

Floundering Around:

An assessment of where European retailers stand on the sourcing of farmed fish



The purpose of this report is to shed light on industry-specific issues related to the environmental and food security impacts of the use of wild-caught fish as feed inputs in the aquaculture industry.

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Executive summary

This report offers an overview of the positions of Europe's largest supermarket chains on the sustainable sourcing of farmed fish, which is a key issue for the global food retail sector.

It sets out to identify **leaders and laggards** according to their policies and practices in three priority areas:

1. The phase-out of wild-caught fish in aquaculture feed
2. Monitoring of mortalities on fish farms and blacklisting of producers with excessive mortality rates
3. Transparency in aquaculture supply chains and product labelling.

Our findings are based on a comparative review of six scorecards covering **33 major European food retailers** which were published by the Changing Markets Foundation and partners between March 2020 and May 2021. We have supplemented these with information gathered through correspondence with the same retailers between June and August 2021 in order to offer a comprehensive and up-to-date analysis of how the sector is positioned on this critical topic.

The global aquaculture industry has experienced staggering growth over the past five decades, going from supplying a mere 5% of fish 40 years ago¹ to accounting for over half of the fish we eat in 2021,² and this has come with significant environmental and social costs. Not only does the industry impact on marine biodiversity - most notably through the annual extraction of millions of tonnes of pelagic fish^A from ocean food webs for use in aquafeed - but it also leaves communities in West Africa, Latin America and other areas in the Global South without essential protein and with impaired access to traditional livelihoods. In addition to this, there are growing concerns about the impact of intensive fish rearing itself on the welfare of farmed fish and cleaner fish,^B which die prematurely in their millions every year as a result of poor farming practices.³

A Pelagic fish are those found near the ocean surface or in middle depths. They often move in large shoals, which greatly increases their detectability (see: <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/pelagic-fish>).

B Cleaner fish are commonly used by aquaculture producers to control sea lice infestations on fish farms and are subject to high mortality rates. The use of species such as wrasse and lumpfish is widespread in Norway and Scotland, where they are deployed on salmon farms in their millions. Cleaner fish can be caught in the wild or farmed.

Aquaculture does have the potential to help relieve the burden on our oceans - if implemented sustainably. In order for it to fulfil this potential, the decoupling of aquaculture and fisheries is of central importance. Sustainable solutions already exist; they include alternative aquaculture feeds and the cultivation of species that do not require feed or that require fewer inputs. Greater transparency is also key to improving the aquaculture industry's ecological footprint.

The aquaculture industry offers very little transparency regarding its production practices and routinely deflects attempts to draw attention to its murky underbelly: corporate reports and marketing materials highlight the sector's low-carbon credentials, talking up its potential to relieve pressure on fish stocks in the wild and feed a growing global population with healthy protein.⁴ However, a significant body of scientific research and evidence from numerous investigations on the ground (including our own) indicate that, all too frequently, the reality does not match up to companies' claims.

Citizens and civil society organisations in fish farming countries and regions which supply wild fish for aquafeed have spent years campaigning to raise awareness of the damaging impacts of the global aquaculture industry. However, their calls for greater accountability and transparency in the sector have largely gone unheeded. Instead, powerful multinational companies have been given free rein to expand production without being required to adopt any of the responsible social and environmental practices that would be commensurate with such growth. Negative externalities such as pollution from fish farms and fishmeal factories, decreased food security and damaged livelihoods have been kept off companies' balance sheets, with the true cost of seafood farming foisted on society at large – more often than not, on communities that already live a precarious existence. For example, research published by Just Economics in February 2021 estimated that salmon aquaculture has produced private and external costs of US\$47 billion since 2013, with around 60% falling to producers and 40% to wider society.⁵ And in June 2021, a report by Greenpeace Africa and Changing Markets found that, each year, over half a million tonnes of fish taken from West African waters - which could feed over 33 million people in the region - are instead being converted to fishmeal and fish oil (FMFO) in order to feed farmed fish and mostly in Europe and Asia.⁶

A 2018 Eurobarometer survey showed that most EU citizens - 77% - buy fish from either a grocery store, supermarket or hypermarket.⁷ The total turnover of all European food retailers in 2018 was €3.5 trillion.⁸ With their enormous financial heft and role as intermediaries between aquaculture producers and the public, supermarkets are arguably among the most powerful players in the market. They are the arbiters of standards for food production throughout their supply chains; as such, they bear a critical responsibility to hold their suppliers to account. Shoppers are increasingly aware of this: polling by market research firm Mintel in 2021 found that 23% of consumers see retailers (e.g. supermarkets and online retailers) as 'most responsible' for protecting the environment.⁹

And yet, our analysis shows that, as farmed fish and seafood products begin to outnumber wild-caught species on supermarket shelves across Europe, European retailers are failing to perform adequate due diligence on their farmed fish and seafood supply chains.

Overview

This report presents a detailed analysis of the information we gathered from retailers in the UK, Germany, Spain, Switzerland, Austria and France between March 2020 and August 2021¹⁰ and finds that:

- No retailer has a clear target for reducing - and ultimately eliminating - wild-caught fish in feed, meaning that no retailer can guarantee that its aquaculture supply chain does not damage marine ecosystems, or people's livelihoods and access to food in countries where FMFO are sourced.

- Retailers are taking very inadequate steps to protect fish welfare in their aquaculture supply chains, resulting in the unacceptable mistreatment and suffering of billions of sentient beings on farms and at sea.
- Retailers are failing in their duty to inform their customers about the origin of the farmed fish and seafood they sell. What is more, our analysis suggests that some retailers are even failing to comply with their legal obligations regarding the labelling of farmed aquaculture products.

Our assessment of retailer performance distinguished between four main categories - '**Frontrunner**', '**Heading in the right direction**', '**Lack of meaningful action**' and '**In the red zone**' - in each of the three thematic areas and awards retailers a colour – green, yellow, orange or red – reflecting their overall performance. The general picture is dismal: no retailer achieved frontrunner status in any of the three thematic areas, and no retailer's overall performance was sufficient to place it in the green zone. Three-quarters of retailers landed in the red zone, indicating a near-total lack of substantive policies to address the relevant issues.



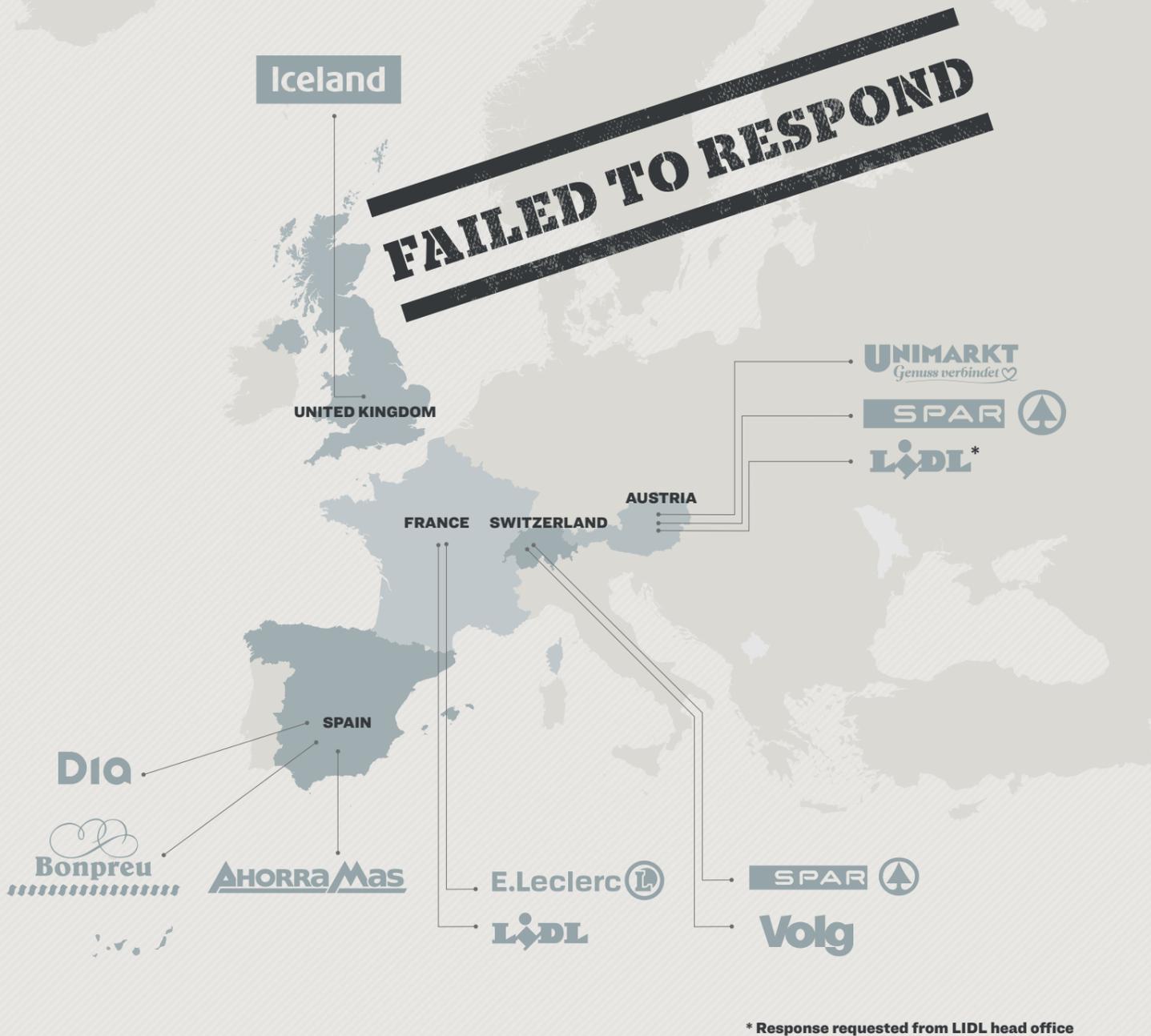
Clear national trends emerged, with UK and French retailers demonstrating a more sophisticated understanding of their aquaculture supply chains, and a few individual retailers standing out as having substantive policies on certain key aspects.

In France, several retailers - **Carrefour**, **Groupe Casino**, **LIDL France**, **Groupement Les Mousquetaires** (parent company of **Intermarché**), **U Enseigne Coopérative** (parent company of **Système U**) - and two wholesalers - **Métro France**, **Sysco** - have recently joined an initiative which sets out to tackle aquafeed sourcing as a 'priority' by engaging with salmon producers and feed manufacturers. The group also plans to engage with their suppliers on the topic of fish welfare. While this is a positive development in principle, at an individual company level, our analysis shows that significant progress is required, with only three French retailers (**Auchan**, **Carrefour** and **Intermarché**) making it out of the red zone in our categorisation system.

As members of the Albert Schweitzer Stiftung initiative on animal welfare standards in aquaculture,¹¹ several German retailers - including **ALDI Nord**, **ALDI Süd**, **Edeka**, **REWE**, **LIDL Deutschland** and **Kaufland** - also deserve recognition for acknowledging and seeking to address key aspects of fish welfare such as humane slaughter. However, it is unclear to what extent this initiative has resulted in concrete improvements in retailers' practices and policies.

Even so, there is significant variation among national retailers. In the **UK**, for example, the worst-performing supermarket, **Iceland**, failed to respond to our latest survey while **Tesco, M&S and Waitrose** engaged thoughtfully with our questions. Overall performance among German, Austrian and Swiss retailers was extremely disappointing, with only one retailer in each country being placed in the orange zone, none in the green or yellow zone and the majority in the red zone. Spanish retailers performed exceptionally badly across all three priority areas, with all 11 companies assessed landing in the red zone.

ELEVEN RETAILERS FAILED TO PROVIDE ANY RESPONSE TO OUR SURVEY, INDICATING A WORRYING LACK OF REGARD FOR THE ENVIRONMENTAL AND SOCIAL IMPACTS OF THEIR AQUACULTURE SUPPLY CHAINS. THESE WERE:



Frontrunners

None of the 33 retailers we surveyed provided us with a gold-standard response in any of the three areas we were assessing - feed, welfare/mortalities and transparency/labelling - leaving us unable to identify any frontrunners across the board.

Heading in the right direction

UK retailers dominated this category, with **M&S, Tesco** and **Waitrose** standing out as having the most progressive approaches on feed and fish welfare. On transparency, there are some promising developments to report, even if these fall far short of what is required.

Phase-out of wild-caught fish in aquaculture feed

While no retailer we surveyed has a truly exemplary policy on feed, French retailer **Auchan** informed us that it does have a target date for transitioning 50% of the farmed seafood it sells to feed which contains less or no FMFO.



By 2025, we want to switch 50% of our farmed products to a feed containing less or no FMFO (as is already the case with trout).

Swiss retailer **Coop Switzerland** told us that it is giving serious consideration to dropping the use of FMFO as an ingredient in fish feed. To begin with, it will only allow FMFO from fish-processing waste in its supply chain.

Tesco said that it is heavily involved in the promotion of alternative feed ingredients, and has created a roadmap on how to accelerate the inclusion of alternative ingredients in feed with WWF UK.¹² It is also developing an aquafeed strategy to set FMFO reduction targets for all species.

Credit: Shutterstock



Monitoring of mortalities and blacklisting producers with high mortality rates

While no retailer has a policy of automatically blacklisting farms with high mortality rates, **Waitrose** (UK) has detailed procedures in place for suppliers to report on mortality and escape rates, and told us that it would blacklist farms with high mortality rates if no improvement was forthcoming.

In addition, although **Tesco** (UK) has not defined an upper limit on mortalities and does not have a blacklisting policy, it does state that 'in critical situations the supply into **Tesco** will be stopped' and has put in place detailed procedures for reporting.

Transparency and labelling

UK retailers lead the way on supply chain transparency: since our initial engagement in 2020, several UK retailers have signed up to or added farmed fish to their entry on the Ocean Disclosure Project (ODP), with eight of the ten top UK supermarket chains disclosing information about their farmed fish supply chains through the platform.¹³ M&S, while not an ODP signatory, provides a degree of transparency regarding the species breakdown and origin of its farmed fish and shellfish via its online sourcing map.¹⁴

Several German retailers have set up traceability systems that give customers the ability to access some information on farmed seafood products. However, the information provided for aquaculture products does not appear to go much beyond what is required to be indicated on product labels by law; this means that key information such as the name of the farm and the composition and origin of feed ingredients is missing.

Lack of meaningful action

Retailers in this category either failed to respond to our questions altogether (see above) or did not have adequate policies in place.

Phase-out of wild-caught fish in aquaculture feed

Retailers in this category did not meaningfully engage with our call for the elimination of FMFO in feed, either by choosing not to cover this issue in their response or by superficially glossing over it. Some indicated that setting such a target would be impossible for technical reasons, while others chose to put their trust in sustainability standards rather than fully engage with the topic themselves. Spanish and Austrian retailers performed particularly badly on this issue.

Monitoring of mortalities and blacklisting producers with high mortality rates

Nearly half of retailers either failed to respond altogether or appear not to require reporting from their suppliers on mortalities and escapes. No retailer surveyed has a policy of blacklisting farms with high mortality rates.

Transparency and labelling

Retailers in this category failed to demonstrate that they had a satisfactory approach to transparency and labelling. Of the retailers which responded to us, a shocking 27% (13 retailers) do not include the producer or farm name on fish labels, do not require public reporting by their suppliers on the composition and origin of feed used on their farms, and do not appear to have any reporting on fish welfare indicators in place: **LIDL GB** (UK), **ALDI Süd** (UK), **Edeka** (Germany), **Kaufland** (Germany), **El Corte Inglés** (Spain), **Eroski** (Spain), **Alcampo/Auchan** (Spain), **Carrefour** (Spain), **Casino/Géant Casino** (France), **Denner** (Switzerland), **LIDL** (Switzerland), **Migros** (Switzerland).



A dead salmon floating in a sea cage
Credit: Compassion in World Farming



Finally, our analysis also highlights divergences in policies and practices on the sourcing of farmed fish within retailer groups which operate in more than one country. This was most striking in the cases of **LIDL**, whose various subsidiaries across Europe adhere to different standards and policies from country to country,^c and the retail groups **Carrefour** and **Auchan**, which provided substantive responses covering their French operations but did not provide a company-level response in Spain, preferring instead to be represented by a blanket response communicated by the Spanish retail sector trade associations ACES and ANGED which was superficial and lacking in detail.

^c We received no response from LIDL France or LIDL Österreich.



1. Introduction

1.1. Context - rising aquaculture production in a time of collapsing marine biodiversity and growing hunger

Demand for fish is growing more rapidly than the human population, and is outpacing demand for meat.^D Aquaculture is the fastest-growing segment of the food-production sector^E and currently accounts for over half of world fish consumption.^E By 2030, it is estimated that 62% of all seafood produced and destined for our dinner plates will be farmed.^E In each of the world's top four fish-producing countries - China, Indonesia, India and Vietnam - the majority of production originates from aquaculture.¹⁷ The largest aquaculture producers outside Asia include Norway and Chile, which mainly produce Atlantic salmon, and Egypt, which produces Nile tilapia.¹⁸

The growth of the aquaculture industry over the past five decades has come at a time of declining fish stocks and an alarming collapse in marine biodiversity as a result of overfishing, ocean pollution and the impacts of climate change:¹⁹ the FAO estimates that 34.2% of fish stocks globally are being overfished, up from 10% in 1974;²⁰ in 2015, analysis by the Zoological Society of London (ZSL) showed a decline of 49% in the size of marine populations between 1970 and 2012.²¹ As noted by ZSL, 'as well as being disastrous for ecosystems, these findings spell trouble for all nations, especially people in the developing world who depend heavily on the ocean's resources'. Indeed, in parallel to these ocean trends, the FAO reports that since 2015 the numbers of undernourished and malnourished people have been growing.²²

In this context, aquaculture is sometimes treated as the poster child of clean protein production - the sustainable solution that can satisfy our appetite for fish without further exploiting the oceans. However, this is to ignore its multiple negative externalities, primary among them the use of wild-caught fish in feed.

D The Food and Agriculture Organization (FAO) estimates that, since 1961, the 3.2% average annual increase in global fish consumption has outpaced population growth (1.6%) and exceeded increases in consumption of meat from all terrestrial animals, both combined (2.8%) and individually except poultry (4.9%). See: FAO (2018) *The state of world fisheries and aquaculture, 2018: Meeting the sustainable development goals*. Rome: FAO.

E FAO data shows that aquaculture accounted for 46% of total fish production and 52% of fish for human consumption in 2018. See: FAO (2020) *The state of world fisheries and aquaculture 2020: Sustainability in action*. [ONLINE] Available at: <http://www.fao.org/3/ca9229en/ca9229en.pdf>



Fish being unloaded at Phuoc Tinh port in Vietnam for fishmeal production.

Credit: Changing Markets

Indeed, because of its use of wild-caught fish and the impact of fish farming on populations in the wild,^F aquaculture itself remains a significant driver of the global decline in fish stocks. Companies' marketing campaigns and corporate publications tout farmed fish as a sustainable food with the ability to meet the world's protein needs. However, as the following section will demonstrate, the aquaculture sector in its current form is environmentally and ecologically destructive. What is more, its sourcing practices are extremely wasteful and detrimental to global food security, removing high-quality protein and micronutrients fit for direct consumption from vulnerable communities and commoditising the nutrients for indirect consumption in more affluent markets.²³ The sector's negative impacts have increasingly come to the fore in recent years, prompting calls for a reduction in fish consumption – or even an end to fish consumption altogether – in high-income markets such as the UK, France and Germany.²⁴

This is all the more exasperating as aquaculture does have the potential to take pressure off wild fish populations – if implemented sustainably. In order to fulfil this potential, the decoupling of aquaculture and fisheries is of central importance. Sustainable solutions that make this decoupling possible and do not increase pressure on the oceans already exist. These include alternative aquaculture feeds that contain algal oil and vegetable substitutes (e.g., rapeseed, maize, wheat). The industry also needs to pivot towards cultivating more species that do not require feed or that require fewer inputs, such as filter feeders or species which can be fed an entirely vegetarian diet.²⁵

1.2. Why is aquaculture failing to deliver on its promise?

One particularly stark example of the aquaculture sector's negative impact is its use of wild-caught fish in feed. In 2018, 18 million tonnes (Mt) of global fish catches were used to make FMFO.²⁶ Every year, almost one-fifth of the world's marine fish catch is taken out of the ocean to feed farmed animals in the form of FMFO, with more than two-thirds of that amount destined for seafood farming.²⁷ According to scientists, 90% of the fish used to make FMFO could be used to feed people directly instead.²⁸ The majority is sourced from countries where food security is a problem.²⁹

In 2020, the Covid-19 pandemic only served to highlight unfair competition between FMFO producers exporting to the global market and local fishing communities in FMFO production hubs. In West Africa, for example, fishmeal factories were allowed to continue operating while the artisanal fishing sector and women processors were subject to restrictions on their activity.³⁰

^F For example, there is clear evidence that the expansion of salmon farming in Scotland has had a significant detrimental effect on the country's wild salmon populations. For more information, see: Just Economics (2021) *Dead loss: The high cost of poor salmon farming practices and mortalities on salmon farms*. [ONLINE] Available at: <https://www.justeconomics.co.uk/health-and-well-being/dead-loss>

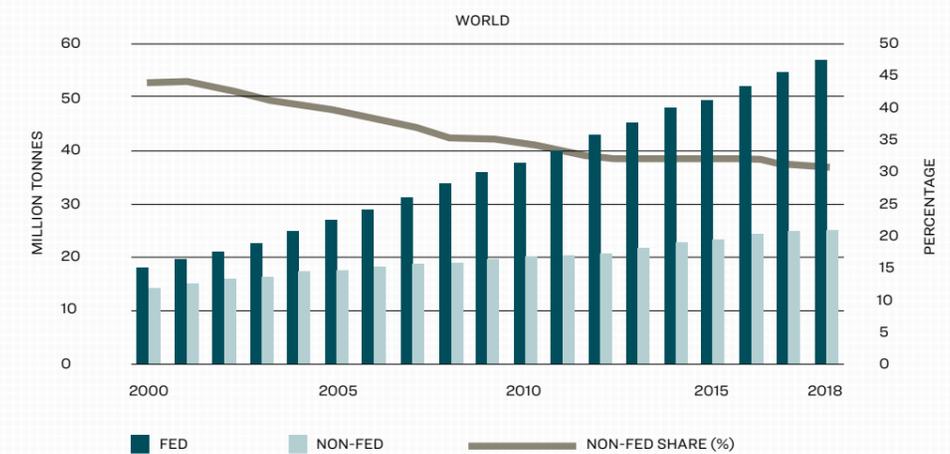
BOX 1.1: Fed aquaculture outpacing growth of non-fed aquaculture

Global aquaculture production reached an all-time high in 2018, with a total sale value of US\$263.6 billion; this was dominated by the farming of finfish, which accounted for 47% of total production.^G Not all aquaculture requires the input of food; for example, some species (such as mussels and oysters) filter their food from surrounding waters. However, resource-intensive fed aquaculture (such as Atlantic salmon, trout, sea bass, gilt-head bream or shrimp) has far outpaced non-fed aquaculture, making up nearly 70% of all aquaculture production in 2018.³¹

A paper published in the scientific journal *Nature Sustainability* noted in 2018: 'As the fastest growing food sector in the world, fed aquaculture demand will eventually surpass ecological supply of forage fish, but when and how best to avoid this ecological boundary is unclear'.³²

According to the UN, without significant changes, we are at risk of pushing more than half of our planet's marine species to the brink of extinction by the year 2100.³³ The impact on fish stocks is already visible among some of the pelagic fish species, which are used to feed the global aquaculture sector – from crashing oil sardine stocks off the west coast of India³⁴ to the disappearance of round sardinella from the coast north of Dakar in Senegal.³⁵

FIGURE 2: FED AND NON-FED AQUACULTURE PRODUCTION, 2000-2018



Source: FAO (2020) *The state of world fisheries and aquaculture: Sustainability in action*. [ONLINE] Available at: <http://www.fao.org/3/ca9229en/ca9229en.pdf>

In addition, there are growing concerns about the impact of fish farming on fish welfare, with high mortality rates reflecting inadequate fish husbandry. Analysis published in February 2021 reveals high mortality rates on salmon farms where data is available.³⁶ Compassion in World Farming calculates that between 2012 and 2017, an average of 24.2% of fish reared on Scottish salmon farms died prematurely every year,³⁷ while an investigation by Italian organisation Essere Animali found the mortality rate for sea bass and sea bream farmed in the Medi-

^G World aquaculture production was 114.5Mt in live weight in 2018, this was dominated by finfish at 54.3Mt. See reference 31.

terranean is 15-20%.³⁸ It is important to note here that the aquaculture industry as a whole discloses very little data on important phenomena such as mortalities. Data on mortalities in salmon farming are only available in Norway and Scotland where they are reported by producers; in other producing countries and for other species, data are largely absent.⁴¹



A salmon with fin damage and sea lice attached to its head

Credit: Compassion in World Farming

BOX 1.2: Animal welfare is important to consumers

According to research conducted by Mintel in 2015, 74% of consumers say that animal welfare is among the top issues that make a food company ethical, followed by responsible sourcing of ingredients (60%).³⁹ This finding is echoed by the Business Benchmark on Farm Animal Welfare report 2019, which shows companies reporting an increase in consumer interest in the welfare of animals farmed for food.⁴⁰

Reflecting this general trend, consumers are increasingly questioning the welfare of the fish they eat and the impact industrial aquaculture and overfishing have on the environment and marine life. A 2018 survey of over 9,000 adults across nine European markets showed four in five people (79%) believed the welfare of fish should be protected to the same extent as the welfare of other animals we eat.⁴¹

This consumer concern can confer a price premium on higher-welfare products: for example, research has found that in Europe, consumers are willing to pay 14% more for salmon produced with higher welfare standards.⁴² However, this finding is not necessarily applicable to other species, and pricing should not be viewed as a universal solution to achieving higher fish welfare, not least as it may impact adversely on lower-income households.

⁴¹ For example, salmon farmers assume a minimum level of mortalities per number of smolts (young salmon) released into pens, and most likely incorporate this into their harvest calculations. The difference between expected and actual harvests is therefore a measure of excess deaths, rather than total deaths. See: Just Economics (2021) *Dead loss: The high cost of poor salmon farming practices and mortalities on salmon farms*. [ONLINE] Available at: <https://www.justeconomics.co.uk/health-and-well-being/dead-loss>

1.3. The scorecards and follow-up

Over the past two years, the Changing Markets Foundation has worked with partner organisations and researchers across Europe to evaluate the policies and practices of major retailers in six different European countries in relation to farmed seafood. Our retailer scorecards show that across the board, and despite their significant market power, supermarkets are not taking sufficient action to address the damage caused by irresponsible sourcing of feed and poor fish welfare in their aquaculture supply chains.

1.3.1. Methodology

In early 2020, we worked with Feedback to design a rigorous methodology to assess how effectively the retail sector addresses the ocean sustainability implications of the farmed seafood it sells. We developed a set of indicators focusing on two aspects of retailers' business: first, how they set policies and criteria for sourcing farmed fish, and how transparent they are at a corporate level in terms of the farmed fish they source and who they work with in their supply chain; and second, how they market, position and sell different farmed seafood in-store. In developing the scorecards, we drew on evidence from retailers' responses to a detailed questionnaire we sent them, desk-based research looking at company websites, annual reports and corporate social responsibility materials, and an in-store survey of a selected sample of stores (in-store research was supplemented or replaced by online research for all later scorecards published during the Covid-19 pandemic).

Together with our campaign partners, we then produced a series of six supermarket scorecards based on responses to a detailed questionnaire from major retailers in the UK (report co-researched and published with Feedback),⁴³ Germany (report researched and published by Deutsche Umwelthilfe - DUH),⁴⁴ Spain,⁴⁵ Switzerland (report published with OceanCare),⁴⁶ Austria (report published with Arbeiterkammer)⁴⁷ and France.⁴⁸ Results in all six countries painted a disappointing picture, with most retailers scoring below 30% (see following page and Annex 1).

In mid-2021, we undertook a comparative review of all six national scorecards. Given the general lack of awareness and policy coherence that our national scorecards highlighted - even among supermarkets within the same group - we were keen to zero in on the key sustainability risks we had identified and give companies the opportunity to set out how they were addressing these. Between June and August 2021, we wrote to **33 major European food retailers (representing 49 national supermarket chains)** with a series of questions based on three key asks:

- **Ask 1:** Phase out the use of wild-caught fish as feed for aquaculture in your supply chain. Commit to doing this by 2025 at the latest and report on progress.
- **Ask 2:** Blacklist farms with high mortality rates. As a starting point, we urge you to blacklist farms with monthly mortality rates above 10% for more than three months in a year; we also ask that you require monthly reporting on mortality and escape rates from all of your aquaculture suppliers and engage with them early on if these seem to be increasing.
- **Ask 3:** Ensure higher transparency regarding your aquaculture supply chains.

(See Annex 2 for more information.)

The retailers' responses (together with policies and other relevant documents, where available) were analysed and compared with a set of parameters (going from 'a lack of engagement' at the bottom of the scale, up to 'a good answer showing interest, commitment and acknowledgement of the issue', and then to 'displaying good practices and substantive policies' at the higher end of the scale). Each retailer was given a colour based on the quality of its response.

FARMED FISH: HOW DID DIFFERENT EUROPEAN RETAILERS SCORE IN OUR TWO RANKINGS?

RETAILER	COUNTRY	INITIAL SCORE (FIRST RANKING)	RESPONSE SUMMER 2021	OVERALL PERFORMANCE ACROSS 3 THEMATIC AREAS NOVEMBER 2021
	UK	12%	✓	●
	UK	16%	✓	●
	UK	32%	✓	●
	UK	14%	✗	●
	UK	28%	✓	●
	UK	16%	✓	●
	UK	44%	✓	●
	UK	20%	✓	●
	UK	60%	✓	●
	UK	22%	✓	●
	GERMANY	15%	✓	●
	GERMANY	19%	✓	●
	GERMANY	23%	✓	●
	GERMANY	48%	✓	●
	GERMANY	38%	✓	●
	GERMANY	10%	✓	●
	GERMANY	21%	✓	●
	SPAIN	11%	✓ ANSWER BY ANGED/ACES	●
	SPAIN	N/A	✓	●
	SPAIN	9%	✓ ANSWER BY ANGED/ACES	●
	SPAIN	13%	✓	●
	SPAIN	13%	✗	●
	SPAIN	9%	✓ ANSWER BY ANGED/ACES	●
	SPAIN	11%	✓ ANSWER BY ANGED/ACES	●

RETAILER	COUNTRY	INITIAL SCORE (FIRST RANKING)	RESPONSE SUMMER 2021	OVERALL PERFORMANCE ACROSS 3 THEMATIC AREAS NOVEMBER 2021
	SPAIN	11%	✗	●
	SPAIN	11%	✗	●
	SPAIN	13%	✓	●
	SPAIN	13%	✗	●
	SWITZERLAND	33%	✓	●
	SWITZERLAND	35%	✓	●
	SWITZERLAND	19%	✓	●
	SWITZERLAND	19%	✓	●
	SWITZERLAND	13%	✓	●
	SWITZERLAND	6%	✗	●
	SWITZERLAND	8%	✗	●
	AUSTRIA	15%	✓	●
	AUSTRIA	33%	✗	●
	AUSTRIA	8%	✓	●
	AUSTRIA	21%	✓	●
	AUSTRIA	13%	✗	●
	AUSTRIA	21%	✗	●
	FRANCE	4%	✓	●
	FRANCE	31%	✓	●
	FRANCE	27%	✓	●
	FRANCE	2%	✓	●
	FRANCE	4%	✗	●
	FRANCE	15%	✓	●
	FRANCE	4%	✗	●
	FRANCE	27%	✓	●

Worker offloading 'waste' fish, juveniles and other assorted catch at FMFO company at ullal, Karnataka (India).

Credit: Changing Markets



2. Main findings

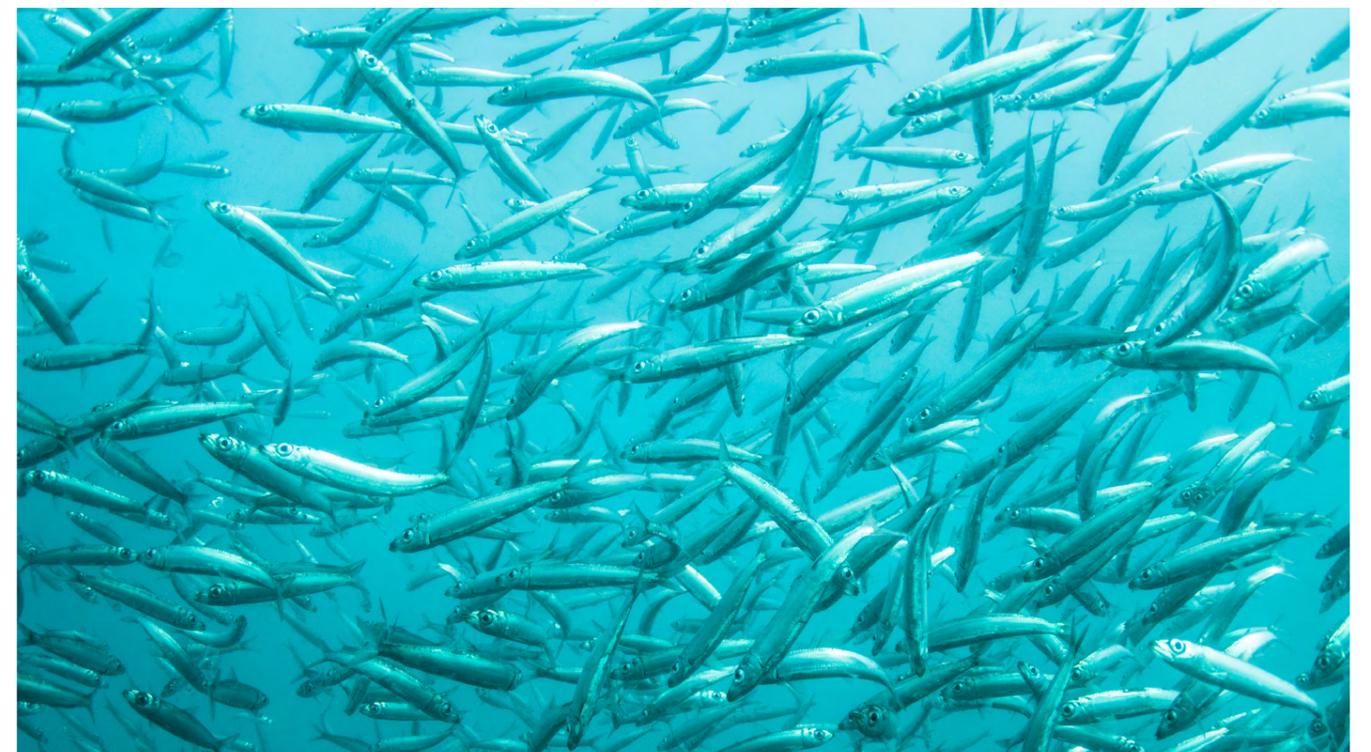
2.1. Use of wild-caught fish

2.1.1. The issue

Every year, in an extremely inefficient process, billions of edible fish caught in the wild are diverted from direct human consumption and used to feed the voracious aquaculture industry instead, through the production of FMFO.⁴⁹ In FMFO production hubs across the Global South such as Peru, Senegal, Mauritania, The Gambia, India and Vietnam, fish catches are turned into fishmeal at a rate of 5kg of fish for 1kg of fishmeal and exported abroad.⁵⁰ A report published in July 2019 found that the Scottish salmon industry alone uses roughly the same quantity of wild-caught fish to feed its salmon as the entire adult population of the UK purchases in one year, and that it

Shoal of sardines

Credit: iStock



FEEDING AQUACULTURE

Every year, millions of tonnes of forage fish and crustaceans are fished from the ocean and ground down into fishmeal and fish oil by the reduction industries

ROUGHLY **1/5** OF WILD CAUGHT FISH IS USED TO MAKE FISHMEAL AND FISH OIL



5 KG

FISH CATCHES ARE TURNED INTO FISHMEAL AT A RATE OF 5KG OF FISH FOR 1KG OF FISHMEAL

1KG

RETAILERS AND RESTAURANTS

06

Aquaculture is the fastest-growing sector of animal food production globally and now supplies more than half of the fish we consume

05

PROCESSORS AND DISTRIBUTORS

Farmed fish and seafood is processed for human consumption and distributed to retailers and restaurants.

01

RAW MATERIALS: WILD-CAUGHT FISH AND CRUSTACEANS

The raw materials are either processed at sea or in factories which are often located along the coast.

02

FISHMEAL AND FISH OIL FACTORIES

Some fishmeal and fish oil goes into animal feed. Most of it is used as an ingredient in aquafeed

ANIMAL FEED

28%*



AQUAFEED

69%*



*Fishmeal

03

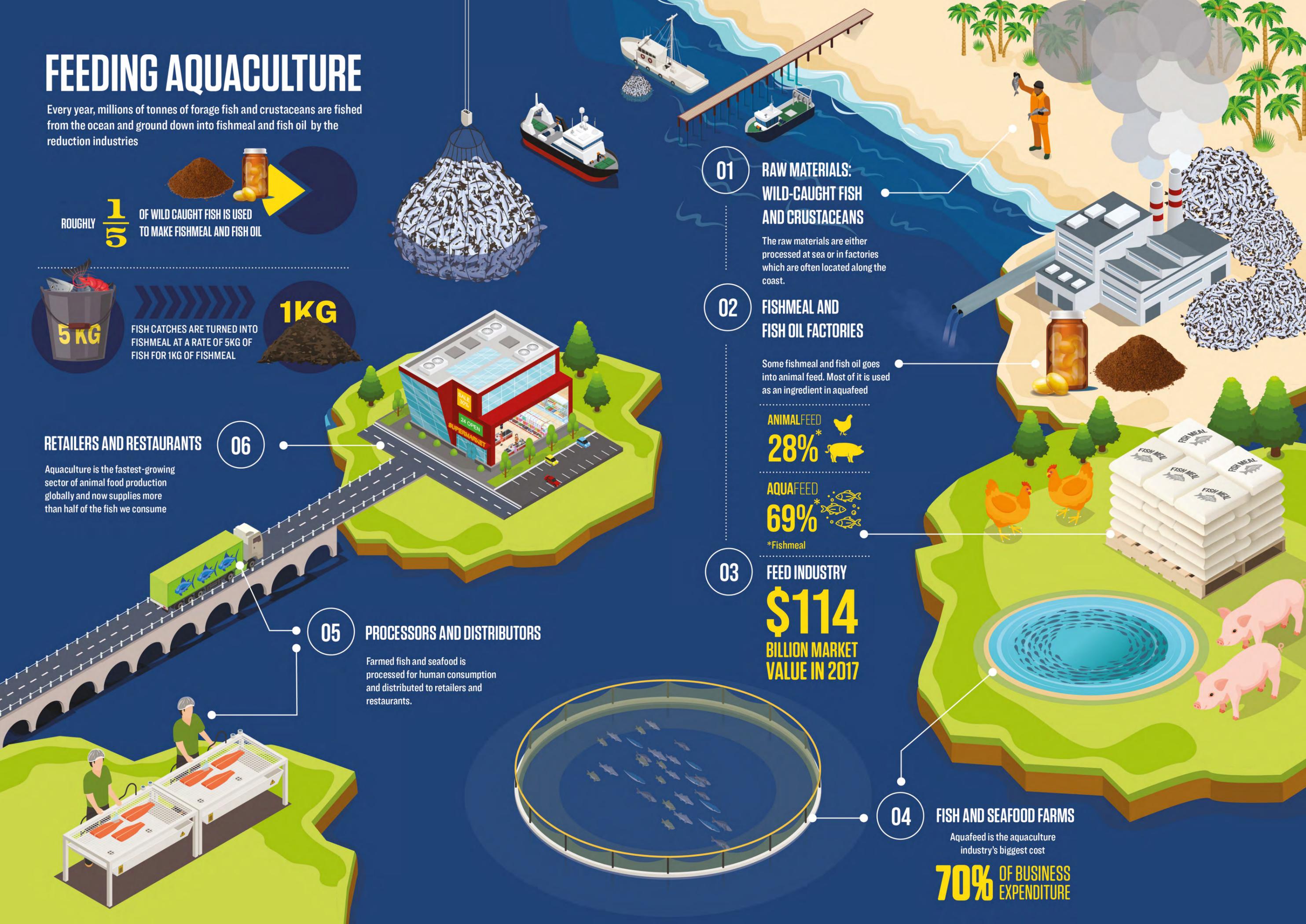
FEED INDUSTRY
\$114
BILLION MARKET
VALUE IN 2017

04

FISH AND SEAFOOD FARMS

Aquafeed is the aquaculture industry's biggest cost

70% OF BUSINESS EXPENDITURE



will require a further 310,000 tonnes of wild fish per year to meet its ambitions to double in size by 2030.⁵¹ The aquaculture industry's rapid growth means it now accounts for more than two-thirds of FMFO consumption.⁵²

The types of fish destined for reduction fisheries are mainly species lower down the marine food chain, which are often in high abundance and tend to form dense schools. They are generally plankton feeders and are preyed on by larger predators for food. They include not only small pelagic 'forage' fish (such as anchovy, sardine, herring and mackerel) but also invertebrate species (such as krill). All of them play a key role in the marine environment because the entire marine food web depends on them; they are the principal means of transferring energy from plankton to fish, marine mammals and seabirds. Fishing down food webs is therefore unsustainable, and can have large impacts on the ecosystem.⁵³

These fish are also a major source of protein for millions of people living in poor coastal communities, especially in West Africa, where the FMFO industry's demand for small fish competes with direct human consumption. As has been widely documented, competition for pelagic fish from the global aquafeed sector in West Africa leads to decreased availability of fish on the market, higher prices and declining employment in artisanal processing, which is mainly undertaken by women.⁵⁴ Today, almost 70% of landed forage fish are processed into FMFO, representing roughly 20% of the world's total catch of wild fish.⁵⁵

| Credit: shutterstock



BOX 21: The European appetite for farmed prawns drives demand for fishmeal

Every year, approximately 5Mt of farmed shrimp (commonly known as 'prawns' in British English) are produced,⁵⁶ accounting for 55% of global shrimp production.⁵⁷ Most shrimp imported into Europe is consumed in Southern Europe. Annual per capita consumption is almost 3kg in Spain, 2kg in Portugal and 1.5kg in France.⁵⁸ In 2019, more than one-third of EU imports of warm-water shrimps came from Ecuador, followed by Vietnam and India, which together accounted for another 30%. The main destinations for Ecuadorian warm-water shrimps are Spain, France and Italy, while exports from Vietnam and India are mostly destined for the UK, the Netherlands and Belgium.^{59, 1}

Prawn production throws up numerous problems - not least the origin and composition of feed, which is reliant on the use of fishmeal. A 2020 report by Indian and Dutch academics estimated that one-third of India's annual marine fish catches are required to feed farmed prawns.⁶⁰ This is not only a threat to food security in a country where malnutrition and inequality are rife, but also to the wild fish stocks targeted for feed (such as oil sardine), which are prone to collapse.

India case study⁶¹



Aquaculture farms at Gangoli mangroves, Kundapur, Karnataka. In 2019, Changing Markets investigators were told that the shrimp farmed here is all exported.

| Credit: Changing Markets

In 2019, India was the largest exporter of prawns in the world. Total production stood at over 800,000Mt, with exports representing nearly 83% of that amount.⁶² Up to 60% of India's prawn exports are destined for the US, Europe and Japan.

In 2020, between 45 and 60 fishmeal plants were in operation across India, about half of them in the state of Karnataka. Since the 1970s, the capacity of these plants and exports have increased by a factor of approximately 100. India is also a net exporter of fishmeal (about 25% of total production is exported, whereas imports are minimal).

Indian fishmeal production was estimated at 280,000 tonnes per year in 2018, requiring approximately 1.25Mt of raw fish. This only accounts for industrial fishmeal production from 'wet fish'. It excludes the fish that is sun-dried on beaches and subsequently sold to poultry feed manufacturers, which can also be referred to as fishmeal.

Food and nutrition security

In absolute terms, India has the highest number of stunted, wasted children in the world, both key indicators of malnutrition. In relative terms, corrected for population size, India ranked 102 out of 117 countries measured, according to the Global Nutrition Report 2018.⁶³ Iron and zinc inadequacy is high in India. It is estimated that the total content of iron and zinc in fish entering the fishmeal plants equals the recommended intake of these nutrients for 35 million children.

¹ It is important to note that Rotterdam (NL) and Antwerp (BE) are important ports for the landing of frozen seafood from Far East suppliers. While these ports act as 'hubs' for shrimps arriving in the EU, the 'actual' destinations might be other countries.

2.1.2. Ask and question

Ask 1: Phase out the use of wild-caught fish as feed for aquaculture in your supply chain. Commit to doing this by 2025 at the latest and report on progress.

QUESTION:

"Does [X retailer] have a commitment to phase out the use of wild-caught fish as feed for aquaculture in your supply chain and if so, have you set a target date for this?"

2.1.3. How did retailers perform?

No retailer has a target to eliminate the use of wild-caught fish in feed.

Half of retailers don't even aim to reduce the amount of wild-caught fish in feed.

Frontrunners:



Heading in the right direction:

No retailer gave a gold-standard response, as this would have required identifying a target date for the elimination of wild-caught fish in feed from its aquaculture supply chain. However, the following retailers gave strong responses acknowledging the issue and taking steps to address it:

Auchan (France)

Auchan has no commitment to phase out FMFO altogether, but it does have a target date for transitioning 50% of the farmed species it sells to feed which contains less or no FMFO.

QUOTE:

"By 2025, we want to switch 50% of our farmed products to a feed containing less or no FMFO (as is already the case with trout)."

Tesco (UK)

Tesco does not have a commitment to phase out FMFO. However, it is developing an aquafeed strategy to set FMFO reduction targets for all species, is actively exploring alternatives and is working with NGOs to drive change across the retail sector.

QUOTE:

"Tesco is heavily involved in the promotion of alternative feed ingredients such as algal oil and insect protein. ... Furthermore, we are currently developing an Aquafeed strategy to set [FMFO reduction] targets for all species."



Waitrose (UK)

Waitrose does not have a target to eliminate FMFO, but it supports reduction in use and is itself actively trialling alternatives such as vegetable protein ingredients.

QUOTE:

"FMFO is already much reduced as a percentage of feed ingredient and we support and strive for the further reduction of FMFO in our fish diets. We are currently focused on research into alternative ingredients."



M&S (UK)

Although **M&S** has no target to eliminate FMFO, it is actively encouraging reduction and is developing and selling products which require less or no FMFO.

QUOTE:

"We actively encourage all our aquaculture suppliers to reduce the use of marine ingredients in aquafeed and to increase the use of by-product and non-marine ingredient alternatives."



REWE (Germany)

Although **REWE** relies on certification and has no commitment or target date to phase out FMFO, it supports feed manufacturers and suppliers in the search for substitutes.

QUOTE:

"The reduction or replacement of fishmeal and fish oil as well as the use of GMO-free soy are key points for us REWE GROUP supports the efforts of fish feed manufacturers to reduce the FMFO share derived from forage fish fisheries in fish and shrimp feed."



Intermarché (France)

Although it relies on certification and has no commitment or target date to phase out FMFO, **Intermarché** engages with its suppliers to reduce reliance on FMFO from reduction fisheries and promotes the use of alternatives.

QUOTE:

"We are currently engaging with our aquaculture suppliers through commitment charters... we ask them to prioritise formulations that consume less FMFO (by engaging with their feed manufacturers) and to limit feed from reduction fisheries."



Coop (Switzerland)

Coop told us that it is giving serious consideration to dropping the use of FMFO as an ingredient in fish feed. To begin with, it will only allow FMFO from fish-processing waste in its supply chain.

QUOTE:

"Coop intends to include in its Sustainable Procurement Policy for Fish and Seafood that only fishmeal and fish oil derived from fish processing waste may be used for feeding carnivorous farmed fish species."

Lack of meaningful action:

Retailers in this category failed to meaningfully engage with our call for the elimination of FMFO in feed altogether, either by choosing not to cover the issue in their response or by superficially glossing over it. Some indicated that setting such a target would be impossible for technical reasons, while others chose to put their trust in sustainability standards (e.g. MarinTrust and ASC) rather than fully engage with the topic themselves.

Consum (Spain)

Consum responded to our letter, but left some key questions unanswered, including on the phase-out of the use of wild-caught fish as feed for aquaculture.



ACES/ANGED (Spain)

The two Spanish retailer associations, which answered on behalf of **Alcampo/Auchan** (Spain), **Carrefour** (Spain), **El Corte Inglés** (Spain) and **Eroski** (Spain), appeared to side with the position of the Spanish aquaculture industry (APROMAR).



QUOTE:

"...like APROMAR, we question Changing Markets policy, according to which the use of wild fish to produce aquafeed should be phased out we suggest that Changing Markets promotes feed made from responsibly sourced FMFO. "

However, they do not offer a definition of what 'responsibly sourced' means, and their response indicates a misplaced reliance on third-party certification schemes.

The following retailers have no target to phase out FMFO and/or do not acknowledge the need to reduce its use (despite some references to by-product use), and often rely on certification: **ASDA** (UK), **Sainsbury's** (UK), **Système U** (France), **Denner** (Switzerland), **Migros** (Switzerland).



A salmon with a missing eye

Credit: Compassion in World Farming

BOX 2.2: Why certification schemes are failing

Certification under a relevant scheme – for example, ASC, MSC or MarinTrust – is not an adequate proxy for retailers' own policies and due diligence on fish welfare and feed supply chains. Retailers' responses to our questionnaire indicated a concerning overreliance on certification schemes.

Certification does not necessarily help reduce fish mortalities and ensure good fish-welfare practices. Compassion in World Farming evaluated the main certification schemes for aquaculture – ASC, BAP, GlobalG.A.P and FOS – and found none of them had good fish-welfare standards.⁶⁴

When it comes to the use of wild-caught fish in feed, NGOs have repeatedly raised concerns about MarinTrust's (formerly IFFO RS) certification of FMFO for use in feed. Other certification schemes – for example, ASC and Global G.A.P – rely on MarinTrust certification to ensure a 'sustainable' supply of FMFO.⁶⁵ Investigations have uncovered FMFO and aquafeed plants with links to unsustainable fishing practices that are certified by MarinTrust, and Changing Markets investigations in Peru revealed MarinTrust was also certifying companies engaged in illegal or corrupt practices.⁶⁶ The effectiveness of certification schemes has consequently been called into question. Our analysis indicates they are simply not enough to safeguard companies against the reputational risk of destructive fishing and farming practices in the aquaculture supply chain. Retailers should instead develop their own robust policy, which ultimately seeks to rapidly phase out the use of wild-caught fish as feed in their aquaculture supply chains.

Spotlight on MarinTrust's Mauritanian Small Pelagic Fisheries Improvement Programme (FIP)

Bonga-shad⁶⁷ and sardinella⁶⁸ fish stocks off West Africa are both currently overexploited. This means that, even at current levels of extraction, the fish stocks are not sustainable. Despite this, certification bodies and FMFO/aquafeed companies have increasingly turned their attention to West African pelagic fish, with a view to certifying the stocks as 'sustainable' for use in FMFO. The Mauritanian Small Pelagic FIP was initiated by a partnership between the Mauritanian fishery authority, the Mauritanian oceanographic and fisheries research institute (IMROP), local businesses and international fishmeal and oil buyers in August 2017. The fishery under assessment consists of artisanal and coastal purse seine and pelagic trawl vessels, targeting round sardinella, flat sardinella and bonga in Mauritania.⁶⁹

The Mauritanian Small Pelagic FIP has chosen to pursue IFFO RS 2.0 certification (now known as MarinTrust), as opposed to MSC certification, on the basis that this standard is more 'flexible'.⁷⁰ This raises considerable concerns about the robustness of the project – particularly considering conflicts of interest that arise from close links between MarinTrust, IFFO (the FMFO industry body) and FMFO companies.

Many of the FIP's objectives relate to improving the data available for stock assessment, and improving information on the ecosystem and endangered species. However, local activists have reported that some of the landing data used in the FIP is based on unreliable reports from fishing vessels' logbook estimates, without proper verification by authorities.⁷¹ Additionally, the Mauritanian Small Pelagic FIP does not cover any human rights or food-security issues. Considering that these stocks provide a vital source of protein for coastal communities in West Africa, this is a considerable oversight, with potentially hugely damaging consequences.

The existence of a FIP is enough for some companies to justify sourcing from Mauritania. For example, Mowi states in its 2019 annual report that '96% of [its] marine raw materials were either MSC, IFFO RS certified or part of fisheries improvement projects aimed at achieving the IFFO RS certification'. In 2019, Mowi sourced 10,759 tonnes of round and flat sardinella from Mauritania.⁷²

2.2. Fish mortalities and welfare

2.2.1. The issue

Fish are sentient animals capable of feeling pain and emotions;⁷³ they are therefore capable of suffering.⁷⁴ There is scientific evidence for this based on physiological, behavioural and neuroanatomical studies.⁷⁵ International legislation acknowledges fish as sentient beings.^{76,1} However, unlike those relating to other animals, the welfare protections offered to fish under current legislation are weak and poorly enforced.⁸

Annually, 53Mt of fish (51-167 billion fish) are produced in farms worldwide.⁷⁷ High stocking densities are the norm, and fish are kept in barren environments (uniform and simple cages, raceways, etc.) that offer very little environmental complexity.⁷⁸ Keeping fish in this way can lead to high stress, aggression and resultant injuries, and the risk of disease transmission increases. Fish are often exposed to extremely stressful handling procedures (e.g. mechanical treatments to remove sea lice from salmon, which have led to poor welfare and mass deaths),⁷⁹ which involve taking fish out of water (e.g. when treating fish for parasites and stripping females of eggs).⁸⁰

Fish are often killed inhumanely, and many endure slow, painful deaths.⁸¹ Commonly, fish are killed by asphyxiation in air or ice slurry or exposure to carbon dioxide gas; alternatively, they may die during the process of gutting and processing. Loss of consciousness and death by these methods are not quick, and suffering is unacceptably prolonged.¹ Fish should be stunned before being killed to avoid pain and suffering.⁸² Stunning methods (such as electrical or percussive stunning) are available, and can allow for a more humane death for some species, but a significant amount of work is required to achieve widespread industry adoption.⁸³

J Article 13 of the Treaty on the Functioning of the European Union (TFEU) states that the EU and its member states 'shall, since animals are sentient beings, pay full regard to the welfare requirements of animals' when formulating and implementing EU policies.

K Fish are not well protected by European legislation; they are covered only very generally by legislation regarding farmed animals:

- European Union (1998) Council Directive 98/58/EC of 20 July 1998 concerning the protection of animals kept for farming purposes. *Official Journal European Communities*, 1998(806): 1-7.
- European Union (2005) Council Regulation (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations and amending Directives 64/432/EEC and 93/119/EC and Regulation (EC) No 1255/97. *Official Journal of the European Union*.

European Union (2009). Council Regulation (EC) No 1099/2009 of 24 September 2009 on the protection of animals at the time of killing. *Official Journal of the European Union*. Even this limited legislation is very poorly enforced in relation to fish, mainly owing to the lack of detailed recommendations.

L Noncompliant systems (e.g. live chilling in ice slurry, exposure to carbon dioxide in water) are still widely used, despite the advice from the European Food Safety Authority (EFSA) in 2009 to move away from these.

BOX 2.3: Salmon aquaculture and its high mortality rates

Salmon aquaculture is the fastest-growing food-production sector in the world, and continued growth in demand is forecast. The business is worth US\$20 billion annually, with 96% of production concentrated in just four countries: Canada, Chile, Norway and Scotland. Half of production is controlled by ten companies. These top ten producers had combined total revenues of US\$12 billion in 2018; yet, between them, over half a million tonnes of salmon – worth US\$3.7 billion – died or escaped between 2010 and 2019.⁸⁴ Mowi's fish mortality rates accounted for almost half of this loss.

COMPANY	VOLUME OF LOSSES (TONNES 2010-2019)	COST OF LOSSES (MUSD 2010-2019)
MOWI	252,521	\$1,719
LEROY	66,975	\$456
Grieg Seafood	64,992	\$442
australis SEAFOODS	34,042	\$231
BLUMAR SEAFOODS	32,236	\$219
NORWAY ROYAL SALMON	28,342	\$193
BAKKAFROST <small>ESTABLISHED 1914</small>	21,058	\$143
SALMAR <small>Passion for Salmon</small>	15,929	\$108
Salmones Camanchaca	11,550	\$78
INVERMAR	9,256	\$63
TOTAL	536,901	\$3,656

MAIN CAUSES OF MORTALITY

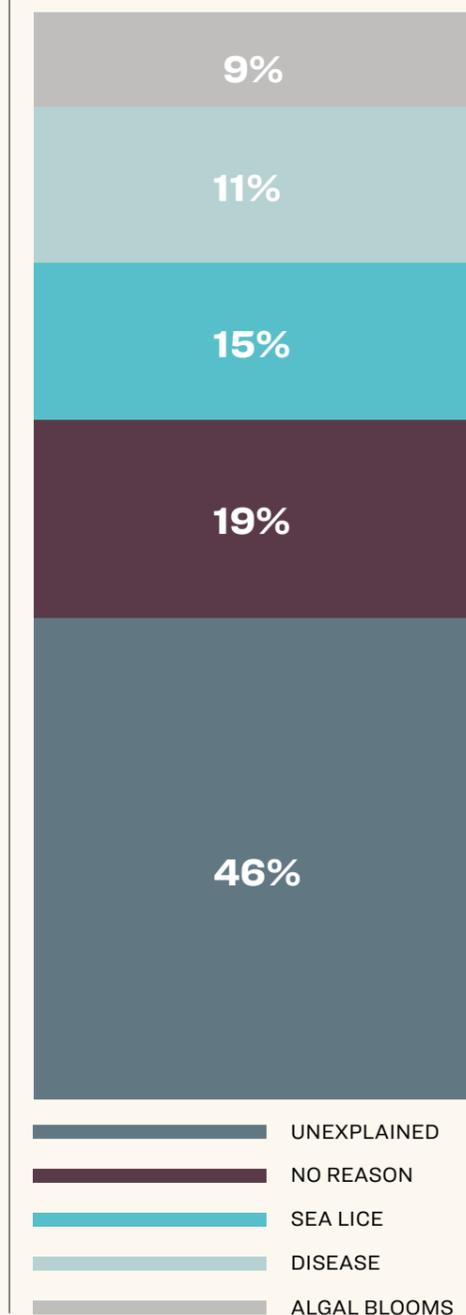


Table 1: Estimated mortalities and associated losses by producer (2010-2019)

Source: Just Economics (2021) *Dead loss: The high cost of poor farming practices and mortalities on salmon farms*. [ONLINE] Available at: <https://www.justeconomics.co.uk/health-and-well-being/dead-loss>

Figure 3: Main causes of mortalities on salmon farms

Source: Planet Tracker Salmon Dashboard Database, drawn from data from annual reports of global top-ten salmon producers.

How does farming affect fish welfare?

SEA LICE

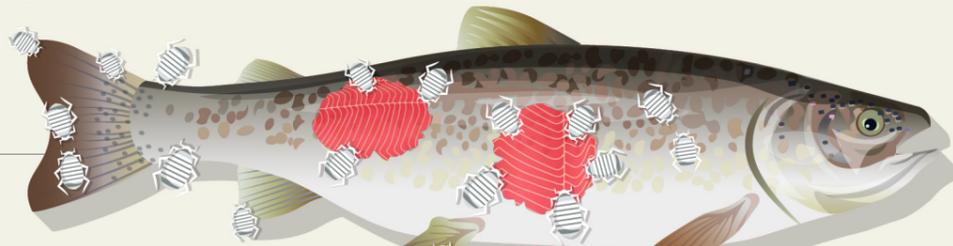


'CLEANER FISH' SUCH AS WRASSE ARE USED ON FARMS TO TREAT SEA LICE INFESTATIONS. THEY ARE KILLED AT THE END OF EACH GROWING CYCLE.



DELOUSING METHODS SUCH AS PESTICIDES AND LICE-EATING FISH ARE DETRIMENTAL TO FISH WELFARE. BOATS KNOWN AS THERMOLICERS ARE ALSO USED BY SALMON FARMING COMPANIES TO TRY AND GET RID OF THE LICE.

Lice feed by grazing on the surface of the fish and eating the mucous and skin. Large numbers of lice cause the loss of fins, severe scarring, secondary infections and even death. Open cage salmon farming allows sea lice to flow into the wider marine environment where they latch on to wild fish.



HUGE MORTALITY RATES

EVERY YEAR, MILLIONS OF FARMED FISH DIE AS A RESULT OF POOR HUSBANDRY



2010 - 2019

THE TOP 10 SALMON FARMING COMPANIES RECORDED MORTALITIES OF

100 MILLION SALMON = COST US\$3.7 BILLION

FISH ARE INTELLIGENT, SENSITIVE CREATURES. THEY ARE CAPABLE OF SUFFERING AND FEELING PAIN AND YET FARMED FISH ARE THE LEAST PROTECTED FARM ANIMALS.



THE MAJOR CONTRIBUTING FACTORS ARE:



PARASITES



TREATMENTS



DISEASE



POLLUTION



ESCAPES

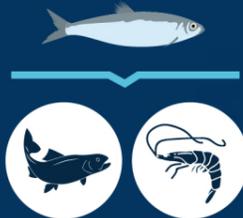


OVERCROWDING

HIDDEN LAYER OF SUFFERING

EVERY YEAR, BILLIONS OF WILD FISH ARE CAUGHT IN THE OCEAN TO FEED FARMED FISH AND PRAWNS.

THEY ARE SOURCED FROM



WHERE THEY ARE LARGELY SLAUGHTERED BY INHUMANE METHODS

20%

OF GLOBAL MARINE CATCH IS USED TO PRODUCE FISHMEAL AND FISH OIL FOR FEED

70%

OF THIS GOES TO AQUACULTURE



CRUEL SLAUGHTER METHODS



FISH ARE SLAUGHTERED USING CRUEL AND INHUMAN SLAUGHTER METHODS, SUCH AS:



BEING GUTTED ALIVE



CRUSHING



SUFFOCATION

OVERCROWDING

FARMED FISH LIVE IN CROWDED CONDITIONS

Overcrowded fish are more susceptible to:



DISEASE



STRESS



PHYSICAL INJURIES SUCH AS FIN DAMAGE



POOR WATER QUALITY



AGGRESSION



LESS OXYGEN TO BREATHE

It is important to note that there is very little information on mortalities from the aquaculture industry as a whole. Where data are available, they are reported inconsistently, and the number of total mortalities is likely to be significantly underestimated. Data on mortalities in salmon farming are only consistently available in Norway and Scotland, where producers report them to the government, while data are largely absent in other producing countries and for other species.

There is a hidden layer of fish mortality in the aquaculture industry – that found in wild-caught fish ground down into FMFO, which is used in feed. Based on FAO fisheries-capture tonnages, together with estimated mean weights for fish species, it is estimated that, from 2007 to 2016, between 0.5 and 1 trillion fish⁸⁵ were caught each year and reduced to ingredients to feed farmed animals – mainly fish, but also pigs and chickens.⁸⁶ In Scotland in 2019, the farmed salmon that died before being harvested led to a waste of around 25,000 tonnes of wild fish in the form of feed – enough to feed two million people their weekly portion of oily fish for a year.⁸⁷

2.2.2. Ask and questions

Ask 2: Blacklist farms with high mortality rates. As a starting point, we urge you to blacklist farms with monthly mortality rates above 10% for more than 3 months in a year; we also ask that you require monthly reporting on mortality and escape rates from all of your aquaculture suppliers and engage with them early on if these seem to be increasing.

QUESTIONS:

Does [X retailer] have a policy to blacklist farms with high mortality rates (in the first instance of farms with mortality rates exceeding 10% for three or more months in a year) and if not, will you commit to introducing one?

Do you require that your suppliers report mortality and escape rates to you and if so, how frequent is this reporting?

2.2.3. How did retailers perform?

No retailer has a policy of blacklisting farms with high mortality rates.

Nearly half failed to respond or do not appear to require reporting from their suppliers on mortalities and escapes.

Frontrunners:



Heading in the right direction:

No retailer gave a gold-standard response, as this would have meant having a policy of blacklisting farms with high mortality rates and requiring reporting from suppliers on mortalities and escapes. However, the following retailers seem to be taking steps to address these issues:

Waitrose (UK)



Waitrose told us that it would blacklist farms with high mortality rates and that the RSPCA Assured standard applies across all its farms. However, this standard only exists for Atlantic salmon and rainbow trout and not for other species. In



addition, Waitrose has detailed procedures in place for suppliers reporting on mortality and escape rates.

QUOTE:

"We gather mortality data, both numbers and reasons for mortality, at our on-farm Responsible Efficient Production audit. ... We also perform monthly kpi calls which capture mortality events and are setting up quarterly aquaculture specific meetings with all farming partners which will be focused on farming issues including mortality. Finally, we gather data on mortality by farm, farming company and region within our annual Aquaculture REP report. We will be assessing those findings this year and making decisions on whether to exclude or continue to work with said farms."



M&S (UK)

Although **M&S** has no policy on blacklisting, it has detailed procedures in place for suppliers to report on mortality and escape rates.



Tesco (UK)

Although **Tesco** has not defined an upper limit on mortalities and does not have a blacklisting policy, it has put in place detailed procedures for reporting.

QUOTE:

"in critical situations the supply into Tesco will be stopped."

As members of the Albert Schweitzer Stiftung initiative on animal welfare standards in aquaculture,⁸⁸ several German retailers, including **ALDI Nord**, **ALDI Süd**, **Edeka**, **REWE**, **LIDL** and **Kaufland**, deserve recognition for acknowledging and seeking to address key aspects of fish welfare such as humane slaughter. However, it is unclear to what extent this initiative has resulted in concrete improvements in retailers' practices and policies.

Lack of meaningful action:

The following retailers do not blacklist farms with high mortality rates and do not seem to require reporting from their suppliers on mortalities and escapes. In some cases, they rely on certification rather than auditing suppliers themselves: **Edeka** (Germany), **Mercadona** (Spain), **Carrefour** (Spain), **Alcampo/Auchan** (Spain), **Eroski** (Spain), **El Corte Inglés** (Spain), **Consum** (Spain), **Système U** (France), **Casino/Géant Casino** (France), **Coop** (Switzerland), **Migros** (Switzerland), **ALDI Süd** (UK, Germany, Switzerland, Austria), **ALDI Nord** (Germany, Spain, France), **Metro** (Germany, Austria), **Kaufland** (Germany), **Denner** (Switzerland).

2.3. Transparency and labelling

2.3.1. The issue

The complexity of global aquaculture supply chains combines with a lack of transparency and corporate accountability to mask from consumers the full scale of the sector's social and environmental problems. Retailers often rely on thin assurances of sustainability from seafood processors and aquaculture and aquafeed producers, who, in turn, hide behind one of the many certification schemes which are used as a deeply inadequate proxy for responsible sourcing (see Box 2.2 on page 31).

Our research shows that retailers need to step up efforts to improve transparency for their customers, who have a right to know about the origin of the farmed seafood they purchase, as well as the conditions it was reared in. One way retailers can supply better information is through clear and well-designed labelling which does not leave consumers in the dark about how and where their farmed fish was produced.

Encompassing and going beyond this, retailers have a responsibility to design food environments which help shoppers make better informed and more sustainable buying choices.^M The imperative for businesses to enable consumers to make informed choices was highlighted in recent guidance from the UK's Competition and Markets Authority⁸⁹ on making environmental claims and is highly relevant in the case of farmed fish and seafood, which are often marketed as being 'responsibly sourced' or 'sustainably produced'.

The labels say this salmon is 'responsibly sourced' - but what does that mean?

In addition, retailers need to require systematic public reporting and disclosure from their feed suppliers and fish farms in their supply chain regarding fish welfare and the composition and origin of feed.



^M The food environment is the environment which influences how we choose, shop for and consume food. It is everything around us, from billboards and TV adverts to the number and type of shops available to shop at, to how food is packaged and labelled. It could even be what is on which shelves in the supermarket, affecting what we are more likely to reach for while shopping. For more information, see: Feedback (2021) *Meat and climate scorecard*. [ONLINE] Available at: <https://feedbackglobal.org/wp-content/uploads/2021/06/Feedback-2021-Meat-and-Climate-Scorecard-supermarkets.pdf>

BOX 2.4: Labelling

Why labelling is important

Consumers want to know more about the origin and provenance of the farmed fish they buy, but they are often left in the dark on this by retailers. For example, a nationwide survey of UK shoppers by Fidra in 2019 found that consumers were often unaware that Scottish salmon is farmed (despite the fact that 100% of Scottish salmon comes from farms).⁹⁰

The survey also found that the majority (64%) of respondents would like to see more information about the products they are buying on the product labels. In addition, 86% of participants highlighted that they would be keen to know the name of the farm the salmon was sourced from. However, most UK retailers do not identify the farm on packaging.

This lack of information is typical across Europe and also applies to other farmed species (prawns, sea bass etc.).

Under EU and UK law, food business operators must comply with a number of legal requirements on farmed fish (aquaculture) labelling.

Description of the regulations

The labelling of seafood is governed under general EU consumer protection policy (FIC Regulation) and complemented by additional provisions under the EU common fisheries policy (CMO Regulation). Rules for mandatory and voluntary information about fishery and aquaculture products vary depending on the nature of the products, their level of processing and their presentation or packaging for sale.⁹¹

For EU businesses, the following labelling rules on the identification and origin of aquaculture products apply (similar rules apply to UK businesses):

For all unprocessed products and some processed products (e.g. salted, smoked products, cooked shrimps in their shells), food business operators must ensure that labels specify:

- Commercial designation and scientific names
- Production method (farmed or wild)
- Country of production.^{N, 92}

In addition, all prepacked products must specify:

- Name or business name and address of the food business operator
- Country of origin or place of provenance.

In the case of a second category of processed products (canned, composite products, breaded products, etc., which can be 'prepacked' and 'non-prepacked'),^O only the FIC Regulation applies, and the only mandatory information [relevant to this report] is:

- Name or business name and address of the food business operator
- Country of origin or place of provenance (the production method is not compulsory)

Analysis of labelling laws

Our research found that some European retailers are not even respecting these rules and are therefore failing to comply with their legal obligations on the labelling of farmed fish.

Even assuming full implementation, the legislation still leaves significant gaps. For example, it does not require food business operators to disclose information about the farm where the fish was reared, feed composition and fish welfare (e.g. slaughter methods and mortalities).

In light of the significant number of violations of existing labelling legislation highlighted through Changing Markets' internal research as well as a market investigation by French authorities which highlighted anomalies on labelling and traceability,⁹³ Changing Markets has written to national authorities in several EU member states requesting that they investigate companies' compliance.

^N These products can be 'prepacked' and 'non-prepacked'. The CMO Regulation (chapter IV) and the FIC Regulation both apply.

^O This applies to fishery and aquaculture products other than those in points a, b, c and e of Annex I to the CMO Regulation, including canned, composite products, breaded products, etc. These products can be prepacked and non-prepacked.



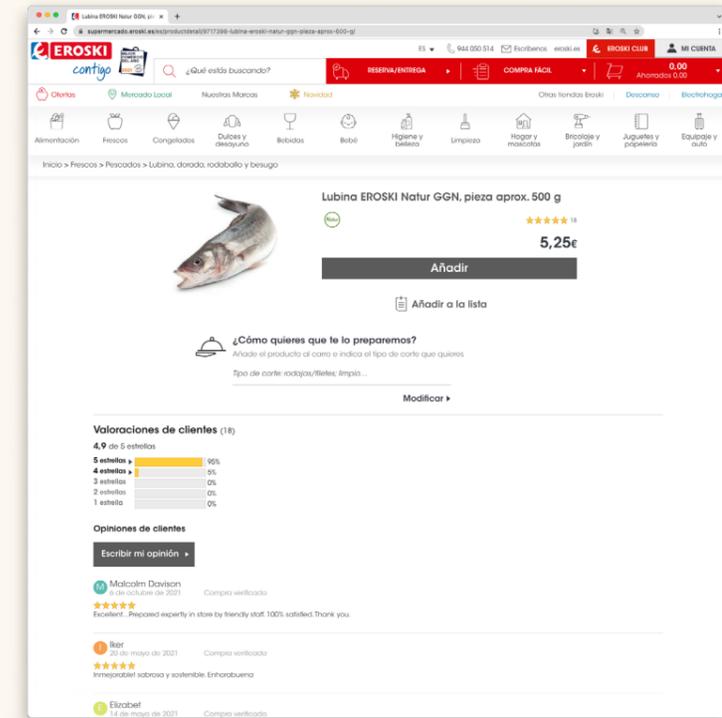
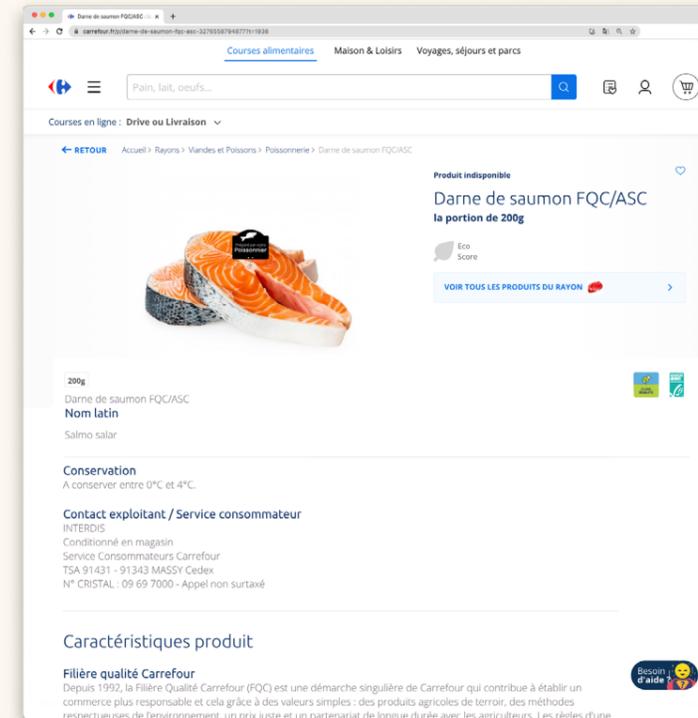
For example:

Carrefour (France): darne de saumon FQC/ASC (salmon steak)

The product information does not include the country of origin or the production method.^P

Eroski (Spain): Lubina (sea bass)

No information is provided to the consumer, except for the commercial name. This is the case for most fresh fish sold in Eroski's online store.^Q



Given that purchasing decisions are heavily influenced by the marketing and labelling of products on supermarket shelves, and that consumers expect retailers to maintain high standards to enable them to make sustainable choices, we believe the following improvements should be made to the legislation:

- Retailers must enable customers to make informed purchasing decisions by providing clear information on the method of production (farmed or wild seafood). Labels should therefore clearly indicate the method of production, including for processed products.
- In addition to identifying the country of origin and the method of production, farmed seafood product labels should clearly identify the name of the producer and the farm where the fish was produced.
- Online shoppers should be supplied with the same level of information as in-store shoppers.
- The composition and origin of aquafeed should be clearly mentioned on the label or publicly accessible to consumers, especially if it contains FMFO from wild-caught fish.
- Labels should also include information on welfare/mortalities, based on fish-welfare indicators.

^P Carrefour (n.d.) *Darne de saumon FQC/ASC*. [ONLINE] Available at: v

^Q Eroski (n.d.) *Lubina EROSKI Natur GGN, pieza approx. 500 g*. [ONLINE] Available at: <https://supermercado.eroski.es/es/productdetail/9717398-lubina-eroski-natur-ggn-pieza-aprox-600-g/>

2.3.2. Ask and questions

Ask 3: Ensure higher transparency regarding your aquaculture supply chains:

- a. Ensure clearly visible and adequate labelling of your aquaculture products. In addition to identifying the country of origin and production method, which is already required by law, we ask that labels clearly identify the name of the producer and farm where the fish was produced. Online shoppers should be supplied with the same level of information as in-store shoppers.
- b. We recommend that you require public reporting from your suppliers including on the composition and origin of feed used and on key fish-welfare indicators such as humane slaughter. We recommend that you use Compassion in World Farming's species-specific toolkit to set key fish-welfare reporting indicators: <https://www.compassioninfoodbusiness.com/resources/fish/>

QUESTIONS:

Do labels on your farmed fish products provide country of origin and production method as is required by law? Do you also report producer and farm for both online and in-store shopping?

Do your suppliers report on the composition and origin of feed used on their farms?

Do you have any reporting on fish-welfare indicators in place? Please specify.

2.3.3. How did retailers perform?

Only six retailers sometimes include the producer or farm name on fish labels (but not for all products).

Hardly any retailers appear to require public reporting by their suppliers on the composition and origin of feed used on their farms.

Most retailers either failed to respond or do not appear to have any reporting of fish-welfare indicators in place.

Frontrunners:



Heading in the right direction:

In this category, some elements of retailers' answers on transparency and labelling were strong, although none of these retailers provided gold-standard answers across the board:

M&S (UK)



The **M&S** online sourcing map is a useful and user-friendly resource. Its suppliers report on the composition and origin of feed used on their farms (although not

publicly). M&S reports fish-welfare indicators for 'main aquaculture species' (not for all); it also differentiates between species and considers a range of indicators, which is good.

QUOTE:

"Each species and producer has its own set of Outcome Measure indicators relevant to a particular species and farming method / place because each species is different and production methods differ. Welfare indicators include mortality rates, diseases and treatments, injury and slaughter method."

REWE (Germany and Austria), LIDL (Spain), Carrefour (France) and Coop (Switzerland) answered that they sometimes include producer or farm names on product labels. Coop (Switzerland) is currently piloting a smart-phone app on farms that maps product details at all levels of the supply chain. This will potentially result in the company disclosing more product information to its customers. We encourage Coop to pursue this effort and to make the information it discloses to customers as comprehensive as possible, covering all aspects listed above.

Tesco (UK), Morrisons (UK), Co-op (UK) and Waitrose (UK) seem to have comprehensive reporting on fish-welfare indicators.

UK retailers also lead the way on supply chain transparency. Since our initial engagement in 2020, several of them have signed up to or added farmed fish to their entry on the ODP, with eight of the ten top UK supermarket chains disclosing information about their farmed fish supply chains through this platform.⁹⁴ M&S, while not an ODP signatory, provides a degree of transparency regarding the species breakdown and origin of its farmed fish and shellfish via its online sourcing map.⁹⁵

Several German retailers have set up traceability systems that allow customers to access some information on farmed seafood products. However, the information provided for aquaculture products does not appear to go much beyond what is required to be indicated on product labels by law. This means that key information such as the name of the farm and the composition and origin of feed ingredients is usually missing. These retailers are:

- **Metro:** PROTRACE (fTRACE) solution⁹⁶
- **LIDL:** QR code
- **ALDI Nord:** ALDI Transparenz Code (ATC)
- **ALDI SÜD: ALDI SOUTH** (ALDI S D Tracking Code Abfrage)⁹⁷, **Hofer AT** (Check Your Product)⁹⁸ and **ALDI SUISSE** (Check Your Product)⁹⁹
- **REWE:** tracking code or GGN number
- **Kaufland:** part of the fTRACE solution.

Lack of meaningful action:

The following retailers do not include the producer or farm name on fish labels, do not require public reporting by their suppliers on the composition and origin of feed used on their farms, and do not appear to have any reporting of fish-welfare indicators in place: **LIDL GB** (UK), **ALDI Süd** (UK), **Edeka** (Germany), **Kaufland** (Germany), **El Corte Inglés** (Spain), **Eroski** (Spain), **Alcampo/Auchan** (Spain), **Carrefour** (Spain), **Système U** (France), **Casino/Géant Casino** (France), **Denner** (Switzerland), **LIDL** (Switzerland), **Migros** (Switzerland).

SPOTLIGHT ON MOWI

HEADQUARTERS:
BERGEN, NORWAY



€3.8 BILLION TURNOVER



THE WORLD'S LARGEST PRODUCER OF

ATLANTIC SALMON



A MAJOR

MANUFACTURER OF AQUAFEED



ALMOST
HALF A MILLION
TONNES OF SALMON IN 2020



MORE THAN
HALF A MILLION
TONNES OF AQUAFEED IN 2020

MOWI SELLS SALMON UNDER SEVERAL DIFFERENT BRANDS INCLUDING:



MOWI

Kritsen



MOWI SUPPLIES SALMON TO SOME OF EUROPE'S BIGGEST SUPERMARKET CHAINS

Auchan

COOP



ALDI

Waitrose

Carrefour

LIDL

Sainsbury's

Iceland

MOWI HAS FARMS LOCATED IN:



NORWAY
CHILE

SCOTLAND
FAROE ISLANDS

CANADA
IRELAND



MOWI SAYS IT IS LEADING A 'BLUE REVOLUTION'

BUT

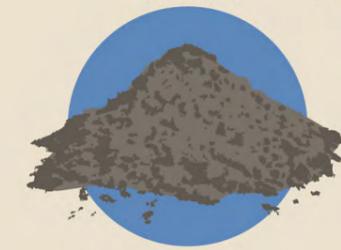
IT HAS A POOR RECORD ON SUSTAINABILITY AND FISH WELFARE

OVER ONE-QUARTER OF MOWI AQUAFEED IS COMPOSED OF FISHMEAL AND FISH OIL (FMFO)



FISH MEAL

FISH OIL



EVERY YEAR MOWI USES MILLIONS OF WILD FISH TO FEED ITS SALMON



IN 2020 MOWI SPENT

US\$114 MILLION
ON FISH OIL

MOWI SOURCES FMFO FROM REGIONS LIKE WEST AFRICA AND LATIN AMERICA WHERE FOOD INSECURITY AND MALNUTRITION ARE RIFE



IN 2020 MOWI SOURCED **18,617** TONNES OF FISH OIL FROM PERUVIAN WATERS

THE PERUVIAN FMFO INDUSTRY IS PLAGUED BY CORRUPTION AND SCANDALS.



PERU IS FACING A FOOD SECURITY AND MALNUTRITION CRISIS, WHICH IS ESPECIALLY IMPACTING SMALL CHILDREN

2018-2020 MOWI SOURCED **24,006** TONNES OF FISH OIL FROM MAURITANIA



MAURITANIAN FISH OIL IS MADE FROM SARDINELLA. THE FAO CONSIDERS SARDINELLA TO BE OVERFISHED THROUGHOUT THE ENTIRE WEST AFRICAN REGION

MOWI HAS **NO TARGET** TO PHASE OUT OR REDUCE



THE USE OF WILD-CAUGHT FISH IN ITS SALMON FEED

SINCE 2010

50 MILLION



FISH HAVE DIED ON OR ESCAPED FROM ITS FARMS OVER THE PAST DECADE



Packaged fresh salmon for sale in a supermarket

Credit: shutterstock

3. Conclusions

This report has found that:

- No retailer has a clear target for reducing - and ultimately eliminating - wild-caught fish in feed, meaning that no retailer can guarantee that its aquaculture supply chain does not damage marine ecosystems.
- Retailers are taking very inadequate steps to protect fish welfare in their aquaculture supply chains, resulting in the unacceptable mistreatment and suffering of billions of sentient beings on farms and at sea.
- Retailers are failing in their duty to inform their customers about the origin of the farmed fish and seafood they sell. What is more, our analysis suggests that some retailers are failing to comply with their legal obligations regarding the labelling of farmed aquaculture products.

Eleven retailers failed to provide a response to our survey altogether, indicating a worrying lack of regard for the environmental and social impacts of their aquaculture supply chains. None of the 33 retail chains we surveyed provided us with a gold-standard response in any of the three areas we assessed - feed, welfare/mortalities and transparency/labelling - leaving us unable to identify any frontrunners across the board.

Our analysis also highlights divergences in policies and practices on the sourcing of farmed fish within retailer groups which are present in more than one country. This creates an unfair situation where customers of the same supermarket chain might experience lower standards (e.g. on supply chain transparency or product labelling) in one country than in other locations where the company operates.

It is true that we encountered some examples of good practice including **Waitrose's** monitoring and reporting of mortalities on fish farms, UK retailers' reporting to the ODP, and German retailers' attempts to set up publicly accessible traceability systems to provide information on farmed seafood products. While these schemes are far from perfect, the intention to provide customers with more information is a step in the right direction and will hopefully, over time, introduce greater transparency in a sector which remains very opaque.

It is also encouraging to see some retailers, such as **Auchan** and **Tesco**, moving towards setting targets for the reduction of wild fish in aquafeed, and one retailer - **Coop Switzerland** - contemplating a move away from

wild-caught fish in its aquaculture supply chain altogether. Ongoing testing and trialling of alternative feed ingredients is also a positive sign that companies are beginning to take a more proactive approach to making their aquaculture supply chains more sustainable. Some companies also acknowledge the importance of fish welfare and are beginning to take meaningful action to protect this. Nonetheless, no retailer appears to be fundamentally questioning the aquaculture industry's current business model, which in Europe is focused on the farming and import of high-input carnivorous or omnivorous species such as salmon, sea bass and prawns.

Overall, positive signs were few and far between. Even where progress is being achieved, it is very piecemeal and no retailer can be said to have industry-leading policies across all three areas. In summary, our analysis shows that as farmed fish and seafood products begin to outnumber wild-caught species on supermarket shelves across Europe, European retailers are failing to perform adequate due diligence on their farmed fish and seafood supply chains.

4. Recommendations

This report calls on retailers to:

- Commit to phase out the use of wild-caught fish in aquafeed and other farmed animal feed by 2025 at the latest
- Introduce strict and specific requirements for suppliers to ensure that farmed fish and seafood species are reared and slaughtered humanely using Compassion in World Farming's species-specific toolkit to set key fish-welfare reporting indicators¹⁰⁰
- Blacklist farms that have consistently high fish mortality rates, as this often indicates poor farming practices and issues with fish welfare^{R,101}
- Introduce greater transparency for consumers by improving labelling in line with customers' right to know the origin of the farmed fish they buy, the origin and composition of what it was fed, and how it was reared
- For retailers present in several countries, establish consistent and ambitious group-level policies on feed, welfare and transparency rather than allowing national subsidiaries to pick and choose
- Engage with third-party certification schemes to ensure that relevant standards are ambitious and align with our asks in the three priority areas identified
- Reduce overall reliance on third-party certification as a proxy for sustainability by developing their own robust and transparent standards for sustainably produced seafood, including farmed seafood, and for feed.

R As noted earlier in this report, premature mortalities on salmon farms routinely exceed 20%. In addition, recent research found the mortality rate for sea bass and sea bream farmed in the Mediterranean is 15–20%. As a first step to improve matters, we are therefore asking retailers to take action to exclude the worst-performing companies from their suppliers by blacklisting farms that have monthly mortality rates above 10% for more than three months in a year.



We encourage their customers to:

- Limit seafood consumption and replace it with healthy plant-based foods which are rich in the same nutrients provided by fish⁵ - the greatest individual contribution we can make to ending the overexploitation of our oceans is to limit our seafood consumption
- Diversify their consumption to include a wider range of sustainably fished wild species, as well as farmed species that do not rely on feed containing FMFO
- Show companies they care about aquaculture issues, such as the origin of feed, transparency and animal welfare, by contacting retailers to request higher standards for farmed seafood

Governments and policymakers should:

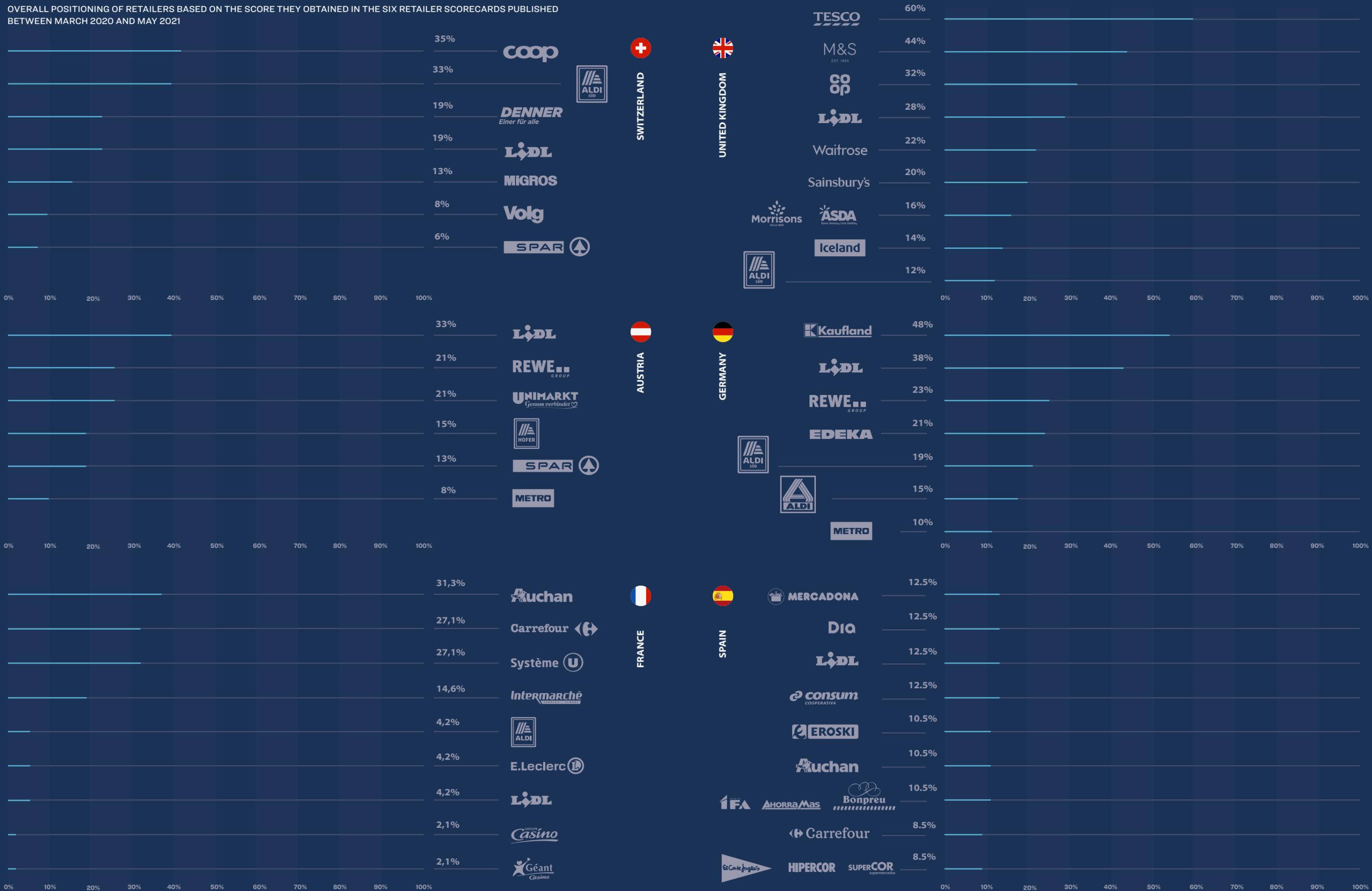
- Enforce existing regulations and implement stricter ones on due diligence and transparency of feed supply chains
- Strengthen governance frameworks to prevent overfishing, and improve transparency and reporting in global fish supply chains
- Support the development and commercialisation of alternative feed industries, as well as a shift to more sustainable ingredients
- Support the phase-out of aquaculture which relies on the use of wild fish, and remove access to subsidies and other public support measures for producers who are unwilling to switch to more responsible feed sourcing and farming practices
- Put in place policies to ensure the welfare of fish in fish farms and reduce high mortality rates in line with international standards such as the OIE Aquatic Code.¹⁰²

⁵ Credit: Shutterstock

⁵ For example, linseed, rapeseed oil and walnuts constitute excellent sources of omega-3.

Annex 1. European ranking

OVERALL POSITIONING OF RETAILERS BASED ON THE SCORE THEY OBTAINED IN THE SIX RETAILER SCORECARDS PUBLISHED BETWEEN MARCH 2020 AND MAY 2021



Annex 2: Sample letter sent to retailers in summer 2021

Dear [Retailer contact],

Following our correspondence last year regarding [Caught Out: How UK retailers are tackling the use of wild fish in their aquaculture supply chains], we are writing to inform you that we are in the process of conducting a comparative review assessing where retailers across Europe stand on the responsible sourcing of farmed seafood. We plan to publish our findings in autumn 2021 and are contacting you to request an update on your policies and practices since we were last in touch on this matter to ensure that these are reflected accurately and we are able to take any improvements into account. In our [2020]/[2021] assessment [X retailer] received [X points] and ranked [first/second/third etc.] with [X%].

We have identified three priority areas for retailers, namely:

1. The phase-out of wild-caught fish in aquaculture feed;
2. Improved monitoring of mortalities on fish farms and blacklisting producers with excessive mortality rates;
3. Higher transparency in aquaculture supply chains and improved product labelling.

Aquaculture is the fastest-growing segment of the food production sector and currently accounts for over half of world fish consumption. Despite the sector's aspirations to improve global food security and relieve pressure on wild fish stocks, research shows that it is failing to deliver on this promise.¹⁰³ Every year, almost one-fifth of the world's marine fish catch is taken out of the ocean to feed farmed animals in the form of fishmeal and fish oil (FMFO), with more than two-thirds of that amount destined for seafood farming.¹⁰⁴ According to scientists, 90% of the fish used to make FMFO could be used to feed people directly instead.¹⁰⁵ The majority of it is sourced from countries where food security is a problem.¹⁰⁶

In addition to this, there are growing concerns about the impact of fish farming on fish welfare, with high mortality rates reflecting inadequate fish husbandry. Analysis published in February 2021 reveals high mortality rates on salmon farms where data is available.¹⁰⁷ Compassion in World Farming calculates that in the five years between 2012-2017, an average of 24.2% of fish reared on Scottish salmon farms died prematurely every year.¹⁰⁸ It is important to note here that the aquaculture industry as a whole discloses very little data on important phenomena such as mortalities. Data on mortalities in salmon farming are only available in Norway and Scotland where they are reported by producers; in other producing countries and for other species they are largely absent.^T

Our analysis shows that despite their significant market power, retailers are not taking sufficient action to address the damage caused by irresponsible sourcing of feed and poor fish welfare in their aquaculture supply chains. We are writing to urge you to take action to address this by engaging with your suppliers and encouraging them to transition away from harmful practices such as the use of FMFO and poor fish husbandry.

We have set out a series of asks and questions for you relating to our three priority areas below and would welcome your input on them to inform our assessment of where [X retailer] stands on these issues. We invite you to provide as much detail as possible and would like to underline that adherence to or support of a particular certification scheme, while useful to provide context, will not be considered as a satisfactory response, owing to considerable shortcomings common to all certification schemes in our areas of focus.

Our asks and questions are as follows:

Ask 1: Phase out the use of wild-caught fish as feed for aquaculture in your supply chain. Commit to doing this by 2025 at the latest and report on progress.

QUESTION:

Does [X retailer] have a commitment to phase out the use of wild-caught fish as feed for aquaculture in your supply chain and if so, have you set a target date for this?

Ask 2: Blacklist farms with high mortality rates. As a starting point, we urge you to blacklist farms with monthly mortality rates above 10% for more than 3 months in a year; we also ask that you require monthly reporting on mortality and escape rates from all of your aquaculture suppliers and engage with them early on if these seem to be increasing.

QUESTIONS:

Does [X retailer] have a policy to blacklist farms with high mortality rates (in the first instance of farms with mortality rates exceeding 10% for 3 or more months in a year) and if not, will you commit to introducing one?

^T For example, salmon farmers assume a minimum amount of mortalities per number of smolts (young salmon) released into pens, and most likely incorporate this into their harvest calculations. In this scenario, the difference between expected and actual harvests is therefore a measure of excess deaths, rather than total deaths. See: Just Economics (2021) *Dead loss: The high cost of poor salmon farming practices* <https://www.justeconomics.co.uk/health-and-well-being/dead-loss>

Do you require that your suppliers report mortality and escape rates to you and if so, how frequent is this reporting?

Ask 3: Ensure higher transparency regarding your aquaculture supply chains:

- A. Ensure clearly visible and adequate labelling of your aquaculture products. In addition to identifying the country of origin and production method, which is already required by law, we ask that labels clearly identify the name of the producer and farm where the fish was produced. Online shoppers should be supplied with the same level of information as in-store shoppers.
- B. We recommend that you require public reporting from your suppliers including on the composition and origin of feed used and on key fish welfare indicators such as humane slaughter. We recommend that you use Compassion in World Farming's species-specific toolkit to set key fish welfare reporting indicators: <https://www.compassioninfoodbusiness.com/resources/fish/>

QUESTIONS:

Do labels on your farmed fish products provide country of origin and production method as is required by law? Do you also report producer and farm for both online and in-store shopping?

Do your suppliers report on the composition and origin of feed used on their farms?

Do you have any reporting on fish welfare indicators in place? Please specify.

We would appreciate it if you could reply to this letter by [xxx] by email.

If you have any additional questions or would like to organise a meeting or a call with our team, please do not hesitate to get in touch. Please note we will also send this letter by post.

We look forward to hearing from you.

Annex 3: Parameters used to assess retailers' responses

ASKS	QUESTIONS	PARAMETERS USED TO ASSESS RETAILERS
Phase out the use of wild caught fish as feed for aquaculture in your supply chain. Commit to doing this by 2025 at the latest and report on progress.	Does [X] have a commitment to phase out the use of wild-caught fish as feed for aquaculture in your supply chain and if so, have you set a target date for this?	<ul style="list-style-type: none"> Target for phase-out of FMFO + milestones for reduction + active exploration of alternatives Ambitious FMFO reduction target + active exploration of alternatives Aim to reduce FMFO but no target, some knowledge of alternatives, working with or encouraging suppliers in search for substitutes, reliance on certification. No target, no acknowledgement of need to reduce, no exploration of alternatives.
Blacklist farms with high mortality rates. As a starting point, we urge you to blacklist farms with monthly mortality rates above 10% for more than 3 months in a year; we also ask that you require monthly reporting on mortality and escape rates from all of your aquaculture suppliers and engage with them early on if these seem to be increasing.	Does [X] have a policy to blacklist farms with high mortality rates (in the first instance of farms with mortality rates exceeding 10% for 3 or more months in a year) and if not, will you commit to introducing one?	<ul style="list-style-type: none"> Policy to blacklist farms with high mortality rates Partial policy to blacklist farms for certain species only. No policy to blacklist except "In critical situations." Or retailer "considering setting targets" / statements that there is a commitment with suppliers No policy to blacklist, no plans to introduce one, no upper limit on mortalities defined.
	Do you require that your suppliers report mortality and escape rates to you and if so, how frequent is this reporting?	<ul style="list-style-type: none"> Yes, regular reporting (weekly/monthly), across species, plus procedures to deal with an increase in mortalities and escape incidents. Clear link between mortality and welfare made. Reporting takes place, frequency given, but limited number of species and/or no procedures to deal with increased rates. Reporting but no frequency given + happens for one species only (and/or reliance on certification). Or requirement for suppliers to take measures against escapes. No reporting from suppliers
Ensure higher transparency regarding your aquaculture supply chains. 1. Ensure clearly visible and adequate labelling of your aquaculture products. In addition to identifying the country of origin and production method, which is already required by law, we ask that labels clearly identify the name of the producer and farm where the fish was produced. Online shoppers should be supplied with the same level of information as in-store shoppers. 2. We recommend that you require public reporting from your suppliers including on the composition and origin of feed used and on key fish welfare indicators such as humane slaughter. We recommend that you use Compassion in World Farming's species-specific toolkit to set key fish welfare reporting indicators: https://www.compassioninfoodbusiness.com/resources/fish/	Do labels on your farmed fish products provide country of origin and production method as is required by law?	<ul style="list-style-type: none"> Not assessed owing to the fact it is a legal requirement

ASKS	QUESTIONS	PARAMETERS USED TO ASSESS RETAILERS
	Do you also report producer and farm for both online and in-store shopping?	<ul style="list-style-type: none"> Producer and farm, online and in-store, across a wide range of products. Producer and farm + in-store or online, across more than one product. Producer or farm, in-store or online applied to limited products/species (usually one e.g., salmon) No reporting of producer and farm.
	Do your suppliers report on the composition and origin of feed used on their farms?	<ul style="list-style-type: none"> Suppliers report on the composition and origin of feed used on their farms. Suppliers report, but no publicly available documentation to back this up. Or suppliers report but only on demand. Or reporting about composition but not origin. Only some suppliers disclose their feed sources. Or some products only. No public reporting, but reporting to retailer in some cases. No reporting from suppliers on composition and origin of feed.
	Do you have any reporting on fish welfare indicators in place? Please specify.	<ul style="list-style-type: none"> Yes, across species, timeframe given, species-specific indicators mentioned, details of types of indicator listed. Yes, but applies reporting with a timeframe to one species only, OR gives general details of indicators that appear to be blanket applied to all species (i.e., no mention of the need for species-specific indicators) Reliance on certification welfare indicators. Reporting for 1 or 2 species only. Or indicators under development or commitments in their charters. Or lobbying certification schemes on animal welfare. No reporting on fish welfare indicators in place

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