



Marine
Stewardship
Council



Small Pelagics Yearbook 2025

Market data, innovations and insights from communities protecting our ocean

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Small pelagic fish: Vital species at a tipping point

SMALL PELAGIC FISH feed on microscopic plants and plankton in the pelagic zone, close to the ocean surface. The group, which includes sardines, anchovies and mackerel, plays a crucial role in the marine ecosystem, serving as a vital food source for larger fish, seabirds, and marine mammals, hence their designation as “forage fish” or “low-trophic level species”.

The Marine Stewardship Council (MSC) has a long history with fisheries targeting these species. Their abundance and high nutritional value make them a target for commercial fisheries, both for direct human consumption and as marine ingredients in aquaculture, fishmeal, and fish oil production.

Numerous European fisheries have achieved certification for popular species like herring, sardine, mackerel and anchovy. Antarctic krill joined in 2010 and other species, such as menhaden in the US, thread herring in Mexico, and jack mackerel in Chile, are also now MSC certified. These certified fisheries demonstrate excellent population recovery, robust management, and enhanced on-board monitoring. In 2024, more than 3 million metric tonnes of small pelagic catch were certified globally.

However, these fish are highly vulnerable to the effects of climate change, causing populations to shift to new areas. These shifts pose management challenges for fishing nations and have resulted in overfishing of important stocks. Emblematic fisheries like herring, blue whiting and mackerel in the North East Atlantic have lost or had their certifications suspended following disagreements on quotas and failures to follow scientific advice. These issues are impacting the availability of certified small pelagic fish in the market, reducing sustainable sourcing options for both industry and consumers. In the longer term, this poses a threat even to the availability of raw material, impacting prices and volumes of product for the market.

With growing demand for sustainable seafood and an increasing commitment within the marine ingredients industry to source from sustainable stocks, it is crucial to protect these vital fisheries for the future. ●

A Year in Small Pelagics

- MSC engaged fisheries land less than 20% of small pelagic global catch
- Canned goods account for 58% of MSC certified small pelagic catch



Trends in MSC certified small pelagics

12%
of global small pelagics catch
is MSC certified

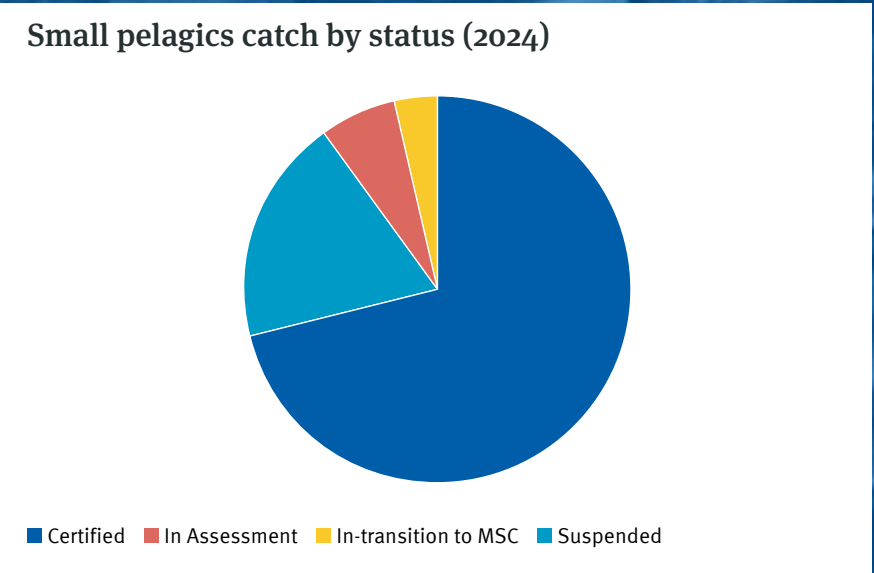
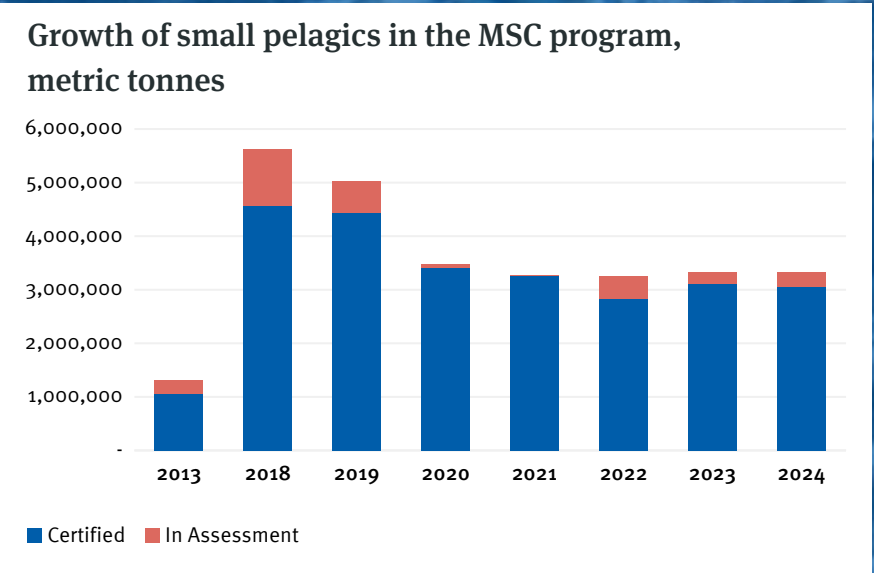
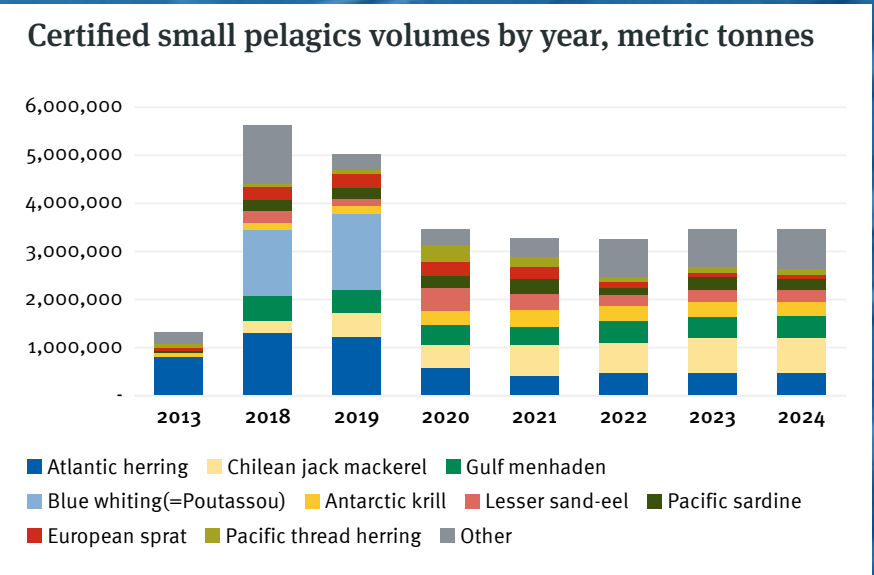
1%
of global small pelagics catch
is in assessment

0.55%
of global small pelagics catch
is in the MSC Improvement
Program

16%
of global small pelagics catch
is currently in a FIP (basic or
comprehensive)

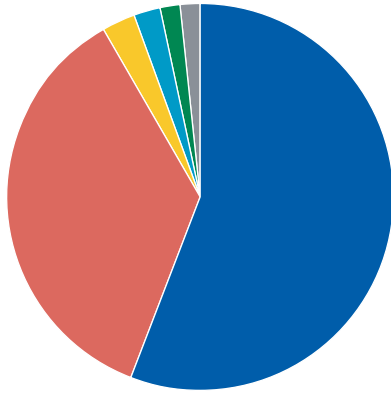
70%
of global small pelagics
catch is neither MSC
certified, in assessment, or
in a FIP

Excludes suspended catch.
Fisheries data on this page is correct as of 31 December 2024.



Market movements

MSC labelled small pelagics by product type, 2024/25

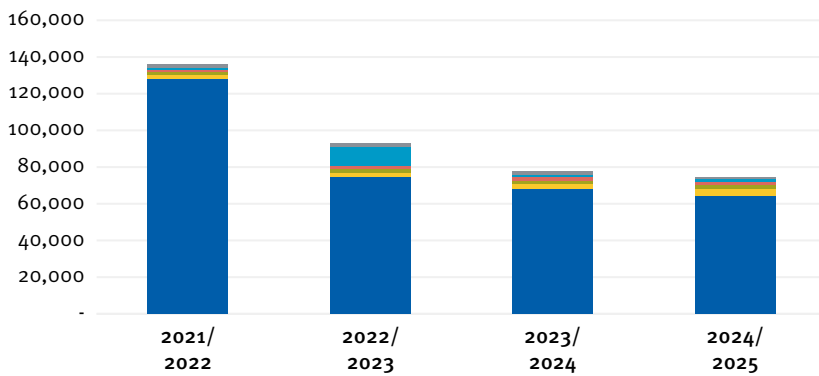


■ Canned ■ Chilled ■ Pet food ■ Frozen ■ Fish counter ■ Other

Top ten countries by volume

Country	Total small pelagics volume (2024/25)
Germany	37,602
Netherlands	5,063
<Multiple>	4,744
Czech Republic	3,961
Poland	2,766
Belgium	2,525
Spain	2,287
Sweden	2,137
USA	1,793
Japan	1,730

MSC labelled small pelagics, metric tonnes*



■ Atlantic herring ■ Euro. anchovy ■ Sardine ■ Capelin ■ Euro. sprat ■ Other

*Excluding Chilean jack mackerel.

“Our priority is to offer sustainable food which is affordable.”

Michaela Reischl, Head of CSR at Lidl Spain

Commercial data on this page is correct as of 31 December 2024. Forecast data included in 2024/2025.



Market and species analysis of global small pelagics

257

certified brands of Atlantic herring sold (down from 294 in 2015/16)

143

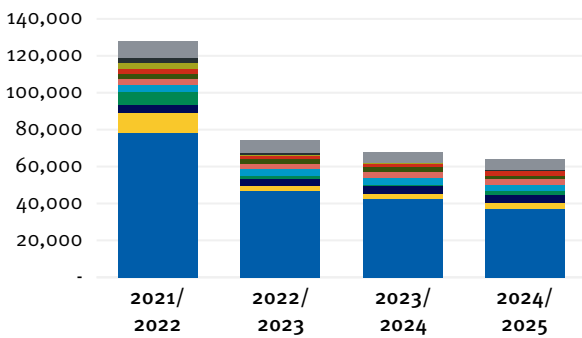
certified brands of European anchovy sold (up from 13 in 2015/16)

51

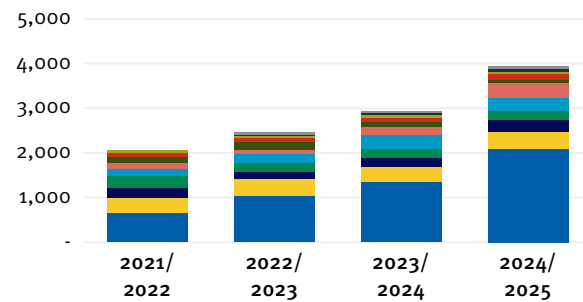
certified brands of sardine sold (down from 55 in 2015/16)

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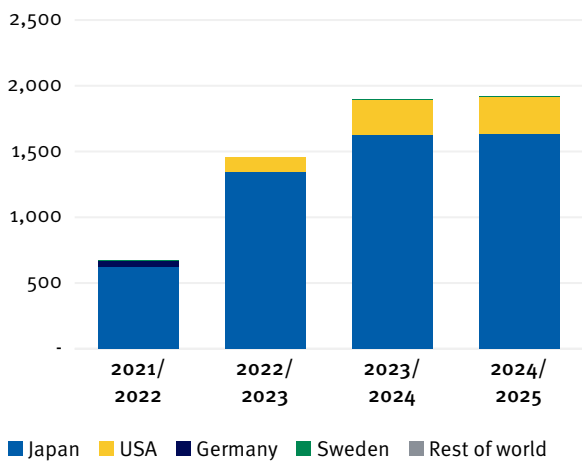
MSC labelled Atl. herring, metric tonnes



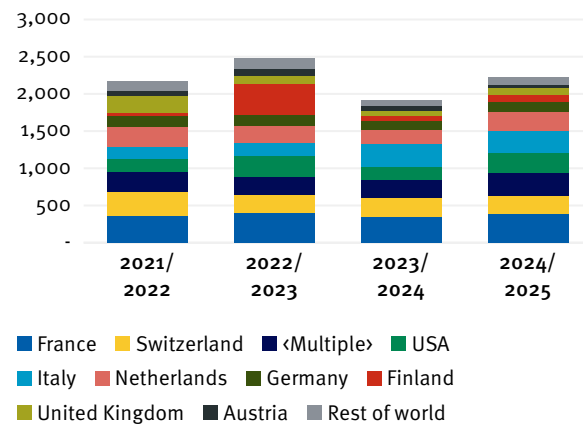
MSC labelled European anchovy, metric tonnes



MSC labelled capelin, metric tonnes

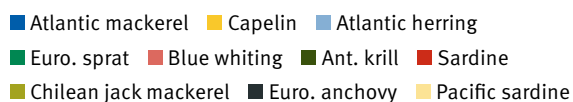
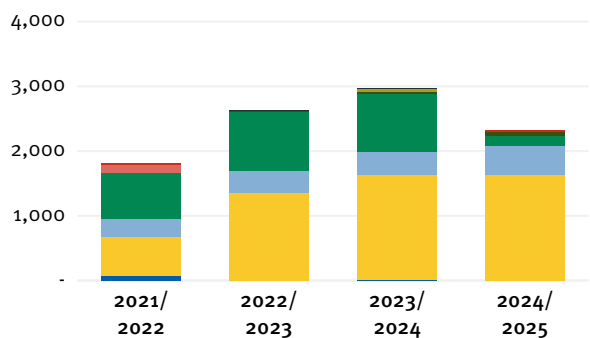


MSC labelled European sardine, metric tonnes

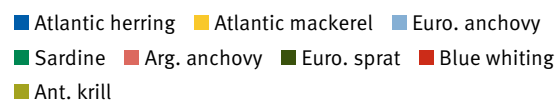
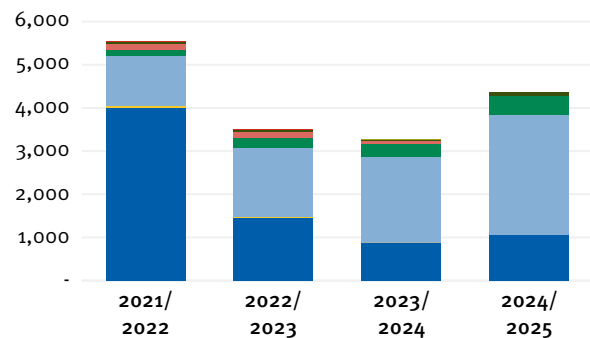


Regional analysis of global small pelagics

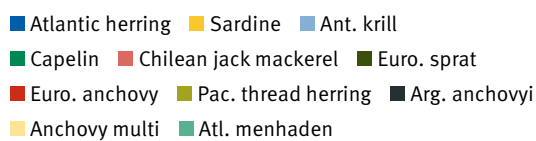
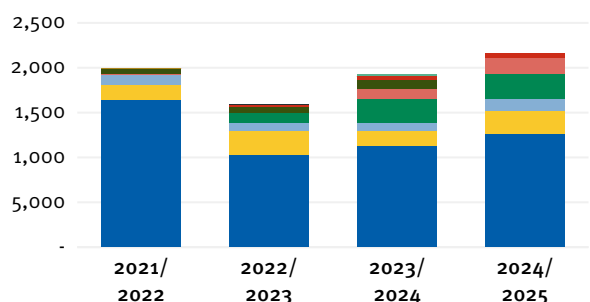
Asia-Pacific labelled volume



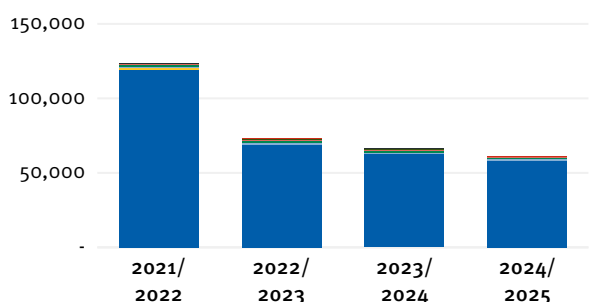
S. Europe & AMESA labelled volume



USA & Canada labelled volume



N. Europe & C. Europe labelled volume



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Summary of small pelagic global production and consumption

IN 2024, GLOBAL FISH PRODUCTION was estimated at more than 185 million metric tonnes (excluding algae), with wild-capture fisheries contributing 91 million metric tonnes. Of this, small pelagic fish contributed 33.1% of wild capture, with Peruvian anchoveta alone accounting for 4.1 million metric tonnes.

Global fish consumption has risen in recent decades, with an estimated 89% of total aquatic production (both wild capture and farmed) used for human consumption in 2022.

The remaining 11% supplies non direct human consumption, such as fish meal and oil. Of this non-human consumption share, a fifth comes from wild

capture fisheries, equating to 17 million metric tonnes of wild catch (FAO SOFIA report 2024), the majority of which comes from small pelagic fisheries.

Aquafeed market

Due to the nutritional value of, fish meal and fish oil, they are considered strategic ingredients for aquaculture. Currently 87% of global fishmeal produced (around 5 million metric tonnes) and more than 74% of the global fish oil produced (1 million metric tonnes) is used as feed in aquaculture.

The projections indicate that aquaculture will continue to grow in the future, with 60% of fish for human





What is fishmeal?

Fishmeal is a protein-rich, flour-like product, that is produced by milling and drying fish, or fish parts. It is used to supplement feed for livestock and as a key ingredient for aquaculture feeds.

What is fish oil?

Fish oil is obtained through the pressing of cooked fish and separation of the liquid obtained into oil and water. It is considered the richest available source of long-chain polyunsaturated fatty acids, which perform a wide range of critical functions for human health. Fish oils are a valuable by-product in the production of fishmeal and are widely used in aquaculture feeds. Crude fish oil can be further refined, purified and concentrated to become suitable for human consumption, usually in the form of omega-3 supplements, nutraceutical products or medicines.

consumption expected to be supplied by aquaculture by 2032 (currently 57%). To meet the rising demand for farmed fish, all actors in the seafood supply chain must work together to ensure the feed is sourced from fisheries that are being managed, harvested and sourced sustainably. This is particularly relevant in small pelagic fisheries, which are one of the key sources for fish meal and fish oil.

Growth in fish oil for human consumption

Oily fish are a primary source of omega-3 fatty acids, widely acknowledged as beneficial to human health. As a result, markets for fish oil have shifted over time.

In 2009, 83% of fish oil produced was used in aquaculture (691,000 metric tonnes) with only

12% directed to human consumption. By 2020, the proportion used for human consumption had increased to 16%, while the proportion used in aquaculture dropped to 73%, with 11% directed to other uses (such as pet food and biofuel).

Increasing demand for fish oil for human consumption has been reflected in the growth of MSC certified fish oil products over the past decade.

In 2008 only four MSC labelled fish oil supplements were available. In the 2023/24 financial year, 475 supplements products were sold with the MSC ecolabel attached. The majority of these supplements are omega-3 oils, with MSC small pelagic fisheries supplying the raw material for this growing market for certified fish oil. ●

North East Atlantic pelagic fisheries are a subject worth talking about

THE MSC IS CALLING ON coastal states and fishing nations of the North East Atlantic (NEA) to end the political deadlock and agree on a quota share agreement in line with scientific advice for the NEA pelagic stocks of Atlanto-Scandian herring, blue whiting, and mackerel. The International Council for the Exploration of the Sea (ICES) reports that the catch of these species in 2023 had once again exceeded the scientifically advised limits by 33%, 28%, and 35% respectively.

In the last seven years, total combined catches of Atlanto-Scandian herring, blue whiting and mackerel have exceeded the scientist-advised catch by 31%. This equates to at least 5.3 million metric tonnes of fish which would have been left in the sea had the scientific advice been strictly adhered to. Scientific limits are advised to ensure the long-term viability of stocks. Consistently overshooting them puts the health of the ocean, economies, and livelihoods at risk.

Currently, for the NEA pelagics, states agree on management of the stocks and set the overall Total Allowable Catch (TAC) on an annual basis, in line with scientific advice. However, there are no agreed quotas for determining what proportion of the TAC can be fished by each state. As a result, each country sets its own quota, the sum of which exceeds the agreed overarching TAC.

The NEA pelagics form some of the largest ocean biomass in Europe, with highly dynamic distribution patterns requiring management at an international level. However, the key stocks of mackerel, blue whiting and Atlanto-Scandian herring have only had international agreements in place for four of the last 25 years. This impasse needs to be broken and action taken, as failure to adhere to the scientific advice has led to overexploitation of these stocks, threatening their future sustainability.

The agreements have generally broken down, primarily due to shifting stock distributions, which change the relative abundance and availability in each coastal state's waters, leading to challenges around allocation of quotas. Climate-related impacts have exacerbated the problem, with fish stock distribution patterns changing at an accelerated rate, making management responses more urgent.

The lack of coastal state agreement on quotas for these stocks has resulted in the suspension of some fisheries' sustainability certification and subsequent withdrawal from the MSC Program when their regional certification period ended. This reflects the lack of an overarching governance framework that can ensure total catch complies with scientific advice. The converging impacts of environmental and political changes in the region create an additional layer of





complexity that must be addressed and mitigated through stock management plans and agreements that are adaptable and resilient to these changes.

The NEA small pelagics are vital to marine ecosystems, global seafood supply chains and livelihoods. Coastal states must not delay in securing quota sharing agreements that align with scientific advice and will help to secure these stocks for future generations.

Climate change

Impacts from climate change such as ocean warming and acidification can threaten marine ecosystems and associated fisheries. Nevertheless, it is important to understand that while climate change will have a negative effect on some species, it may have a

positive effect on others that are more able to adapt to the changing marine environment. However, in both scenarios, there is a risk for sustainability if fisheries management cannot keep pace and adapt, by acting when populations are depleted or by regulating and monitoring the harvest impacts on incoming stocks.

For small pelagics specifically, climate change effects have altered their natural distributions, spawning and survival rates. Notably, Atlantic mackerel have moved further north, and Antarctic krill further south, in favour of colder waters, making stock assessments more difficult to conduct. These effects are predicted to cumulate and profoundly change the marine ecosystem. Resilient, adaptive international fisheries frameworks are crucial to maintaining the future management of multi-jurisdictional fisheries. ●

Why choose MSC certified?

MSC CERTIFICATION CREATES SIGNIFICANT value at all points of the supply chain from fisheries to fish-loving consumers. It provides a range of assurances and incentives that can vary depending on the part you play in keeping our oceans sustainably fished.

What MSC certification offers different stakeholders:

For fisheries it's about:

- Demonstrating you are a sustainable and well managed fishery, regularly checked by independent certification bodies against the MSC Standard.
- Managing your fishery so it is consistent with a global framework of widely adopted best practice.
- Meeting growing demand for sustainable seafood.

For brands and retailers it's about:

- Demonstrating to your customers, you understand their values and have taken positive action.
- Managing supply risk and reputational damage – MSC certification ensures stocks are healthy, ecosystem impact is sustainable and fisheries are well managed.
- Having assured supply chains – MSC Chain of Custody certification helps to prevent illegal, unregulated and unreported (IUU) catch and mislabeling.

For the supply chain it's about:

- Ensuring a sustainable supply of raw materials to maintain your business and protect jobs.
- Meeting the global seafood market demand for independently assured sustainable products.
- Managing risk in the supply chain to avoid products from illegal, unregulated and unreported (IUU) fishing, and food fraud.

For consumers it's about:

- Having a simple way to purchase sustainable seafood, confident it is sourced from certified fisheries.
- Playing a collective part in rewarding sustainably managed fisheries that support healthy ecosystems, with low levels of non-target catch.
- Ensuring seafood is available for future generations by protecting stocks and safeguarding the livelihoods of fishers and their communities.

For NGOs it's about:

- Driving positive change in the world's fishing industries and influencing the way they're managed.
- Having verification and assurance that brands and suppliers are sourcing sustainable products.
- Having a global tool to support advocacy objective ●



Navigating a course to 2030

SECOND ONLY TO WHITEFISH in terms of MSC engaged catch, small pelagic species are integral to the MSC's vision of engaging one third of the world's wild capture volume by the end of the decade.

These unsung heroes of the ocean play a crucial role balancing the food chain, both for the species they consume and as food for larger marine creatures.

As part of marine capture fisheries, they fulfil the important dual role of providing a significant source of protein for human consumption while also supplying feed for aquaculture and agricultural processes. In short, it is impossible to make meaningful progress towards ending overfishing without placing small pelagic species at the core of the effort.

Meeting targets

Achieving our 2030 target is ambitious but critical. It will help to feed a growing global population with healthy, low-carbon protein. The 57 small pelagics fisheries engaged with the MSC will contribute to global food security and support those whose livelihoods depend on them.

Meeting our target will also make a significant contribution to the delivery of the United Nations

Sustainable Development Goal 14 – Life Below Water. As major seafood species, the small pelagic category represents a core component of that goal.

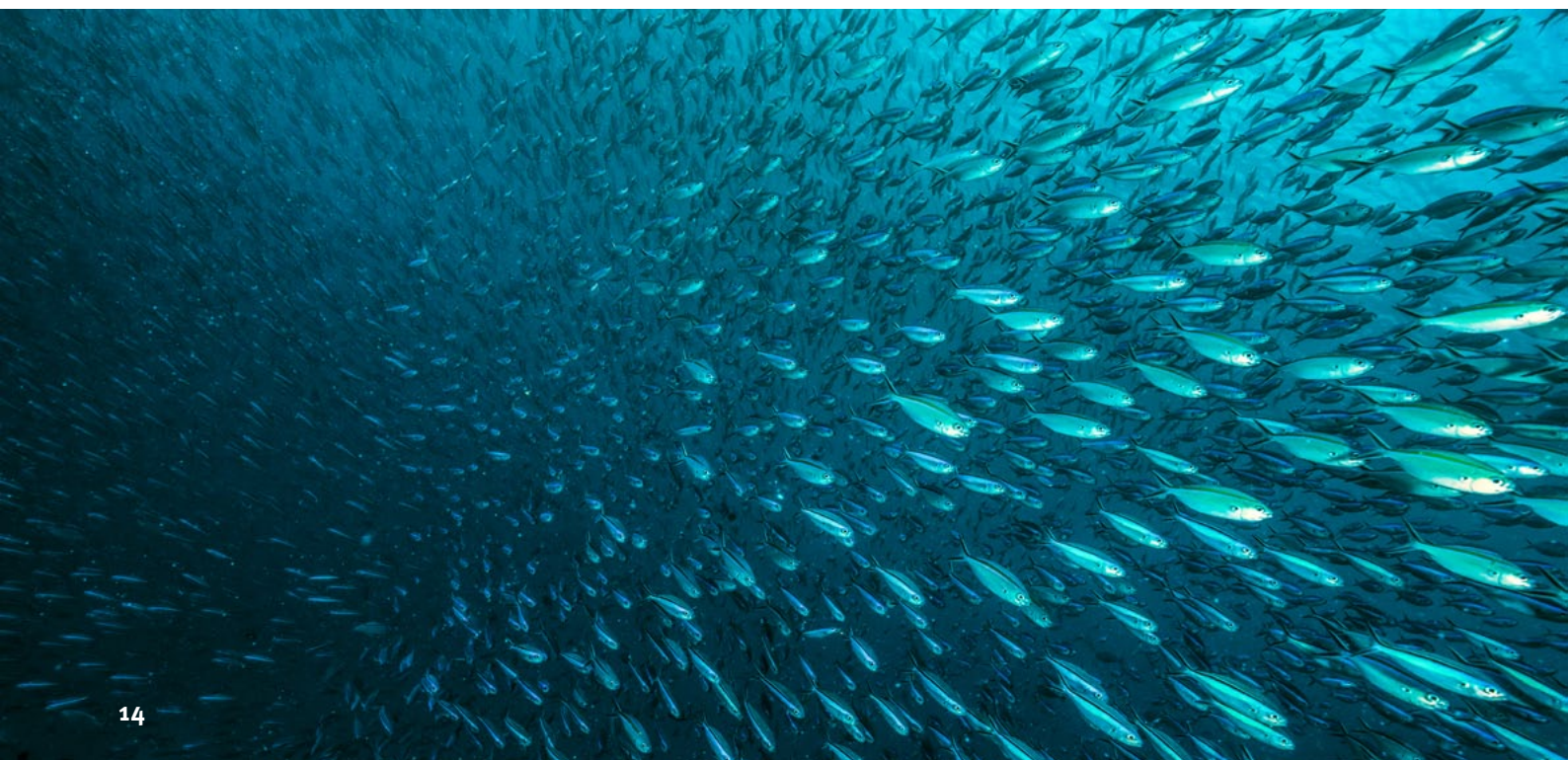
Overcoming challenges

There will be headwinds to face. In the ocean, climate-related impacts on fish stock distribution means there is an urgent need to address overfishing and to reverse the depletion of stocks.

These threats require careful management, especially where jurisdictional considerations exist. The process for reaching agreement is principally a political one, influenced by many factors, with key considerations around criteria such as historic fishing rights, economic dependency on fishing, where the stocks reside and their biology. However, all these factors are subordinate to independent scientific advice.

Management needs to be adaptive and resilient to be able to effectively control exploitation levels and respond to changes in biomass of these dynamic and economically important stocks.

By finding a path to a comprehensive agreement on management, fisheries can demonstrate that they are at the forefront of sustainability - helping to ensure the





“As a global retailer and the UK’s biggest fishmonger, we can make a difference in promoting healthy oceans and fish stocks, preserving marine resources for future generations. We’re proud to be supporting a small-scale, sustainable sardine fishery in Cornwall and give our shoppers the opportunity to enjoy locally sourced fish that also has a low carbon footprint.”

Quiterie Ng , Sustainable Fisheries Specialist at Tesco

future productivity of the stocks while maintaining food security and the economic benefits they provide.

Less than 20% of the global wild small pelagic catch comes from MSC engaged fisheries. To meet our 2030 goal stronger collaboration is required to increase engagement of small pelagic fisheries with the MSC program and drive improvements towards certification.

Working together

Tackling the challenges ahead will require a joint effort. The MSC’s mission is designed to tap into the positive

influence of market forces, utilising consumer demand for sustainable products to incentivise increased participation and improve ocean health.

Everyone in the supply chain engaged with the MSC is playing a vital part in the contribution of small pelagic fisheries to our 2030 goal.

The MSC looks forward to working with valued partners to build on existing successes, help identify new market opportunities, meet the challenges of the coming decade, and ensure that our oceans remain full of life. ●

Setting the Standard

THE MSC FISHERIES STANDARD brings together more than 25 years of collaboration with scientists, the fishing industry and conservation groups and reflects internationally accepted fisheries science and best practice management. The MSC Standard has become the leading wild-capture fisheries certification scheme. With 550 fisheries certified as sustainable worldwide.

The three principles of the MSC Standard are:

Principle 1: Sustainability of the stock

Fisheries must operate in a way that allows fishing to continue indefinitely, without overexploiting the resource.

Principle 2: Ecosystem impacts

Fishing operations must be managed to maintain the structure, productivity, function and diversity of the ecosystem the fishery depends on.

Principle 3: Effective management

All fisheries need to meet all local, national and international laws and have an effective management systems in place.

The MSC regularly reviews the Standard to ensure it continues to reflect new science, the evolution and

uptake of best practice in fisheries management and the wider challenges facing the ocean.

How are fisheries assessed against our Standard?

There are 25 performance indicators (PIs) in the Fisheries Standard that sit under the three principles. During an assessment conducted by independent Conformity Assessment Bodies (CABs), a fishery is assigned a score for each performance indicator. To be certified, a fishery must score at least 60 for each performance indicator and average 80 across all performance indicators under each of the principles.

Score	Performance level
100	State-of-the-art
80-99	Best practice
60-79	Min acceptable practice, improvements required
Less than 60	Fail

Conditions of certification

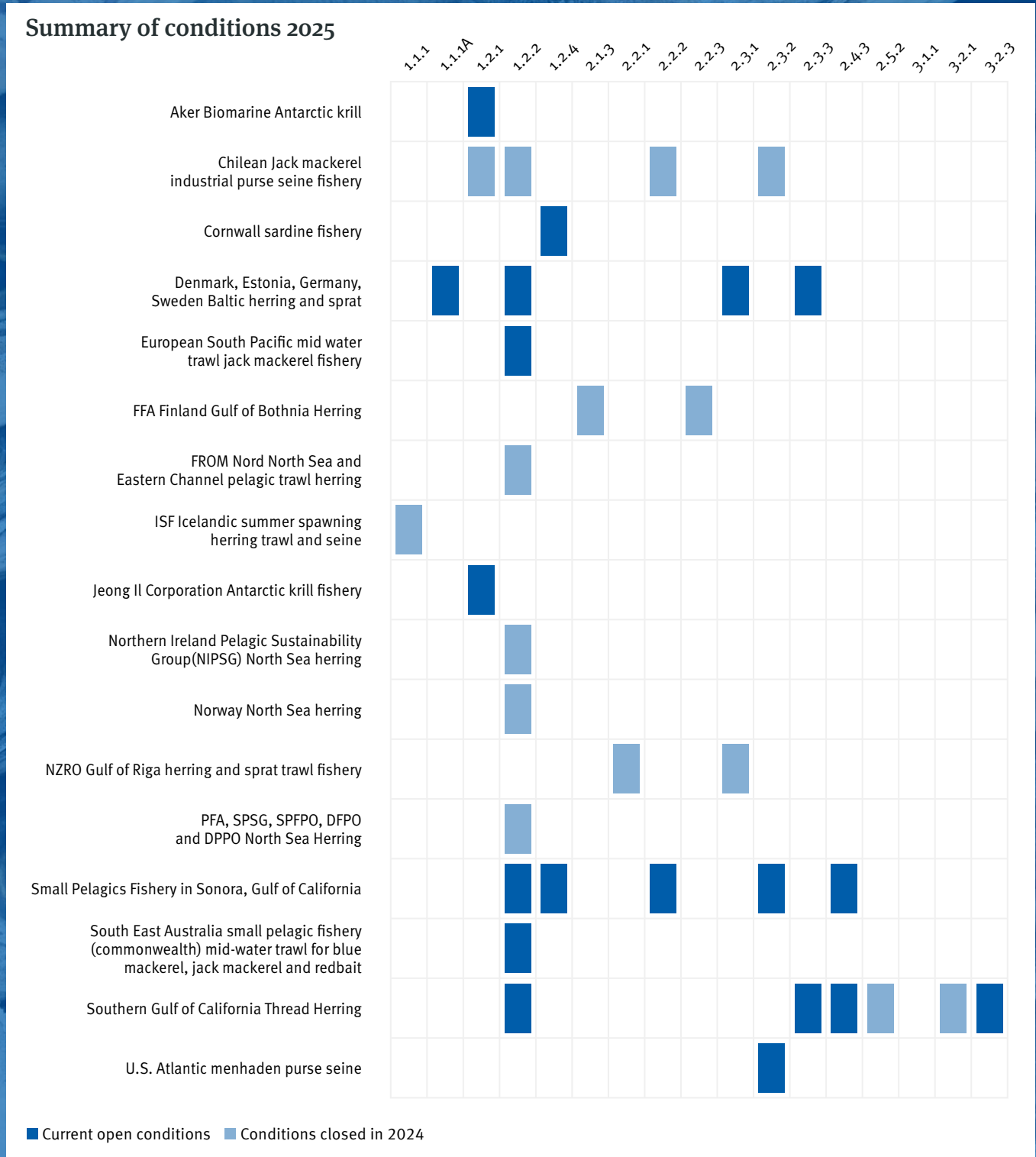
If a fishery scores between 60 and 79 for any PI, it is required to improve the score to 80 or above within five years, known as a condition of certification. ●



Summary of conditions

THE CHART BELOW SHOWS the current open conditions (Performance Indicator scores between 60 and 79) for small pelagic fisheries at the beginning of 2025 as well as the conditions that were closed in 2024. It displays

the improvements that are to be made in the years to come if the fisheries are to maintain certification, demonstrating the incentive to improve brought by the MSC program. ●



Incentivising fisheries to attain higher performance levels

KEY TERMS

Principles: Fisheries in assessment are scored against the three core principles of the MSC Fisheries Standard: 1) Sustainability of the stock, 2) Ecosystem impacts, 3) Effective fisheries management.

Performance indicators (PIs): 25 PIs sit under the three principles, and fisheries are assigned a score for each.

Condition: A requirement to achieve outcomes that increase a current performance indicator score to 80 or above (best practice).

A KEY STRENGTH OF THE MSC's certification program is that once a fishery has achieved certification, it is incentivised to make continual improvements.

Fisheries must meet requirements across 25 performance indicators (PI) to achieve certification to the MSC Fisheries Standard. However, where any PI meets the MSC's minimum measure of sustainability and still requires work to shift that indicator to a best practice level, a condition is placed on that PI and the fishery must make improvements and close the condition before reassessment – which usually takes place five years after certification.

Improved performance

A review of the six small pelagic fisheries that have completed two full five-year assessment cycles of

the Fisheries Standard shows they have used MSC certification to demonstrate improvements in their performance for sustainable fishing. Their scores awarded in the initial assessment and at the fourth and final surveillance audit of the second assessment cycle were compared to see how performance improved over the course of approximately nine years.

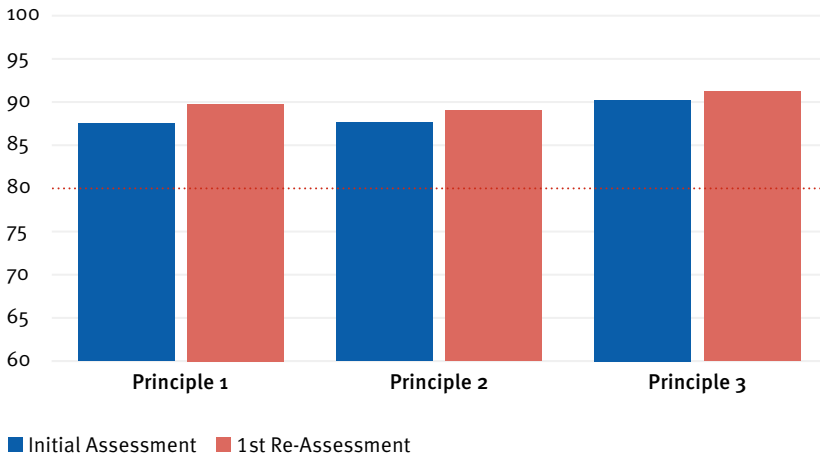
The results were definitive: across each of the three principles, the fisheries showed measurable improvement. The most striking was across Principle 1, the average score increased by 2.5%. This means that the targeted species' stock populations actually became more robust throughout the fisheries' time in the program. The average Principle 3 scores, which started above 90, thus indicating best-in-class status, demonstrate that sound management policies lead to more fish in the water.

A further analysis took fishery size into account. A larger fishery could have greater impact on the ocean than a smaller one: there will be more fish caught, greater influence on stocks, and an increased likelihood of interaction between gear and the environment.

	Initial Assessment	1st Re-Assessment	% Change
Principle 1	87.54	89.77	+2.5%
Principle 2	87.65	89.06	+1.6%
Principle 3	90.23	91.20	+1.1%



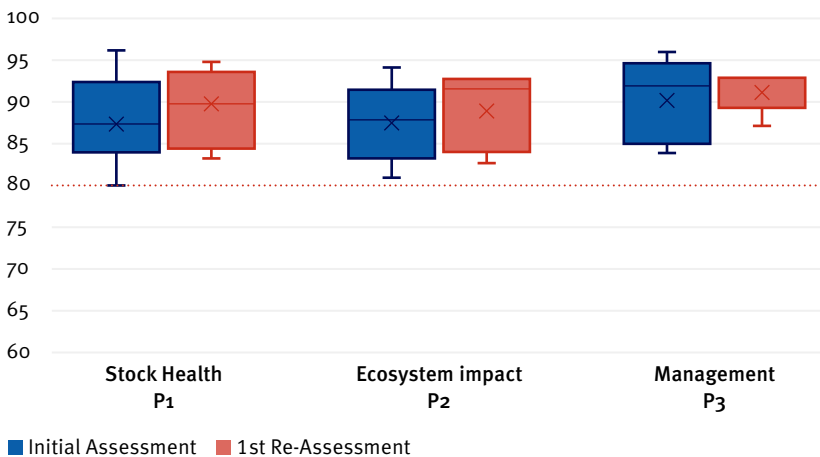
Scoring: Initial Assessment vs. 1st Re-Assessment



“This analysis shows that MSC certified fisheries that have met the highest standards for sustainability, continue to make further improvements, providing assurance to consumers when they see the MSC label and for the market in their sourcing decisions.”

Laura Rodriguez. Head of Species Strategies

Scoring: Initial Assessment vs. 1st Re-Assessment



Hence the impact of bigger fisheries is more significant when evaluating the overall sustainability. This second analysis calculated a weighted average of the fisheries' scores with fishery volume determining the weight.

The weighted average results are even more marked: when giving larger fisheries greater importance in the calculations, the MSC certified small pelagic fisheries show even greater improvement over the course of two

certification cycles. Principle 1 scores improved by just under 5%, and Principle 3 scores, though lower than in the unweighted analysis, improved by 1.8%. Principle 2 scores improved to above 90 and, thus, achieved best-in-class status. Certified fisheries also undergo annual audits by independent assessors to ensure they are closing outstanding conditions and evaluating material changes over time.

This analysis shows that the MSC program creates incentives that make a big impact for these small pelagic fisheries, especially in sustaining the populations of their target species. Adherence to the Fisheries Standard ensures that future generations will enjoy the fishery's bounty for years to come. ●

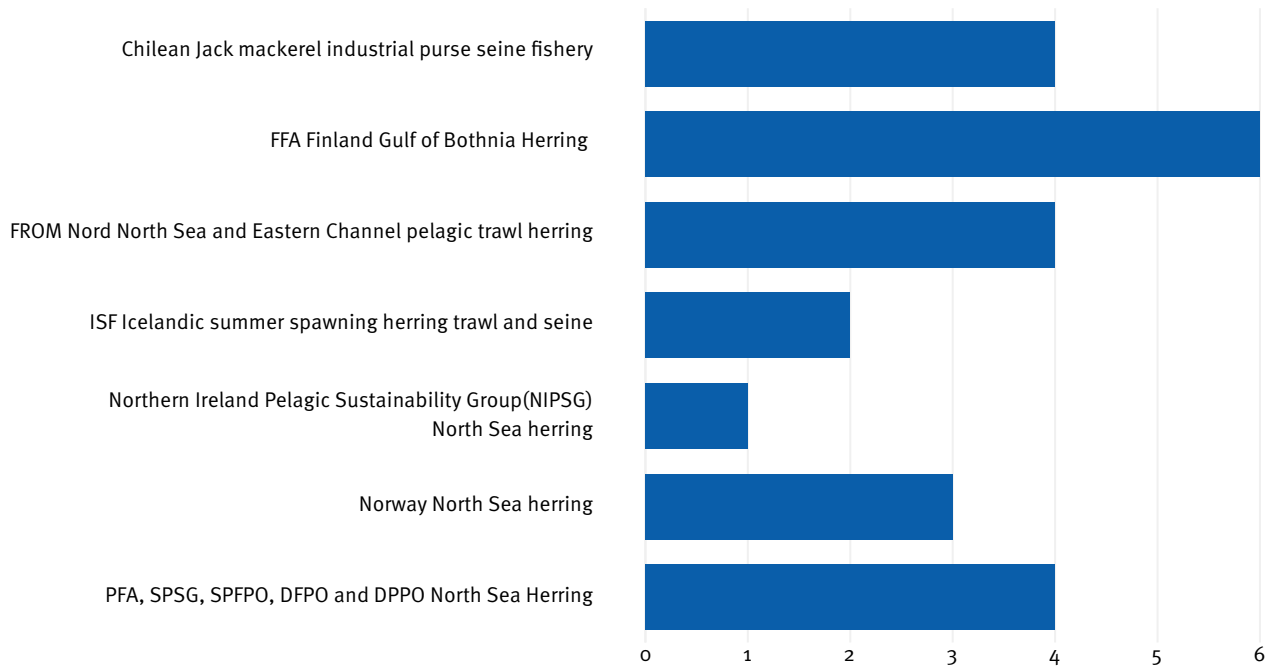
	Initial Assessment	1st Re-Assessment	% Change
Principle 1	86.16	90.43	+4.9%
Principle 2	89.11	90.13	+1.1%
Principle 3	86.44	87.97	+1.8%

List of closed conditions

THE CHART BELOW SHOWS the number of improvements made in 2024 by MSC certified small pelagic fisheries. It demonstrates that the requirement to close conditions (Performance Indicator scores

that are between 60 and 79) has led to significant improvements in the sustainability of fisheries and, thus, a knock-on effect of delivering positive environmental impacts through certification. ●

Number of improvements per fishery 2024



3 million+
metric tonnes of certified small pelagic is in the MSC program

2,225
improvements made by MSC certified fisheries up to 31 March 2023

Atlantic herring
is the most MSC certified labelled small pelagic product

Pre-certification

Accessibility

THE MSC FISHERIES STANDARD is both rigorous and achievable. As the global demand for seafood rises and overfishing increases, it is crucial that we ensure all eligible fisheries can access the MSC Program regardless of size, gear type and location.

The MSC provides funding to improve the accessibility of the MSC program. Almost £5 million has been invested since 2020 via the MSC's Ocean Stewardship Fund, which was established in 2018 to help fisheries on their pathway to sustainability and to maintain sustainable fishing practices.

The Improvement Program

The MSC Improvement Program, formerly the In-Transition to MSC Program, has been designed to support fisheries that have opted to make the changes necessary to meet the MSC Standard. The Program is transparent, time-bound and progress is

independently verified. It offers a credible route for fisheries to move toward certification against the MSC's Fisheries Standard and so is materially different from other fisheries improvement programs.

Fisheries entering the MSC Improvement Program must have an action plan that is agreed by independent auditors. This plan shows how they will make the necessary improvements to facilitate beginning the certification process within five years. During this period the fisheries' must make progress, which is regularly reviewed and verified by the auditors and made available publicly.

Products from fisheries in the MSC Improvement Program cannot use the MSC ecolabel. However, as an incentive to join the program, fisheries may access MSC certified supply chains once they have reached an acceptable performance level. Packaged retail products containing seafood from a fishery in the Improvement programme are then able to include a back-of-pack statement. ●



Impact on the Water

- How MSC certification leads to higher levels of sustainability
- Fostering cooperation and sharing of knowledge across the sector
- Ensuring non-human consumption small pelagic catch remains sustainable



Case study: The return of the mackerel

Fishery: Chilean Jack mackerel industrial purse seine fishery

Gear type: purse seine

Tonnage: 667,838 metric tonnes

First certified: April 2019

KEY TERMS

Total Allowable Catch (TAC): Catch limits that establish the total amount of fish that can be taken from a stock.

Fish stock: The community from which catches are taken in a fishery. The term implies that a particular population is a biologically distinct unit.

AT ITS PEAK MORE THAN 4 MILLION metric tonnes of jack mackerel was landed, but overfishing in the 1990s led to tough quotas and extreme competition between companies. By 2011 the stock had collapsed and fishers were limited to 350,000 metric tonnes.

As jack mackerel migrate from the Chilean and Peruvian coasts all the way to New Zealand and south Australia, only international cooperation could save the species. This came in 2013 with the formation of the South Pacific Regional Fishing Management Organisation (SP-RFMO), which agreed an allocation between 10 nations. Today this quota is allocated among 13 countries.





20,000+
products with the MSC label

78
countries where MSC labelled
products are available

2,450
small pelagic products sold with
the MSC label

1,114
canned small pelagic products

58
the number of UoCs that are
certified that target small
pelagics in the MSC program

The Chilean fishery gained certification in 2019, and thanks to well-managed operations the health of the jack mackerel stock has improved more rapidly than scientists had expected. This achievement marks the Chilean jack mackerel fishery as the biggest certified fishery in Latin America.

The sustainability of mackerel in the North East Atlantic is a concern, creating opportunities for Chilean jack mackerel in European markets. Volumes imported

to Europe are still relatively small, though they are growing and there is potential for further growth in the future. Chilean jack mackerel is similar to North East Atlantic mackerel in taste and consistency, as well as in Omega-3 saturation, though the North East Atlantic mackerel has a much higher fat content.

The Certification of this Chilean jack mackerel fishery demonstrates how well-managed operations can provide consumers with a sustainable choice. ●

Case study: Collective effort restores North Sea herring's future

Fishery: PFA, SPSSG, SPFPPO, DFPO and DPPO North Sea Herring

Gear type: pelagic trawl

Tonnage: 124,920 metric tonnes

First certified: April 2017

KEY TERMS

Fish stock: The community from which catches are taken in a fishery. The term implies that a particular population is a biologically distinct unit.

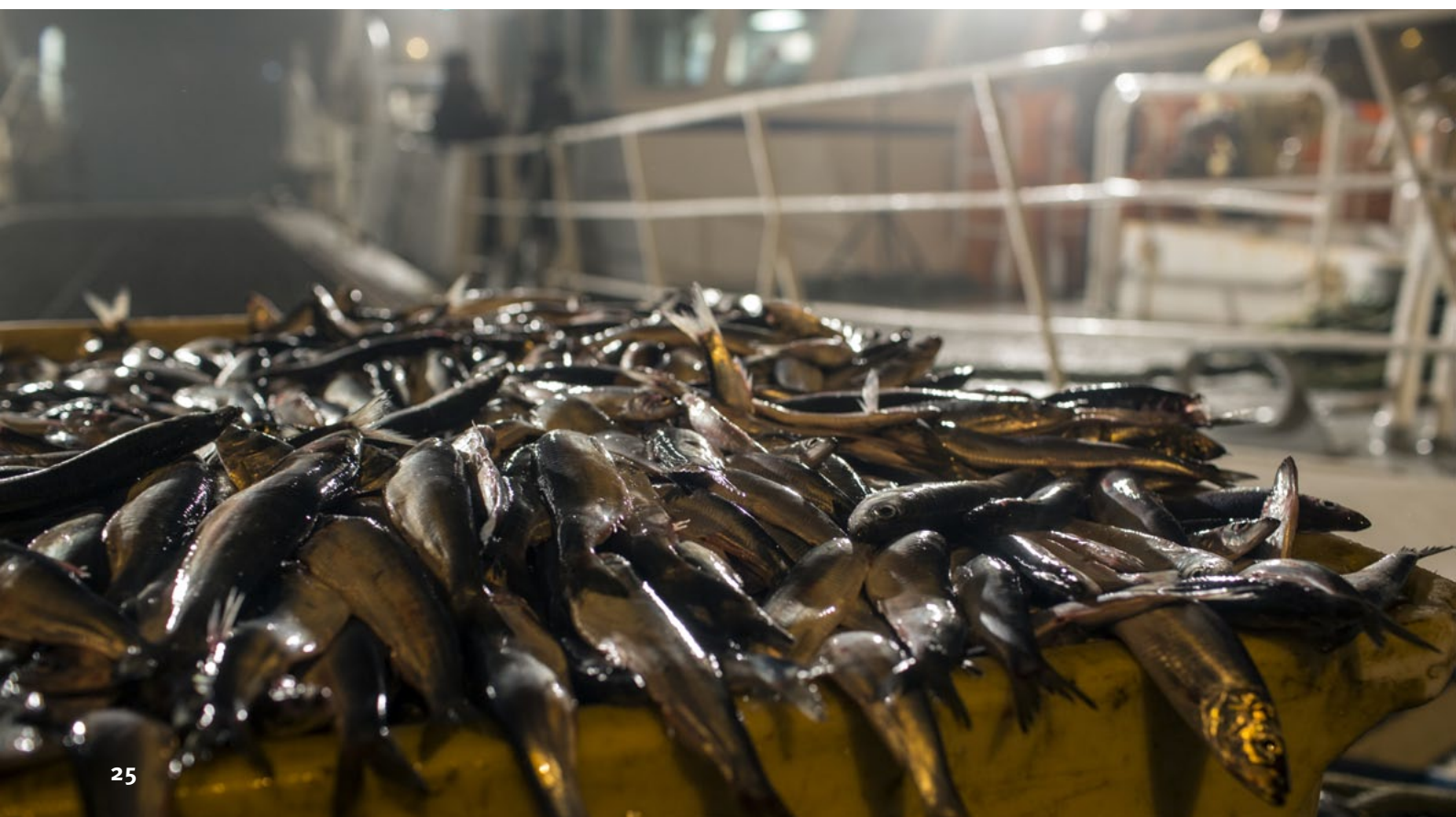
First certified in 2008, the North Sea Herring fishery is one of the longest running certified fisheries in the MSC and has since been combined with several other certificates. The PFA, SPSSG, SPFPPO, DFPO and DPPO North Sea Herring certificate was granted by the independent assessors in 2017, confirming that these European and British fleets operate sustainably.

Herring fisheries throughout the North Sea have been fished by both European and Scandinavian

fleets for centuries. They have had a turbulent past, with significant overfishing occurring throughout the post-war period. This caused biomass stock to drop noticeably in the 1960s to less than 1 million tonnes.

Thanks to careful management of the fisheries, the spawning stock has improved over the years to a more sustainable level. The ongoing commitment of the fisheries to sustainability since 2008 was evident in their MSC recertification in 2017, and then again in 2022. The continued conservation and management of herring stocks will help to ensure they remain stable in the North Sea region.

The commercial relevance of this herring fishery, along with a small number of others, is hugely significant as it is one of the few remaining sources of MSC certified herring available. Following the suspension of the Altanto Scandian herring fishery the market has turned to the North Sea fishery to maintain supply of sustainable herring. It now reaps the benefits of its commitment to certification by continuing to ensure its managed sustainably. ●



Case study: Collapse to MSC certification

Fishery: Cantabrian Sea purse seine anchovy fishery

Gear type: Purse seine

Tonnage: 27,687 metric tonnes

First certified: March 2015

KEY TERMS

Best practice score: A score of 80 or higher against a performance indicator in the MSC Fisheries Standard that results in a pass without requiring additional improvements.

Fish stock: The community from which catches are taken in a fishery. The term implies that a particular population is a biologically distinct unit.

Performance indicators (PIs): Twenty-five PIs sit under the three principles of the MSC Fisheries Standard (see Principles), and fisheries are assigned a score for each.

Total Allowable Catch (TAC): Catch limits that establish the total amount of fish that can be taken from a stock.

THE CANTABRIAN ANCHOVY fishery's history is one of resilience and collaboration. Overfishing in the early 2000s led to a stock collapse, prompting the EU to impose a fishing ban in 2005. With thousands of Spanish fishers and canneries facing an uncertain future joint efforts by fishers, policymakers, and scientists saw stocks recover, and in 2010 the EU lifted the ban. Having introduced stricter quotas and improved management the fishery achieved MSC certification in 2015, becoming the first anchovy fishery in Europe to meet global standards for sustainability.

The fishery is vital environmentally, socially, and economically. It supports thousands of livelihoods, from fishers to canning factory workers, and is an ecologically stable activity within the Cantabrian Sea ecosystem. Economically, it is a regional cornerstone, with MSC-certified anchovies exported to over 20 countries. Globally, there are over 440 MSC-certified anchovy products from 114 brands, highlighting its market appeal and premium value.

Today, the fishery is a sustainability success story. Anchovy biomass is in very good shape, now at 155,570 metric tonnes as per ICES's 2024 advice — well above the 26,600 metric tonne biomass limit set by the same research organisation. The Total Allowable Catch (TAC) has more than doubled since 2011, increasing from 15,600 to over 31,600 metric tonnes in 2024, reflecting the stock's robust health. The fishery's management aligns with the EU Common Fisheries Policy and incorporates scientific advice and stakeholder consultation to ensure long-term sustainability.

Since obtaining MSC certification in 2015, the fishery has demonstrated it maintains best practice: all Performance Indicators scored above 80 during its 2020 recertification, demonstrating a strong commitment to sustainability and the high bar of environmental performance. This ensures that the Cantabrian anchovy remains a symbol of tradition and innovation, while securing its future for generations to come. Its success underscores the importance of balancing ecological health with economic viability in global fisheries. ●



Case study: American gulf adds sustainability to ancillary markets

Fishery: U.S. Gulf of Mexico menhaden purse seine
Gear type: Surrounding Nets - With purse lines (purse seines) - two boats operated purse seines: Purse seine
Tonnage: 453,765 metric tonnes (2022)
First certified: October 2019

KEY TERMS

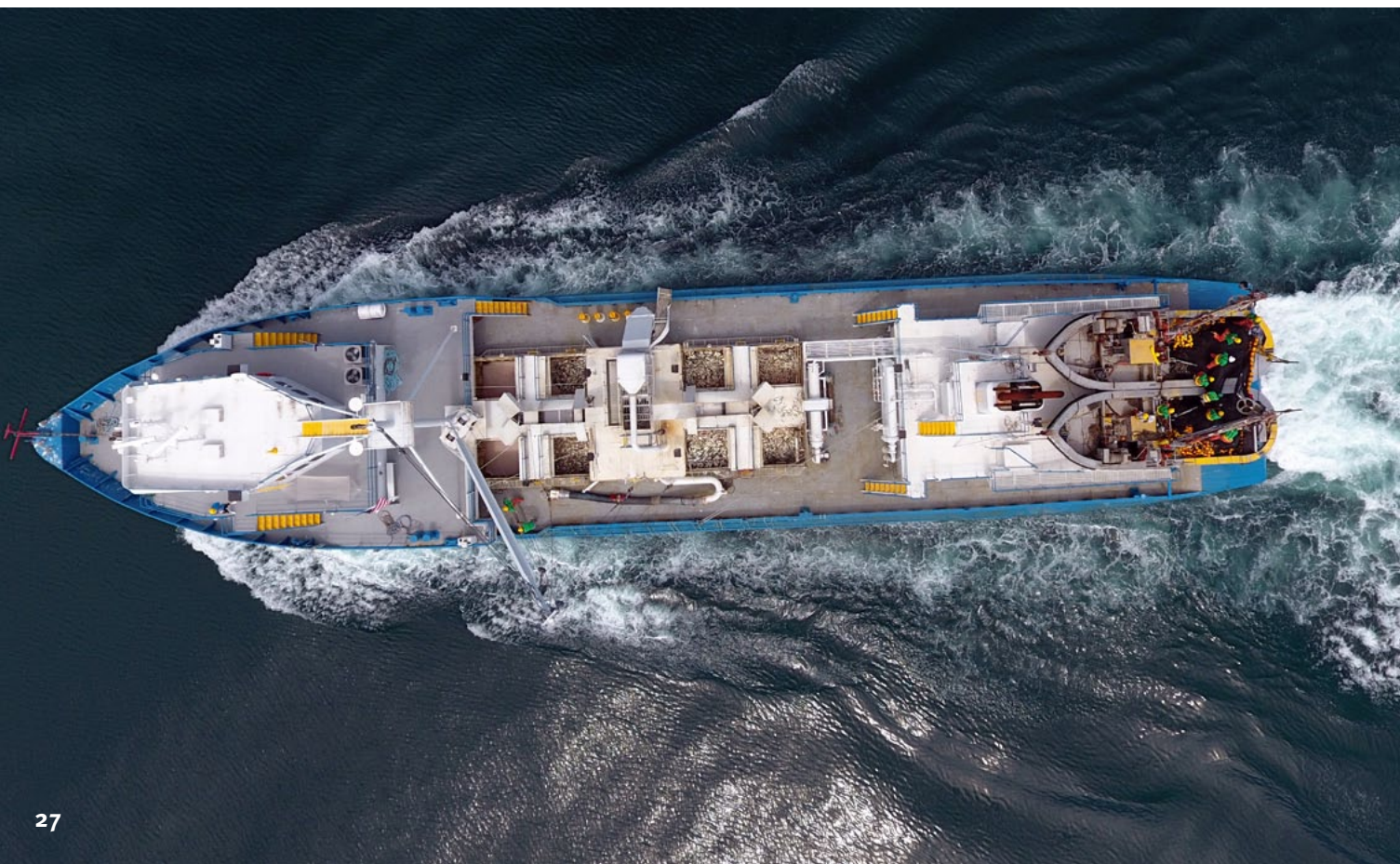
Best practice score: A score of 80 or higher against a performance indicator in the MSC Fisheries Standard that results in a pass without requiring additional improvements.

Condition of certification: A requirement to achieve outcomes that increase a current performance indicator score to 80 or above (see also **Best practice score**).

ETP species: Endangered, Threatened or Protected Species - In MSC assessments, auditors will determine if a species should be considered as ETP by seeing if they are included in relevant national legislation and international agreements.

EVEN FISH THAT CANNOT BE EATEN directly by humans can be of great value, and few fisheries provide as much evidence of this as the Gulf of Mexico menhaden fishery. With more than 453,000 metric tonnes landed in 2022, it is the second largest fishery in the US, following Alaska pollock. While very bony and typically not used for human consumption, menhaden can be ground into fishmeal to feed farm-raised fish as well as poultry and swine, with the oil extracted for use in supplements, and is utilised in pet food as well.

The majority of food-grade omega-3s, which are common additives in many foods, such as egg and dairy products, and fowl feed sold in the US can be traced to the menhaden fishery, including almost anything with DHA or EPA (common omega-3 additives). The certificates are managed by Omega Protein, a vertically-integrated company operating on every level of the supply chain from harvest to packaging which, along with Daybrook Fisheries Inc and Westbank Fishing is one of the largest manufacturers of fish oil in the US.





However, its commercial value is not the fishery's only striking characteristic. The Gulf of Mexico menhaden fishery has made great strides regarding sustainability in recent years. A condition was placed on Performance Indicator 2.3.2 (Endangered, Threatened, Protected [ETP] species management) due to a lack of regular review of alternative measures to minimize the mortality of ETP species. As part of the requirements to close the conditions, improvements in observing and documenting the amount of interactions* the fishery has with ETP species had to be made.

The fishery client has thus worked with NMFS (National Marine Fisheries Service) to develop proof-of-concept studies utilizing drones as well as implemented electronic monitoring pilot studies to monitor interactions with sea turtles and marine mammals.

In the latter study, 4,908 sets (about 10-20% of effort) were observed over the course of two years. A total of 75 interactions (31 sea turtles and 44 dolphins) were

detected, an average of one interaction* every 65 sets—which was found not to be adversely affecting these populations. The condition is on track to be closed in the near future (the next assessment is scheduled to be published by the end of March 2025): the next step will be to determine if different measures can be taken that will be even more effective in reducing the impact of the fishery on these species even further.

If no alternative measures are superior to those already in place the client must commit to implementing another review. However, if an alternative measure that might reduce mortality of ETP species is identified, the fishery will be required to implement them and conduct a review within five years. This is an example of how the MSC Fisheries Standard assesses the environmental sustainability of a fishery, commonly referred to as best practice, and then requires further improvements towards state-of-the-art-performance. ●

* An interaction does not indicate mortality

Case study: Antipodean exchange reduces Cornish bycatch

Fishery: Cornwall Sardine fishery

Gear type: Ring Nets

Tonnage: 6,916 metric tonnes (2023)

First certified: June 2010

KEY TERMS

Bycatch species: Unwanted catch that includes undersized or surplus fish for which fisheries do not have a quota, endangered, threatened and protected species, and other unwanted marine species.

THE CORNWALL SARDINE FISHERY consists of 15 vessels under 15m in length, usually consisting of a skipper and two crew, catching sardines with ring nets. The season begins in July with the arrival of the sardines in Cornish waters. Larger catches are seen during the winter months of October to January, and the season can last until March.

In 2023, UK fisheries received more than £47,000 in funding from MSC's Ocean Stewardship Fund (OSF) (nearly 14% of the total awarded to all projects that year). The Cornwall sardine fishery was awarded a grant under OSF's Science and Research Fund to support

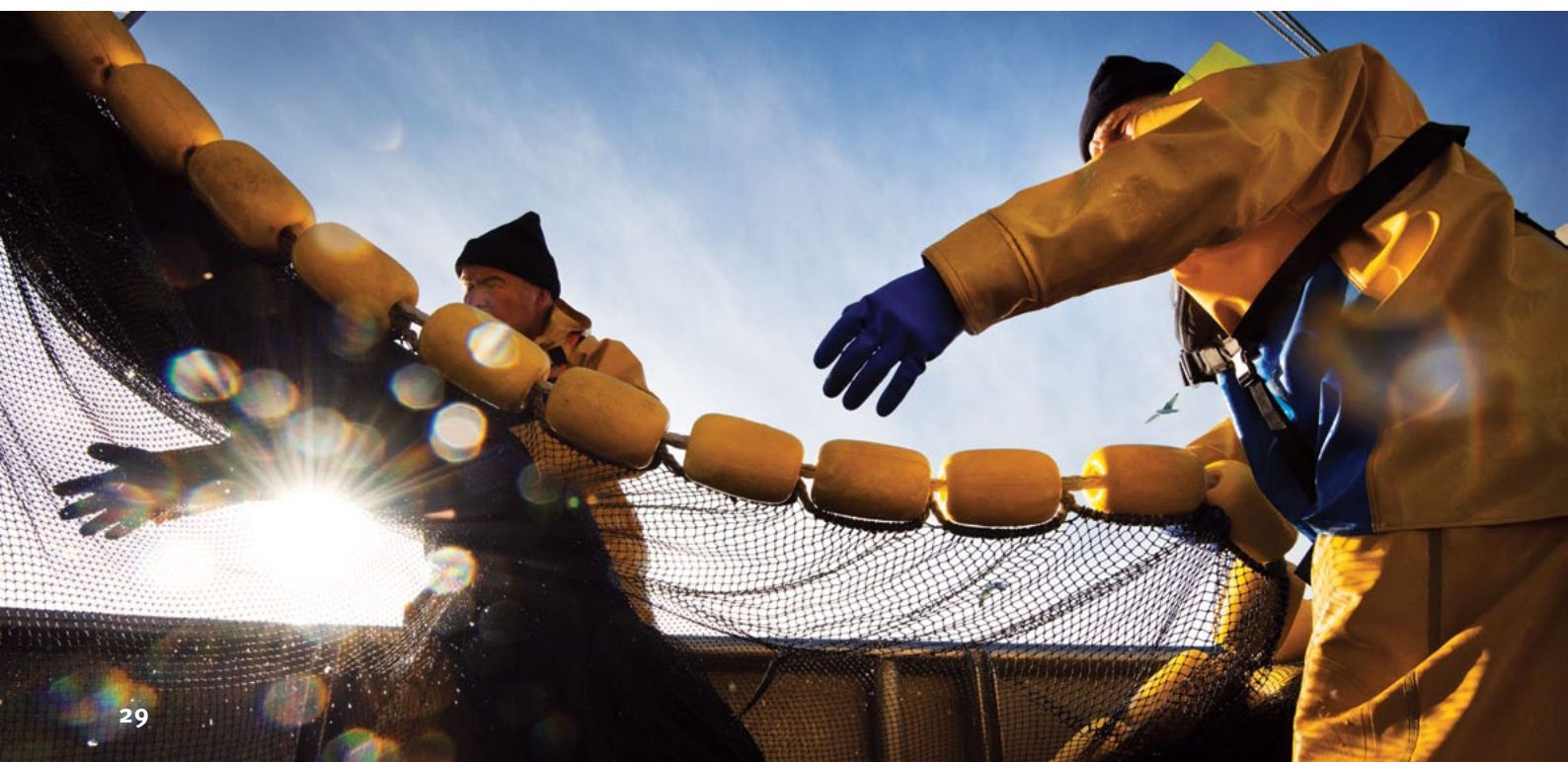
a knowledge exchange with the MSC South Australia sardine fishery.

Australian fishers travelled to the UK to learn from their Cornish counterparts on how to mitigate against interactions with marine mammals, while the Cornish fishers visited the South Australian sardine fishery to share examples of best practices, including e-monitoring and the use of acoustic deterrents, aiming to reduce bycatch impacts in the both fisheries.

Of the Australian visit, Cornish Sardine Management Association chairman, Gus Caslake said: "To see fisheries' scientists and managers come together and meet with fishermen face-to-face, makes this sort of event totally worthwhile."

Australian sardine skipper Verne Lindsay added: "I'm really impressed by the degree and depth of engagement from so many interested industry parties in working together to achieve the greatest degree of mitigation possible."

The fishery was recertified in 2017 and benefited from the OSF's Recertification Assistance Fund after its second successful reassessment in 2022. ●



Case study: The thread that secured California herring status

Fishery: Southern Gulf of California Thread Herring
Gear type: Surrounding Nets - With purse lines (purse seines)
Tonnage: 82,878.9 metric tonnes (2023)
Certified since: October 2016

KEY TERMS

Best practice score: A score of 80 or higher against a performance indicator in the MSC Fisheries Standard that results in a pass without requiring additional improvements.

Condition of certification: A requirement to achieve outcomes that increase a current performance indicator score to 80 or above.

ETP species: Endangered, Threatened or Protected Species - In MSC assessments, auditors will determine if a species should be considered as ETP by seeing if they are included in relevant national legislation and international agreements.

WHEN THE SOUTHERN GULF of California Thread Herring fishery was first certified in October 2016, the assessors placed a condition on the fishery to improve the amount and quality of information collected on Endangered, Threatened and Protected (ETP) species. They determined that due to low observer coverage, better documentation was needed to properly count dolphin and sea bird interactions and, thus, assess the impact these interactions have on local populations.

First, the fishery had the crew attend workshops on best practices with regards to use of the logbooks and

on identification guides to help standardise species naming. By the second-year surveillance audit, the Mexican fisheries and aquaculture research agency (IMIPAS) had held a Course of Good Practices of Fishing Small Pelagics, which, among other topics, reviewed mitigation measures for ETP species.

According to the observers' log provided to the assessors, in 98% of cases the mitigation measures, namely, the installation of steel protection for the power block, playing sounds through horns and the spraying water in the direction of seabirds, including the Brown pelican (*Pelecanus occidentalis*), the Magnificent frigatebird (*Fregata magnificens*), and the Brown booby (*Sula leucogaster*), was effective in reducing the fisheries' impact on birds.

During the following season, the fishery bolstered its observer program to cover 58% of all fishing trips. In addition to this improved record-keeping the fishery also needed a data quality control system.

At the time of the fourth surveillance audit, the fishery clarified its data entry verification and quality control procedures. A trained specialist verifies the observers' data and other evidence collected. IMIPAS (Instituto Mexicano de Investigación en Pesca y Acuicultura Sustentables) personnel also have access to the captain's logbooks, which can be cross-checked with the observer program records and official catch data.

The assessors determined that this constituted sufficient information to quantify the impact the fishery has on local ETP species, thus closing the condition. ●

Small Pelagic insights

- Consumer insights on ocean health and the importance of the MSC label
- Industry partners share their thoughts on fishing for a healthier future



Partners' voices

ASC Feed Standard: Redefining responsible aquafeed



THE ASC FEED Standard plays a crucial role in transforming aquaculture feed production towards greater responsibility. Its unique approach, sets comprehensive criteria for responsible

sourcing of all ingredients, including fishmeal and fish oil derived from small pelagic species. Most aquafeed impacts, environmental and social, occur at the production and harvesting of raw materials through deforestation, land conversion, agricultural practices and fisheries management. ASC certified feed mills must carry out due diligence on all ingredients accounting for more than 1% of the total annual purchased volume for aquafeeds and can only source ingredients assessed as low risk against legal,

environmental and social factors. One pathway is third party certification, for which ASC has a list of approved schemes to demonstrate low risk. MSC is recognised and serves as an 'end goal' in terms of environmental sustainability of marine ingredients entering ASC-conforming feed. In addition to ingredients passing due diligence, whole fish are subject to additional requirements (Principle 4). At least 51% of the whole fish needs to be sourced from improvement projects or certified fisheries, and improvements in Majority Sustainability Level (MSL) of marine ingredients must be demonstrated each audit cycle. MSC certified fisheries play a key role in the ASC Feed Standard as an approved scheme for marine ingredients, signifying the final step (MSL 4) on the improvement ladder and demonstrating best practice for fisheries being used for whole fish ingredients. ●

Aisla Jones, Feed Engagement and UK Markets Manager at ASC

MarinTrust and small pelagic responsible sourcing



SMALL PELAGIC FISH represent two-thirds of the material used to produce fishmeal and fish oil (FMFO) and are strategic components in aquaculture feed, nutraceutical and petfood markets.

The MarinTrust Factory Standard covers responsible sourcing, traceability and production of marine ingredients, such as FMFO, at the factory. The responsible sourcing criteria for fisheries and by-products ensure that marine ingredients come from non-IUU fisheries managed in accordance to the FAO Code of Conduct, while the MarinTrust Chain of Custody enables businesses in the supply chain to be recognised for their use of MarinTrust certified

ingredients. Additionally, the Improver Programme supports improving fisheries from where FMFO are sourced. In November 2024, MarinTrust and MSC announced a partnership aimed at increasing understanding in the supply chain about the differences and complementary aspects of both programmes. It was also agreed to explore ways to reduce duplication in auditing to create efficiencies for FMFO producers. The recognition of the MSC Fisheries Standard Version 2.01 against MarinTrust whole fish fishery assessment criteria Version 3 was established after a thorough assessment. Both organisations are members of the Global Roundtable on Marine Ingredients, created in 2021 to drive global improvements in fisheries and their management and, ultimately, increase the availability of responsibly sourced marine ingredients. ●

Libby Woodhatch, Executive Chair at MarinTrust

Consumer insights: trends in sustainable seafood consumption

The MSC and Globescan partnered to conduct the largest global survey of seafood consumers*

27,000
consumers



23
countries



* 2024 Global Seafood Consumer Perceptions Survey

91%

of all consumers worry about the state of the world's oceans



64%

feel that the choices they make about eating seafood make a difference to ocean health

67%

are willing to take action to protect fish/seafood in the future

50%

of all consumers now recognise the MSC label



58%

say seeing the MSC ecolabel would make them more likely to purchase a product

40%

of seafood consumers understand the label (unprompted)

3 in 4

seafood consumers trust the label – higher than most other ecolabels tested

74%

say that brand sustainability claims need to be clearly labelled by an independent organisation

42%

notice ecolabelled products

52%

are prepared to pay more for certified seafood

45%

are excited by ecolabelled products



Small Pelagic essentials

- Gear types, how fishers catch small pelagics
- Key small pelagic species
- Annex, listing the small pelagic species in the MSC
- Glossary of terms

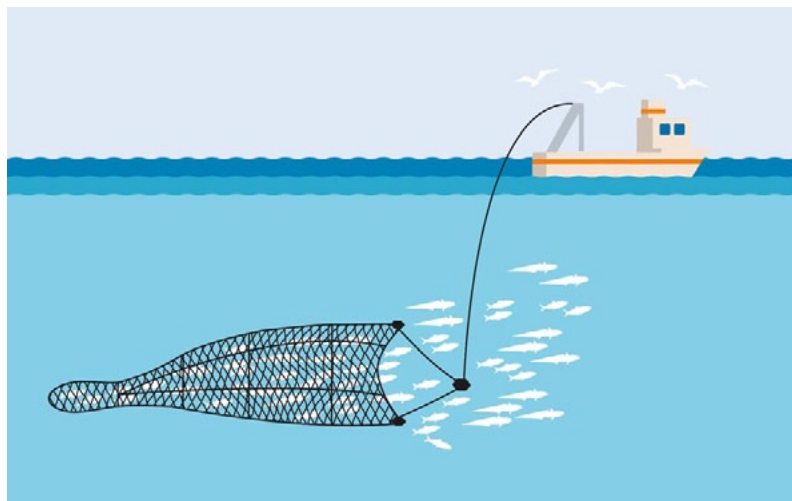
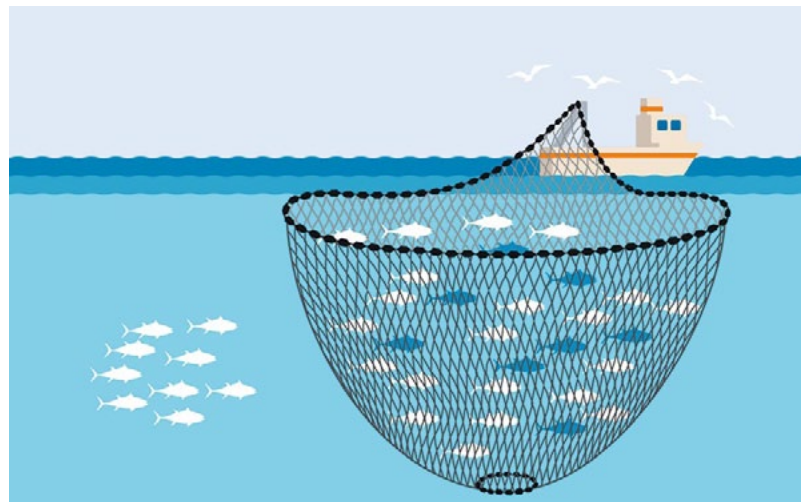


Gear types

Small pelagics can be caught using various gear types and methods. The catch method used depends on the size of the fish, the depth at which it swims, the size of the fishery and its location. Every assessment against the MSC Fisheries Standard considers the gear type used and its impact on the marine environment specific to each fishery.

PURSE SEINES

A vertical 'wall of net' used to encircle a school of fish. The net is pulled closed from the bottom – like a purse – preventing the catch from escaping. Purse seines can be used to catch small pelagic species. The majority of sardine and anchovy are caught using this method.

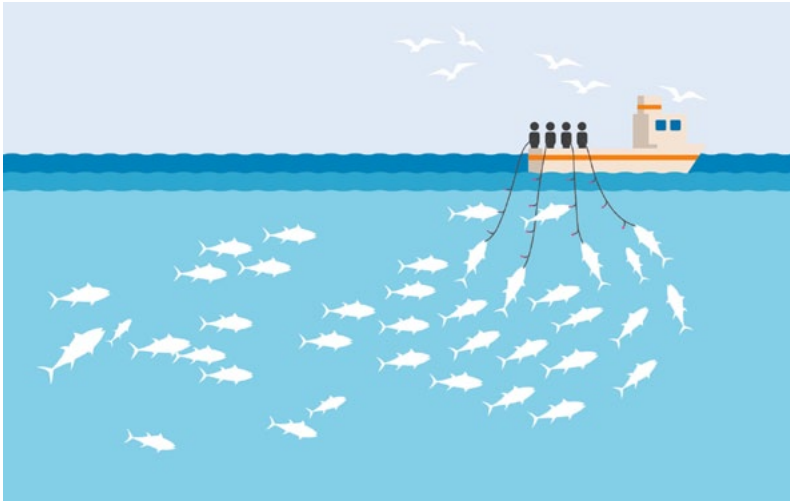
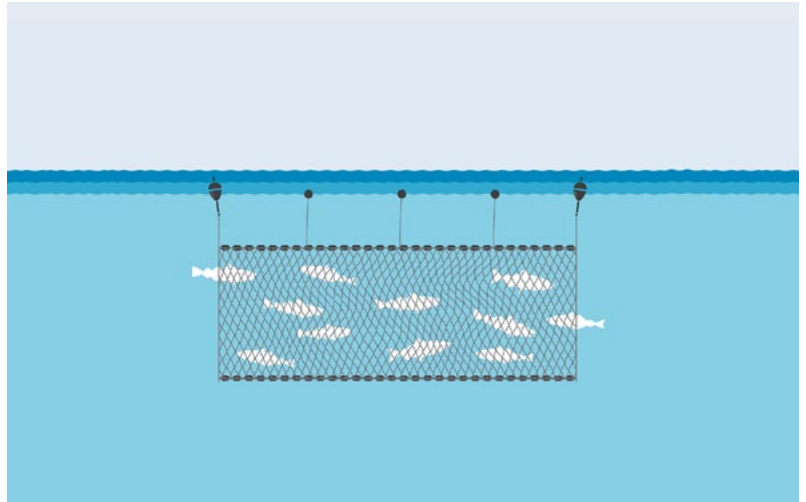


MID-WATER TRAWLING

Trawls include several different types of fishing gear that use a cone-like net with a closed end that holds the catch. A mid-water, or pelagic, trawl is deployed in the middle of the water column. Acoustic technology is used to locate the position and depth of the target fish, sediment and other features of the bottom, and the path of the fishery operations are adjusted accordingly to help minimise the impact on bottom habitat.

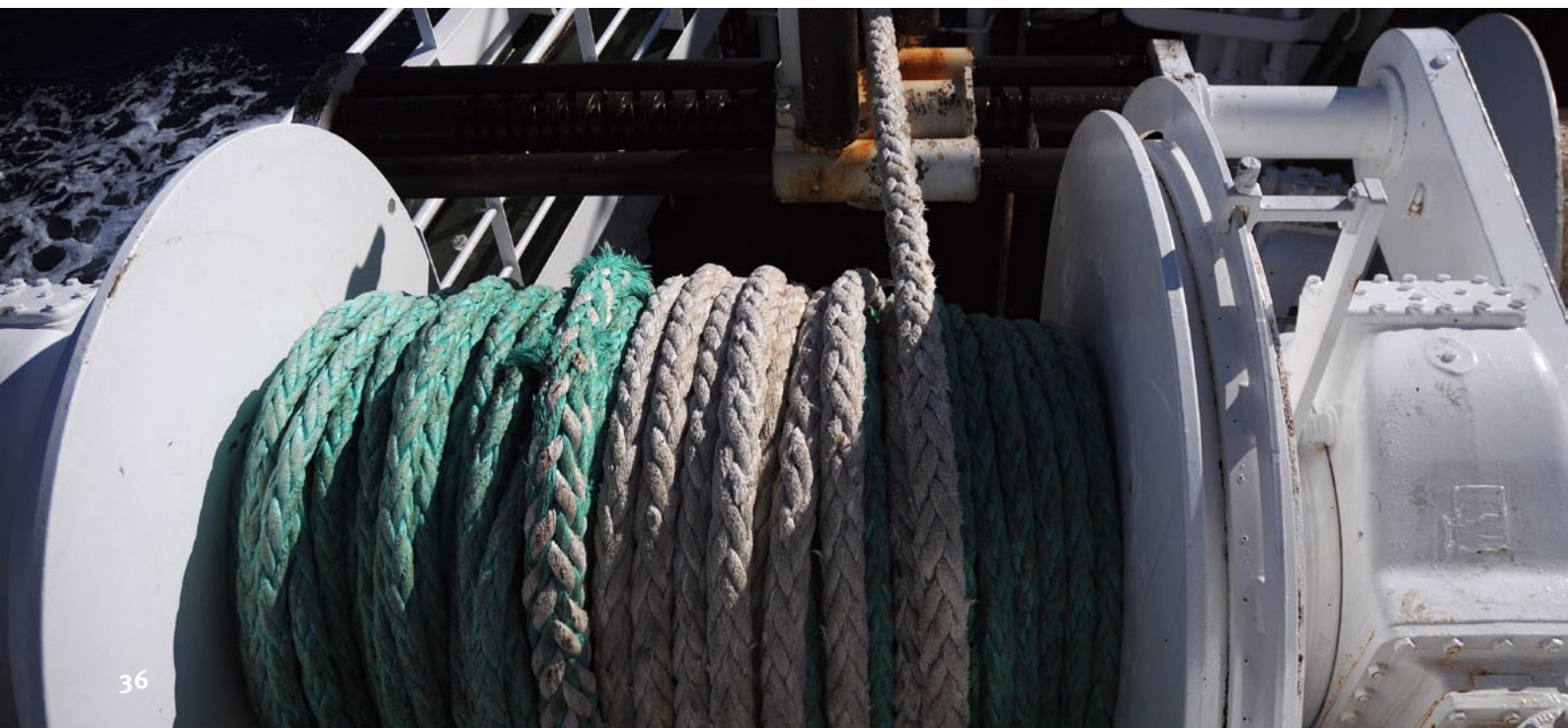
GILLNETS

'Gillnet' is a collective term for wide fishing nets that resemble a curtain and hang vertically in the water column. As the name suggests, gillnets are designed to catch fish by their gills. The mesh of the gill net is usually just large enough to allow the head of the target species through but not their bodies. Fish will attempt to swim through the mesh and become trapped by the gills when they attempt to back out.



HANDLINES

Handlining involves using long fishing lines, held by hand, with multiple baited hooks attached to it. Handlines may be used with or without a pole or rod. The length of the fishing lines used depends on the environmental conditions and depth that the fish are expected to be found. The fishing lines are then reeled in by hand.



Small Pelagics species

Small pelagics are a group of small, often schooling fish found throughout the world's oceans. Many small pelagic fish serve as a food source for other animals such as larger fish, seabirds and marine mammals. Some of the key commercial species of small pelagics are listed below.

HERRING

Clupeidae

Volume MSC certified catch: 637,846 metric tonnes

Herring belongs to a wider family of around 200 fish species in the family *Clupeidae*, but there are three species of herring that are most common: Atlantic, Pacific thread and Araucanian. These species can be found in the Atlantic and Pacific oceans with adults ranging from 20cm to 38cm in length. One of the most abundant groups of fish in the world, herring is a staple in many nations' cuisines.



ANCHOVY

Engraulidae

Volume MSC certified catch: 411,527 metric tonnes

The *Engraulidae*, family consists of around 144 species, with the European (*Engraulis encrasicolus*), the Peruvian (*Engraulis ringens*) and the Californian anchovies (*Engraulis mordax*) among the most commercially significant. These fast-growing species can be found in the Atlantic, Pacific and Mediterranean oceans, as well as the Black Sea, and typically measure between 4cm and 13cm in length.



SARDINE

Clupeiformes

Volume MSC certified catch: 278,936 metric tonnes

Sardine (or pilchard) applies to a number of species that are part of the wider *Clupeiformes* order and are closely related to herrings, anchovies and pilchards. They range in length from 15cm to 25cm and can spawn as early as one to two years of age, with females producing between 10,000 and 40,000 eggs each. Sardines spawn mainly in the spring and migrate in large schools across coastlines, feeding on plankton.



MACKEREL

Scombridae, Carangidae

Volume MSC certified catch: 773,813 metric tonnes

Mackerel is found world-wide, ranging from the Atlantic to the Pacific ocean is the name for more than 30 species of pelagic fish belonging to the *Scombridae* family. Mackerel is used as a common name for various fish in other families, such as the Chilean jack mackerels (*Trachurus murphyi*) in the *Carangidae* family, and is an important food source for large marine predators like sharks, whales and seals.

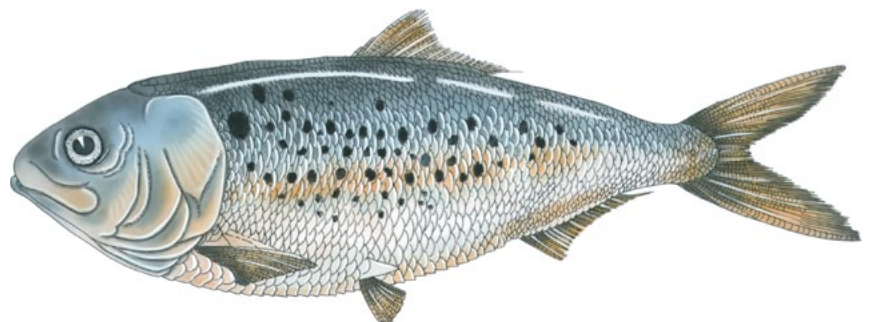


MENHADEN

Brevoortia tyrannus, Brevoortia patronus

Volume MSC certified catch: 590,432 metric tonnes

Menhaden are found in the Gulf of Mexico and the Atlantic Ocean. Their roles as filter feeders, primarily consuming phytoplankton and zooplankton, make them essential to their ecosystems. Menhaden can reach up to 15cm in length and once fully grown can weigh more than a kilogram.



iStock (Mackerel)/

Annex

To complement the content of this yearbook, the annex provides a full list of small pelagic species included in the MSC program and serves as a valuable resource, showing the diverse range of certified small pelagic species.

Krill and blue whiting are included in this report to recognise their relevance alongside other small pelagic species.

Common name	Scientific name	Common name	Scientific name
Anchoveta (=Peruvian anchovy)	<i>Engraulis ringens</i>	European sprat	<i>Sprattus sprattus</i>
Antarctic krill	<i>Euphausia superba</i>	Greenback horse mackerel	<i>Trachurus declivis</i>
Argentine anchovy	<i>Engraulis anchoita</i>	Gulf menhaden	<i>Brevoortia patronus</i>
Atlantic herring	<i>Clupea harengus</i>	Herrings, sardines nei	<i>Clupeidae</i>
Atlantic mackerel	<i>Scomber scombrus</i>	Indian oil sardine	<i>Sardinella longiceps</i>
Atlantic menhaden	<i>Brevoortia tyrannus</i>	Lesser sand-eel	<i>Ammodytes marinus</i>
Blue mackerel	<i>Scomber australasicus</i>	Norway pout	<i>Trisopterus esmarkii</i>
Blue whiting (=Poutassou)	<i>Micromesistius poutassou</i>	Pacific anchoveta	<i>Cetengraulis mysticetus</i>
Californian anchovy	<i>Engraulis mordax</i>	Pacific chub mackerel	<i>Scomber japonicus</i>
Capelin	<i>Mallotus villosus</i>	Pacific sardine	<i>Sardinops sagax</i>
Chilean jack mackerel	<i>Trachurus murphyi</i>	Pacific thread herring	<i>Opisthonema libertate</i>
European anchovy	<i>Engraulis encrasicolus</i>	Thread herrings nei	<i>Opisthonema spp</i>
European pilchard (=Sardine)	<i>Sardina pilchardus</i>		



Glossary

Best practice score: A score of 80 or higher against a performance indicator in the MSC Fisheries Standard that results in a pass without requiring additional improvements.

Bycatch species: Unwanted catch that includes undersized or surplus fish for which fisheries do not have a quota, endangered, threatened and protected species, and other unwanted marine species.

Byproduct: Refers to the various materials derived from fish processing that are not intended for direct human consumption but have value in other industries.

Conformity Assessment Body (CAB): Third-party certification body accredited to carry out assessments against the MSC Fisheries Standard. Condition of certification: A requirement to achieve outcomes that increase a current performance indicator score to 80 or above (see also **Best practice score**).

Conditional pass: Awarded to fisheries that achieve MSC certification but are required to make improvements to ensure all performance indicators meet global best practice (a score of 80 or above) within the five-year duration of a certificate.

ETP species: Endangered, Threatened or Protected Species - In MSC assessments, auditors will determine if a species should be considered as ETP by seeing if they are included in relevant national legislation and international agreements.

Feed: Seafood utilised for the production of feed for livestock, domestic animals, and farmed fish.

Feed Mills: Manufacture feed for either single or multiple species.

Fish stock: The community from which catches are taken in a fishery. The term implies that a particular population is a biologically distinct unit.

Gear types: See page 35.

Harvest Control Rules (HCRs): Measures that require catch to be adjusted in response to stock changes.

Harvest Strategy (HS): The combination of monitoring, stock assessment, harvest control rules and management actions taken by a fishery to ensure the target stock remains healthy and sustainable.

Maximum Sustainable Yield (MSY): MSY is the largest catch that fishers can take from a fish stock each year without affecting future years.

MSC Chain of Custody Standard: Certification to this standard ensures an unbroken chain where certified seafood is easily identifiable, separated from noncertified products, and can be traced back to another certified business.

Performance indicators (PIs): Twenty-five PIs sit under the three principles of the MSC Fisheries Standard, and fisheries are assigned a score for each.

Principles: Fisheries in assessment are scored against the three core principles of the MSC Fisheries Standard: 1) Sustainability of the stock, 2) Ecosystem impacts, 3) Effective fisheries management.

Reduction fishery: One that uses, or 'reduces', its catch to produce fishmeal or fish oil rather than for direct human consumption.

Total Allowable Catch (TAC): Catch limits that establish the total amount of fish that can be taken from a stock.

Trimming: The off-cuts and waste resulting from preparation of fish.

Unit of Assessment (UoA): The target stock(s) combined with the fishing method/gear and practice (including vessel type/s) pursuing that stock, and any fleets, or groups of vessels, or individual fishing operators or other eligible fishers that are included in an MSC fishery assessment.





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