).

### *A4.1 Independent oversight of Conformity Assessment Bodies*

Indicator 4.1 shows the number of non-conformity findings for CABs each year over years 2015–2020. These findings are identified by ASI during assessments of CABs, and are separated into major and minor findings. The number of annual non-conformity findings are expressed as a ratio with the number of ASI assessments conducted in those same years, resulting in an average number of findings per ASI assessment. These ratios are shown separately for major and minor findings. Data are drawn from ASI annual reports.

### *A4.2 Technical oversight of fishery assessment reports*

Indicator 4.2 shows the average number of non-conformities (findings) in Technical Oversight reviews of fishery assessment reports each year over years 2011–2020. Findings are separated into major, minor, and guidance findings beginning in 2013; in years 2011 and 2012 the minor finding category had not yet been introduced. Annual counts of findings are standardised per fishery assessment report, where reports include Public Certification Reports, Public Comment Draft Reports and Surveillance Reports. Data are drawn from the TOVAR database.

### *A4.3 Independent peer review of fishery assessment reports*

Indicator 4.3 shows the number of Quality Assurance reviews conducted on peer reviews each year for ‘review years’ 2017/2018 to 2019/2020 (review years run from 1 September to 31 August). The number of Quality Assurance reviews conducted on peer reviews each year can be compared with the number of Client & Peer Review Draft Reports submitted and the number of fisheries entering assessment in corresponding years. Given the recent implementation of the PRC, the time series for this indicator is currently limited but will continue to be monitored. Data are drawn from the Peer Review College database.

#### *A4.4 Assurance in the Chain of Custody*

Indicator 4.4.i shows the number of submitted variation requests relating to the CoC Standard each year over years 2014–2020. Annual total counts are given along with the average number of variation requests per CoC certificate holder, where certificate holders include those under suspension as well as those in assessment. Data are drawn from the TOVAR database.

As supporting material for this indicator, the counts of annual variation requests are separated by 10 groups representing different topics of variation. Annual counts across these 10 groups for each of the years 2014–2020 sum to the total number of variation requests across CoC certificate holders in those same years.

Indicator 4.4.ii shows the number of reported incidents relating to the CoC Standard each year over years 2017–2020. Annual total counts are given along with the average number of reported incidents per CoC certificate holder, where certificate holders include those under suspension as well as those in assessment. Data are drawn from the TOVAR database.

As supporting material for this indicator, the counts of annual reported incidents are separated by 13 groups representing different types of incidents. Types of incidents share some amount of overlap with other types, thus assignments should be regarded as best-match categories rather than as mutually-exclusive categories. Annual counts across these 13 groups for each of the years 2019 and 2020 sum to the total number of reported incidents across CoC certificate holders in those same years.

#### *A5.1 Objections to MSC fishery certification*

Indicator 5.1 shows the number of objections to MSC certification submitted by stakeholders each year over years 2000–2020. These annual counts are shown in relation to the number of fishery assessments resulting in certification in corresponding years. Annual counts of objections are separated into those that were accepted or not accepted by IAs. Data are drawn from the TOVAR database. Counts may differ from those previously reported as this indicator presently counts the number of fishery assessments, not the number of fisheries, and in addition, this indicator presently considers the date objections were received rather than the date they were published.

Counts of objections, either accepted or not accepted by IAs, are also shown as standardised to the number of fishery assessments resulting in certification for corresponding years from 2003 onwards, resulting in a ratio of objections per assessment.

As supporting material for this indicator, the total counts (across years) of objections accepted and objections not accepted are separated by six stakeholder types. For each stakeholder type, the proportion of objections accepted is given, calculated as the ratio of accepted objections to all filed objections (including those not accepted).

## *A5.2 Stakeholder comments on fishery assessments*

Indicator 5.2.i shows the number of stakeholder comments on 102 fishery assessments. Each comment is a part of a submission written by a single stakeholder or group of stakeholders about a specific topic. Often stakeholders address more than one topic in a single letter (for example, habitat impacts and stock assessments). The CAB is required to respond to concerns about different topic areas separately, and so these are counted as separate comments. Counts of comments are pooled across years (4.25 years of assessments on v2.0 of the Fisheries Certification Requirements included) and are separated by five groups of stakeholder type. Counts are also separated by the assessment cycle in which the fishery assessment occurred during this period (initial assessment or first, second, or third re-assessment). Counts of comments by assessment cycle and stakeholder group are also shown as standardised by the number of fishery assessments assigned to each cycle, resulting in a ratio of comments per assessment specific to the assessments in that cycle. Data are drawn from the stakeholder comment database.

Indicator 5.2.ii summarises the types of responses from CABs to stakeholder comments on the same 102 fishery assessments across these 4.25 years. Counts of comments are separated by whether they were accepted (with four sub-categories), not accepted, whether there was no response, or whether the response was unclear. Comments that were accepted were further separated by whether the comment's acceptance resulted in a consequential score reduction (affecting certification outcomes), a non-consequential score reduction, a score increase, or no change in score. Further sub-categories are provided for three of the four 'accepted comment' groups.

## *A5.3 Stakeholder consultation in the design of the MSC program*

Section 5.3 does not present a quantitative indicator. Instead, it summarises the number and diversity of stakeholders that participated in a recent review of the MSC program. Summaries are given for the proportions of participating stakeholders by country or by economic development level. Data are drawn from MSC consultation summary reports and stakeholder engagement reports.

## *A6.1 Socioeconomic effects*

Section 6.1 does not present a quantitative indicator. Instead, it summarises the results of two recent studies that evaluated socioeconomic effects of the MSC program on stakeholders. Evaluations considered both intended and unintended effects of the program, with unintended effects being distinguished as drawbacks (negative effects) or benefits (positive effects). These studies were based on interviews with representatives from producer associations, fisheries management agencies, environmental NGOs, first buyers in the supply chain and fisheries in France, U.S.A., Portugal and Australia. Results are summarised by country, by whether hypotheses were observed, the type of effect observed, and status with respect to participation in the program and display of the MSC ecolabel. Data were drawn from stakeholder interviews conducted under these two published studies.