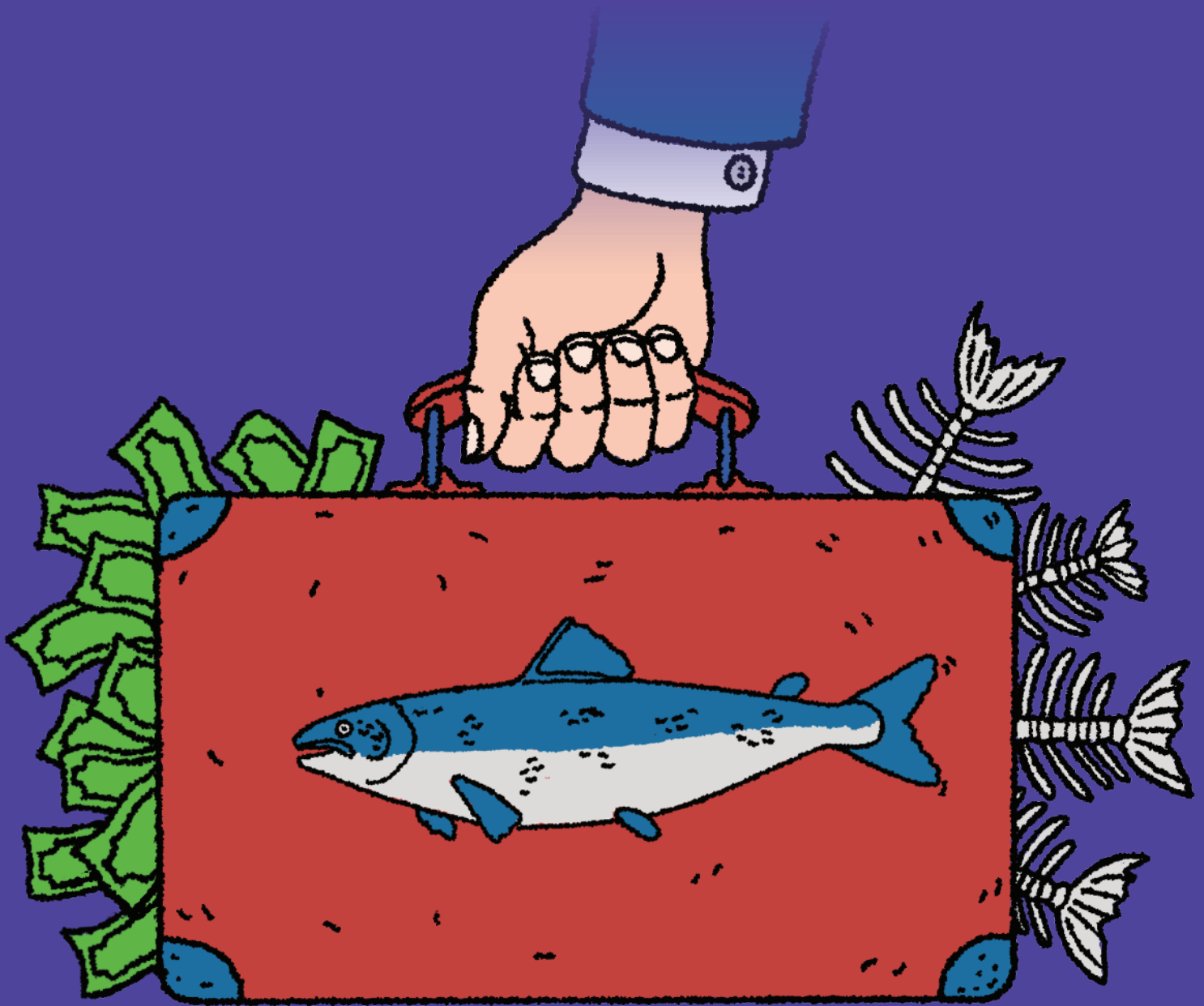


Fishy Finances

Exposing industrial salmon farming's
biggest financial backers



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Glossary

Aquaculture – Farming of aquatic organisms, including fish, shellfish, plants, and algae. In this report the type of aquaculture we focus on is the production of carnivorous fin fish, which includes Atlantic salmon farming.

Aquafeed – Compound feed (i.e. feed made up of several different ingredients) given to aquatic farmed animals.

Atlantic salmon (*Salmo salar*) – The most common species of farmed salmon.¹ The largest producer of farmed Atlantic salmon is Norway.² Approximately 70% of salmon produced worldwide is farmed.³

Big Salmon – A term used in this report to refer to the large multinational corporations which dominate the global salmon farming industry.

FAO – The Food and Agriculture Organization, a specialised agency of the United Nations charged with international efforts to defeat hunger and improve nutrition and food security.

Fed aquaculture – The farming of aquaculture species which require the use of feed inputs. The growth of fed aquaculture (i.e. of species such as farmed Atlantic salmon and farmed seabass) has consistently outpaced the growth of non-fed aquaculture (i.e. of species such as mussels and oysters) in recent decades.

Fishmeal and fish oil (FMFO) – Concentrated sources of protein and micronutrients used for the production of feed for aquaculture and agriculture, produced by processing whole wild-caught fish or by-products from fish processing.

Food-feed competition – The tension between the use of a finite food source, such as wild-caught fish, for direct human consumption versus its use to feed farmed terrestrial and aquatic animals.

Global South – A term traditionally used to refer to economically disadvantaged nation-states. In recent years, the term has been increasingly employed to refer to spaces and peoples negatively impacted by contemporary capitalist globalisation.⁴

Marine ingredients – Inputs for aquafeed, terrestrial animal feed and consumer products such as nutritional supplements and pet food. Principally sourced from whole wild-caught fish in the form of fishmeal and fish oil.

Small pelagic fish – Forage fish such as anchoveta, mackerel, herring, whiting and sardines that live in the pelagic zone (i.e. not close to the bottom or near the shore) of oceans or lakes. They play a vital role in ecosystems as prey of larger ocean animals. In addition to this, they provide critical nutrition for many coastal and inland communities in the Global South. Some species of krill and squid are also considered forage fish because many animals rely on them as a food source.⁵

Reduction fisheries – Fisheries which process (or reduce) their catch into fishmeal and fish oil.

Salmonids – The family of ray-finned fish which includes salmon and trout.

By-Products – Co-products from fish processing deemed unsuitable for direct human consumption.

Trophic Level – Term used to describe the position of an organism in the food chain. Mid-trophic fish such as sardines, herring and anchovy account for more than one-third of total global marine catch, with the majority processed for fishmeal, oil, and animal feed.⁶

Financial terms

Corporate loans: Companies borrow money from a financial institution, with a maturity date by which they have to pay it back with interest. Long-term corporate loans are particularly useful in financing expansion plans.

Bond issuances: Issuing bonds involves cutting a large loan into small pieces and selling each piece separately. These are traded on the stock exchange. To issue bonds, a company needs the assistance of one or more (investment) banks which underwrite a certain amount of the bonds. Underwriting is in effect buying with the intention of selling to investors. If the investment bank fails to sell all the bonds it has underwritten, it will end up owning the remaining bonds.

Share issuances: Issuing shares on the stock exchange gives a company the opportunity to increase its equity by attracting new shareholders or increasing the equity from its existing shareholders. To arrange this, a company needs the assistance of one or more (investment) banks to underwrite the shares. The bank(s) purchase the shares initially, then promote the shares and find shareholders. If the investment bank fails to sell all the shares it has underwritten, it will end up owning the remaining shares.

Revolving credit facilities: Provides a company with the option to borrow money from a bank (or, more often, a banking syndicate) partially or in full at its discretion. If the revolving credit facility is granted, the company can use it, in part or in full, and then pay the principal and interests as agreed in the contract; however, the company can also opt to not use the facility if its liquidity condition does not require it. This is similar to a credit card in that companies can use the revolving facility up to a certain limit, but they don't have to. Revolving credits are often concluded for different time periods and then renewed, but many companies renegotiate their revolving credit facility every year with the same banking syndicate. Amounts, interest rates, fees and participating banks can change at every renewal.

Totals on revolving credit facilities in this report should only be considered as representing the total amount available, because figures available on financial databases are the potential finance the financial institution has agreed to provisionally make available to the client – the actual values that have been drawn down via revolving credit facilities, and the values that have been drawn down and repaid over a given period of time, are often not publicly disclosed. The actual finance the client has made use of is not disclosed – this may have been higher or lower than the limit the financial institution agreed to provide.

Shareholdings: Shareholdings are ownership of shares in a company, which usually entitle the owner to voting rights in how the company is run and give potential for possible returns through price appreciation and dividends. As part-owners of the company, banks can have a direct influence on the company's strategy, though the magnitude of this influence depends on the size of the shareholding. Not all companies are listed on a stock exchange. Shares can be bought and sold on the stock exchange from one moment to the next. Financial databases keep track of shareholdings through snapshots, or filings. This means that when a particular shareholding is recorded in the financial database, the actual holding, or a portion of it, might have been sold, or more shares purchased. Secondly, share prices vary from one moment to the next.

Bondholdings: Institutional investors can also buy bonds issued by private companies. The main difference between owning shares and bonds is that the owner of a bond is not a co-owner of the issuing company; the owner is a creditor of the company. The buyer of each bond is entitled to repayment after a certain number of years, and to a specified rate of interest during each of these years. Bonds can also be bought and sold from one moment to the next. Bondholdings are reported by the holding investor through regular filings.

Foreword

I'm fortunate to live in one of the most beautiful parts of Scotland's west coast. But I am unfortunate, in that my home is right next to an industrial salmon farm.

Like many factories, salmon farms are incredibly noisy seven days a week – including at antisocial hours. They are lit during the night for weeks on end to artificially manipulate the development of the fish. They're often smelly, they produce masses of pollution in the form of plastic, thousands of tonnes of fish faeces, and gallons of chemicals courtesy of the various medications that they feed and bathe the fish in. All of this pollution is released directly into our precious coastal waters.

If you spend any time on the west coast of Scotland's stunning coastline, you will soon encounter the huge industrial salmon farms and their detrimental impacts. They are ubiquitous and constantly seeking to expand, essentially treating Scotland as an open-air sewer – making vast profits while creating a legacy of degradation and pollution.

I grew up on this coast and have always loved the sea. My background is in marine science. After graduating I worked for a salmon farming company, buying into the 'feeding the people' fallacy. After around a year I left; sickened by the waste and welfare issues associated with salmon farming. I have since audited salmon farms for the RSPCA, worked with wild salmon interests, inshore fishermen, set up a commercial oyster farm, and now I work for Seawilding, focusing on native oyster restoration. In every job I have done, I have witnessed the negative impacts of salmon farming firsthand and close-up.

Profit is the primary concern of salmon farming companies. The faeces flowing out of industrial farms impact habitats such as maerl and seagrass that are vital areas for commercially important wild fish and shellfish species. The chemicals used have a well-documented detrimental impact on many non-target organisms that are caught in the crossfire. This includes bivalves and crustaceans, which are crucial for the livelihoods of shellfish farmers and inshore fishermen. The use of these chemicals is going up year-on-year – particularly worrying given the Scottish industry is projected to double in value by 2030.⁷ The flow of faeces will also increase alongside the chemicals.

The eye-watering numbers laid bare in the pages that follow expose the vast amounts of finance the salmon farming industry is receiving from financial institutions and public money. It's unacceptable that foreign-owned industry should be shored up by UK taxpayers when these companies are making millions in profit every year. UK public money should be spent on genuinely sustainable projects and businesses that benefit coastal communities like mine, without damaging the ability of others to make a living or causing harm to the environment.

It is so difficult for communities to fight salmon farms, it's always David versus Goliath, and the farms have literally billions of pounds at their disposal. But more and more people are waking up to the truth that the ever-increasing negatives hugely outweigh the benefits of industrial-scale salmon farming. We are a growing movement, we have a voice that is getting louder and we will continue to fight against the scourge of industrial salmon farming.

Ailsa McLellan, Oyster Farmer



*Ailsa McLellan, Oyster Farmer.
Credit Ailsa McLellan, 2025*

Executive summary

This report identifies industrial salmon farming's biggest financial backers and exposes the deeply troubling role global financiers are playing in creating a food production system – salmon farming – that is harming people's food security, health and livelihoods, as well as extracting a huge toll on the environment.

The global aquaculture industry has experienced significant growth in recent decades;⁸ in 2022 the UN reported that the world now eats more fish from farms than is caught wild from the ocean.⁹ Industrial salmon farming, the most profitable aquaculture sector, has mirrored this growth trajectory.¹⁰

However, a substantial body of evidence, including people's direct lived experiences, reveals the massive damage that salmon farming is causing to food security, natural habitats and livelihoods. We also know that salmon farming is negatively impacting wild salmon populations, already under threat from the climate crisis and poor water quality.¹¹ In 2023 the International Union for Conservation of Nature (IUCN) classified global wild Atlantic salmon populations as 'near threatened'¹² and reclassified UK populations as 'endangered'.¹³

As a result, resistance to salmon farming is intensifying around the world, driving restrictions and bans in several countries, and forcing companies to reconsider their expansion plans.

Despite this growing opposition, massive financial backing from multinational banks and asset managers, state pension funds and governments continues to flood into salmon farming, fuelling the consolidation and rapid expansion of an industry that urgently needs to be rolled back. European – primarily Norwegian – corporations dominate the sector, with the largest now operating across several continents.

This report argues that by supporting this extractive industry, financial institutions are complicit in propping up a multibillion-dollar global operation which places shareholder profits over the food security of millions of people and the protection of the natural world.

Despite extraordinary future growth projections, the global salmon farming industry will hit ecological limits due to its highly extractive nature. The climate crisis will only amplify these challenges. Meanwhile, as the global resistance to salmon farming gathers momentum, further restrictions and bans on salmon farming activity will inevitably follow.

The conclusion is clear: it's time for global financiers to turn off the taps and stop financing salmon farming.

Key findings

- Our analysis shows that between January 2015–November 2024, international financiers channelled tens of billions of dollars into leading salmon farming companies in the form of investments or credit.
- The top 5 creditors were: Nordea (US\$4.5 billion), DNB (US\$ 4.3 billion), Danske Bank (US\$2.6 billion), Rabobank (US\$1.8 billion) and ABN Amro (US\$1.3 billion).
- The top 5 investors as of November 2024 were: Government Pension Fund Norway (US\$1.7 billion), BlackRock (US\$0.8 billion), Storebrand (US\$0.6 billion), Vanguard (US\$0.6 billion) and Nordea (US\$0.5 billion)
- Three companies, Mowi, SalMar and Bakkafrøst, were the biggest recipients of both investment and credit.
- Our data identified that between January 2015 and November 2024, financial institutions provided US\$18.8 billion in credit to the salmon farming companies owned by Mowi (including Mowi subsidiary Arctic Fish), Kverva (principally SalMar alongside Salmonor, Arnarlax and Icelandic Salmon), Bakkafrøst (including Scottish Salmon Company), Cooke (Cooke Aquaculture), Grieg Maturitas (Grieg Seafood) and Laco (Lerøy Seafood Group).
- As of November 2024, nearly US\$12 billion in investment financing (US\$10.9 billion in shareholdings and US\$0.7 billion in bondholdings) were held by financial institutions in some of the world's biggest industrial salmon farming companies.
- Salmon farming is also attracting investment from 'sustainable banks' including Triodos, which had US\$16 million invested in Bakkafrøst as of November 2024. The Norwegian pension fund ranked as the largest investor at US\$1.7 billion – more than the value of Scotland's entire salmon farming industry.^a

^a The Scottish salmon farming industry is valued at £1.2 billion annually (<https://fishfocus.co.uk/scotlands-1-billion-plus-salmon-industry-nearing-record-year/>). This is equivalent to US\$ 1.5 billion.

- In a similar time period (2015-2024)^b, total global production of farmed salmon increased by almost one-third, from 2.3 million tonnes in 2015 to nearly 3 million tonnes in 2024^{c,14} considerably outpacing the growth of global meat production^{d,15,16}
- One company, Mowi, the world's largest farmed salmon producer, received over one-third (US\$7 billion) of all credit combined and over half (US\$ 6 billion) of all investment. According to our calculations, this has helped Mowi, a company listed on the Oslo stock exchange, boost its farmed salmon production volumes by nearly one-fifth, from 420,000 tonnes in 2015 to 502,000 tonnes in 2024^{17,18} and more than double its feed production from 282,000 tonnes to 582,000 tonnes over a similar period^{e,f,19,20}
- Mowi has also benefited from significant public finance: according to our analysis, the UK government provided £7 million to Mowi through the UK Seafood Fund between 2022-2023.²¹ This is over 5 times the amount of tax the company paid to the UK Treasury in 2022 (£1.269 million).²²
- Since 2021, the Marine Fund Scotland has awarded nearly £5 million (£4.8 million) to salmon farming companies including Bakkafrøst subsidiary the Scottish Salmon Company, Mowi and Cooke Aquaculture.²³
- Between 2019-2022, the EU contributed nearly €1 million (€989,637) to a €1.5 million project led by Norwegian salmon farming giant Lerøy (Lerøy Vest AS and Lerøy Seafood Group ASA through the European Maritime and Fisheries Fund (EMFF, since renamed to EMFAF).²⁴
- We calculate that at least 50 of the 400 individuals featured on Norway's rich list are directly involved in salmon farming; two of them are dollar billionaires (John Fredriksen, Mowi's largest shareholder, and Gustav Witzøe, founder of SalMar).²⁵ The market consolidation that has made many of these individuals so rich would not have been achievable without the significant backing global financiers provide to salmon farming.



Industrial salmon farm in fjord. Norway, Bergen. Credit: Marius Dobilas (Shutterstock)

- ^b Feedback's financial data spans from January 2015 – November 2024. The time period for the growth of farmed salmon production spans from January 2015–December 2024.
- ^c Based on yearly global production of farmed Atlantic salmon worldwide, Feedback calculated production increased by 29% between 2015 and 2024. (Using: <https://www.statista.com/statistics/1179062/global-atlantic-salmon-production/>).
- ^d According to Feedback's calculations, between 2015-2024, global meat production increased by 18%. According to Our World in Data, in 2025 327 million tonnes of meat was produced globally. According to research from M. Shahbandeh (Statistica), in 2024 387 million tonnes of meat was produced.
- ^e This is based on Feedback's own workings based on Mowi's 2015 Annual Report and their 2024 Q4 report. At time of publication its 2024 Annual report had not been published.
- ^f Feedback's financial data spans from January 2015 – November 2024. The time period for the growth of Mowi's farmed salmon and feed production spans from January 2015- December 2024.

Introduction: Global financiers pump billions into salmon farming – but they need to turn off the taps

The aquaculture industry has skyrocketed in recent decades,²⁶ with salmon farming consistently ranking as the most profitable and economically valuable sector.²⁷ However, the industry's expansion is escalating environmental and socioeconomic harms, causing widespread alarm. Despite the concerns raised by communities impacted by salmon farming, scientific experts and even some investors, global finance continues to flood into this extractive industry, driving its consolidation and unsustainable expansion. Yet the reality is clear: the industry urgently needs to be rolled back.

With brand new data on the financiers bankrolling the global salmon farming industry, this report reveals that salmon farming corporations have received tens of billions of dollars from banks, private investors, governments and pension funds over the past decade.

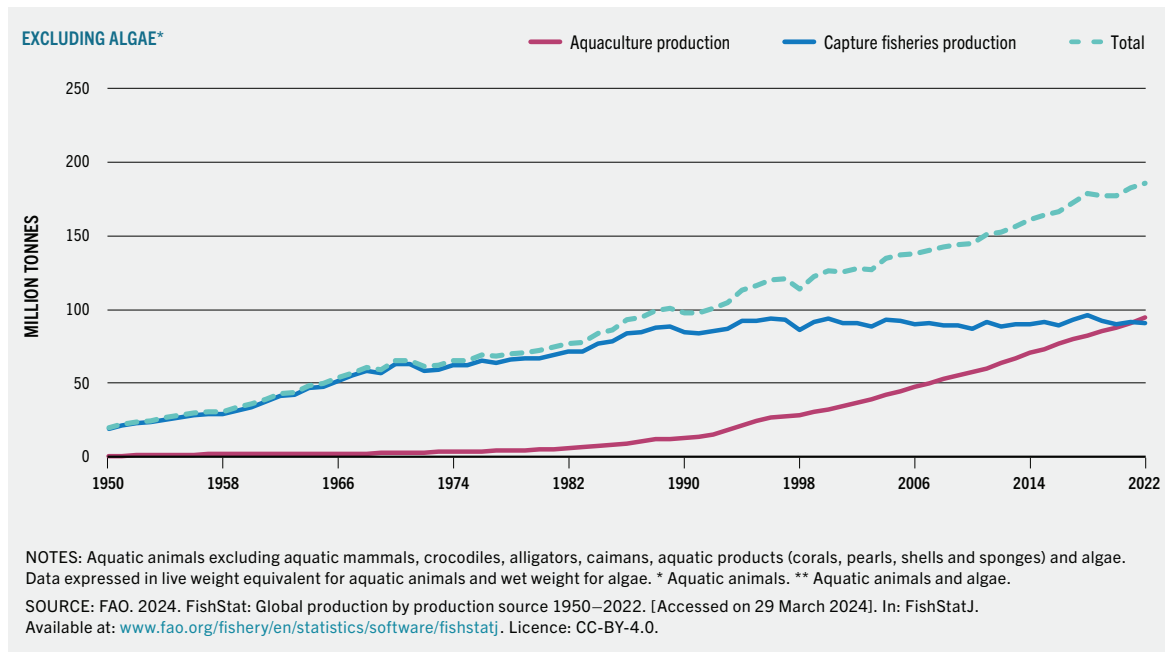
The institutions financing this industry appear to have bought into – and in some cases actively perpetuate – the salmon farming industry's misleading narrative that it is a low-risk and 'climate-friendly' investment whose growth will feed the world.²⁸ But in reality, the multinational corporations which make up 'Big Salmon' are fixated on growth and shareholder profits rather than food security and the environment.

This report calls for banks and investors to stop financing industrial salmon farming. It also urges governments and public institutions to stop financial support to salmon corporations. Supporting salmon farming is a reckless and wasteful misuse of taxpayers' money, considering the extensive environmental and social harm it causes.

Aquaculture's huge growth is putting pressure on our ocean

Since industrial aquaculture production took off in the 1970s, it has experienced huge growth.²⁹ From 1990–2020, total world aquaculture output increased by over 600%, with an average annual growth rate of 6.7%.³⁰ In 2022 global aquaculture (including algae) was valued at a staggering US\$312.8 billion.³¹

Aquaculture is now the world's fastest-growing food production system.³² For the first time ever, the world now eats more fish from farms than from the ocean (see Figure 1).³³ In 2022, 94.4 million tonnes of fish came from fish farming, representing 51% of the world's total production.³⁴

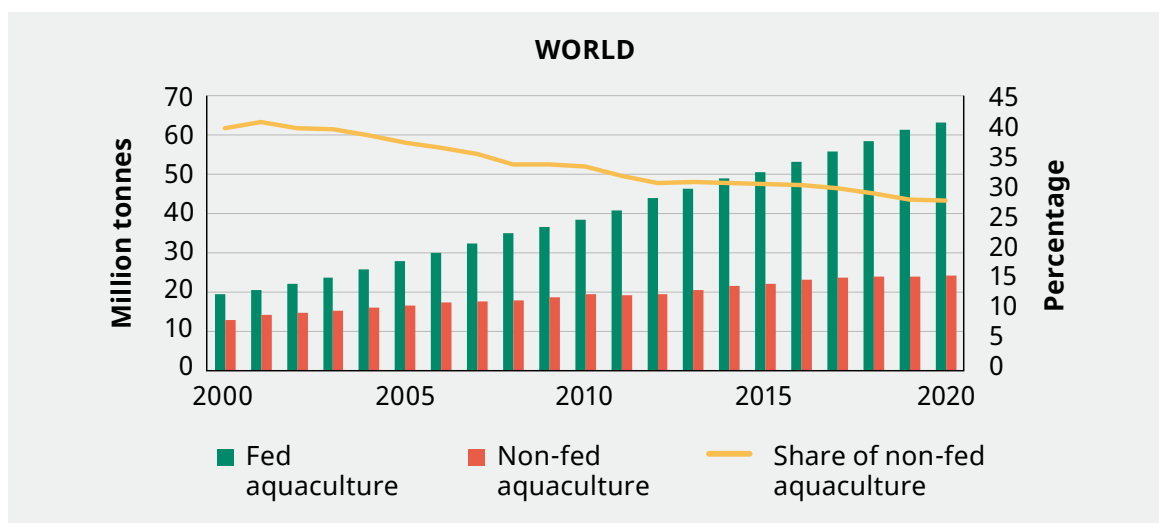
Figure 1: World Fisheries and Aquaculture Production (excluding algae)

Source: FAO, 2024

A key contributor to this growth is the ‘fed’ aquaculture sector, which is the farming of species requiring feed inputs – such as Atlantic salmon. The growth in fed aquaculture has consistently outpaced the growth in non-fed aquaculture in recent decades (see Figure 2)⁹. Fed aquaculture now represents approximately two-thirds of global aquaculture.³⁵ In 2000 non-fed aquaculture made up 39.7% of total aquatic farmed animal species production but this fell to just 26.9% in 2022.³⁶

Figure 2: World fed and non-fed aquaculture production of animal species, 2000–2020

Data in million tonnes expressed in live weight equivalent.



Source: FAO, 2022

g Graph showing world totals only available for data up to 2020. Data for 2022 is split into world regions (find in Appendix 1).

Each year, around one-fifth of the world's annual marine catch (over 17 million tonnes in 2022)³⁷ is used to produce fishmeal and fish oil (FMFO), which is made using wild-caught fish such as sardines, anchovies and herring. Krill, a keystone species in the Southern Ocean ecosystem,³⁸ which is facing threats ranging from climate change to concentrated fishing,³⁹ is also used to produce meal for farmed salmon^h.⁴⁰ Norwegian researchers are also investigating the potential use of mesopelagic fishmeal and silage as feed for salmonⁱ.⁴¹

The majority of FMFO goes to producing feed for the aquaculture industry. According to IFFO, in 2021, over 87% of fishmeal and 74% of fish oil was used in aquaculture^j.⁴²



Sardines underwater. Credit: Rich Carey (Shutterstock)

FMFO production is depriving people of food as climate change puts small pelagic fish populations at risk of collapse

North-West Africa

Many of the pelagic fish populations targeted by 'reduction fisheries' to produce fishmeal and fish oil are under threat. According to the FAO, the state of the once abundant sardinella species in Northwest Africa is "alarming", with two stocks of sardinella – the round sardinella (*Sardinella aurita*) and Madeiran sardinella (*S. maderensis*) – decreasing in the region.⁴³ Sardinella are a key source of protein central to the food security and livelihoods of coastal and inland communities in West Africa; they are also highly prized by the aquaculture industry for the high-quality fish oil they yield.

In 2024, our *Blue Empire* report revealed that in 2020, Norway's salmon farming industry sourced fish oil produced from between 123,000 to 144,000 tonnes of fish from FAO 34, the Major Fishing Area located off the coast of West Africa.⁴⁴ The volume of fish sourced from FAO 34 to supply fish oil to Norwegian salmon farming companies in 2020 could have provided between 2.5 million and 4 million people in the region with a year's supply of fish sufficient to meet their nutritional needs.⁴⁵

h Scientific research shows that krill fishing has adversely impacted penguin populations and suggests that even catch limits that are considered precautionary reduce the availability of krill in critical ways.

(George M. Watters, Jefferson T. Hinke, and Christian S. Reiss, "Long-Term Observations from Antarctica Demonstrate That Mismatched Scales of Fisheries Management and Predator-Prey Interaction Lead to Erroneous Conclusions about Precaution," *Scientific Reports* 10, no. 1 (February 11, 2020): 2314, <https://doi.org/10.1038/s41598-020-59223-9>)

i Mesopelagic fish such as lanternfish live in the depths of the ocean and are a crucial food source for predators, particularly ocean-going megafauna like tuna and dolphins. They also play a critical role in carbon sequestration in the deep sea. It has been estimated that without them, atmospheric CO2 levels would be 50% greater and global temperatures several degrees centigrade higher. (Callum M. Roberts et al., "Entering the Twilight Zone: The Ecological Role and Importance of Mesopelagic Fishes," December 2020, <https://www.blumarinefoundation.com/wp-content/uploads/2020/12/Entering-the-Twilight-Zone-Final.pdf>)

j Four multinational companies, Mowi (also the world's largest salmon farmer), Skretting, Cargill and BioMar control the majority of salmon feed output.

FMFO production is depriving people of food as climate change puts small pelagic fish populations at risk of collapse (Continued)

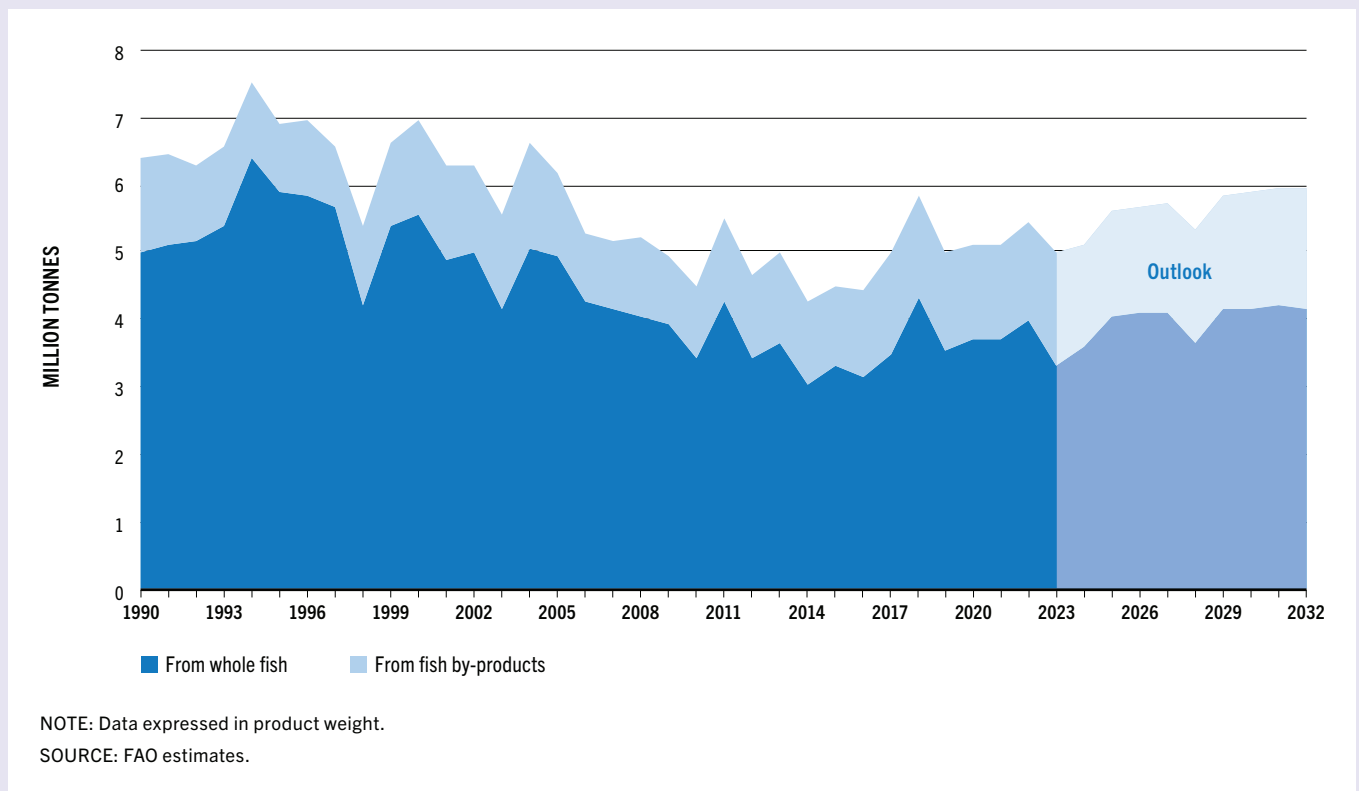
Latin America

In 2023 the Peru anchoveta season was cancelled due to the effects of El Niño. This led to the closure of fishmeal plants for the first time in 30 years, costing the industry US\$1 billion.⁴⁶ This combination of accelerating climate change and global aquaculture giants hungry for fish may just be a prelude to the catastrophe to come.⁴⁷

A study published in 2023 offers an “optimistic” trajectory for Peruvian anchoveta populations – the main global source of FMFO. The researchers predict a 14% reduction in biomass each decade until the 2050, followed by a collapse. Populations may only recover by the end of the 21st century.⁴⁸ The pessimistic scenario shows a reduction in population of 22% per decade, with a collapse after 2020 and near extinction by 2060.⁴⁹

As wild fish become more scarce, the aquaculture industry leans on the narrative that it is increasing its use of by-products to relieve its dependence on extracting whole fish from the ocean.⁵⁰ This will not suffice if the industry does not halt its aggressive growth. According to the FAO, between 2022 and 2032, production of fishmeal is estimated to increase by 9% and fish oil by 12%.⁵¹ However, the proportion of fishmeal made up of by-products is only projected to increase by 3% (27-30%) (see Figure 3) and the inclusion of by-products in fish oil is projected to stay the same (57%).⁵² The promise of by-products is not matching up to the reality, instead it is being used as a distraction from the fact that the industry’s growth is fundamentally unsustainable.

Figure 3: World Fishmeal Production



Source: FAO, 2024

The enticing economics of salmon farming

Farmed Atlantic salmon production has grown by over 1,000% since the 1990s.⁵³ Salmon is a particularly 'greedy' species for FMFO, with salmonids consuming 58% of fish oil and 14% of fishmeal destined for aquaculture.⁵⁴ Salmon farming's voracious appetite for wild fish makes it an inefficient way of producing both protein and essential dietary micronutrients such as calcium, iron and zinc.⁵⁵

Salmon farmed in Norway, Chile, Scotland and Canada is often promoted as a premium product around the world,⁵⁶ especially to consumers in the Global North,⁵⁷ (although with farmed salmon now flooding some high-income markets, it is increasingly sold at a discount). In recent years, Asia has also become a prominent growth market for the industry.⁵⁸ Since 2013 it has been the most valuable traded fish species; in 2022 exports for salmon and trout reached US\$38 billion, making up 20% of the share of exports of aquatic animal products by value.⁵⁹ This is no small feat for a species that only made up 3.2% of aquaculture production by volume in 2022.⁶⁰

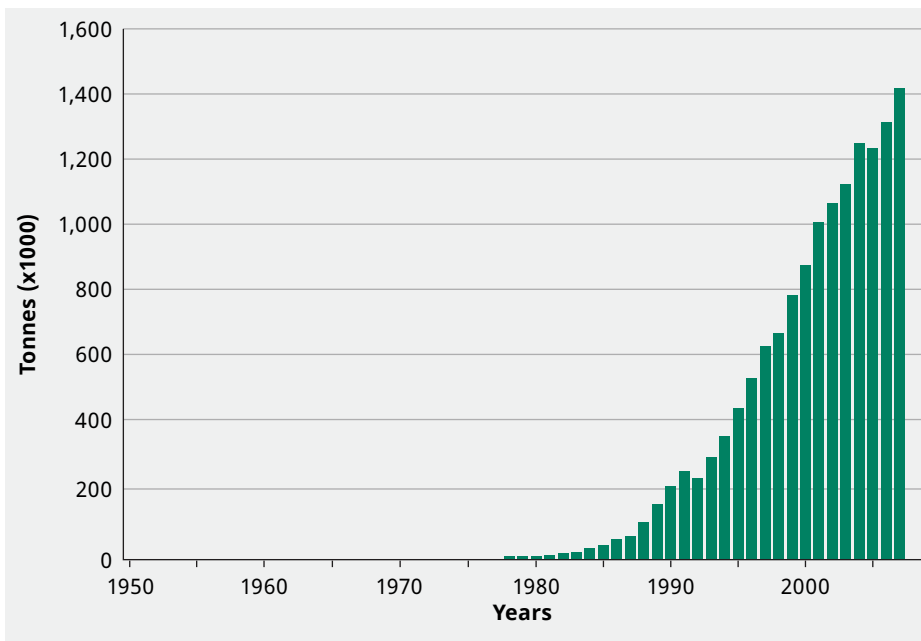
The enticing economics of farming salmon have spurred on the rapid growth of the industry (see Figure 4). Projections suggest that this trajectory is unlikely to slow down. For example, a 2024 report from seafood market analysis firm Kontali stated that the global salmon farming industry is set to grow by 40% by 2033.⁶¹ Norway, the world's largest salmon farming country,⁶² plans to treble production by 2050 on 2020 levels^l and the Scottish industry aims to double the value of the sector by 2030.⁶³ This growth has been accompanied by significant industry consolidation, making it a more attractive target for global finance. What started as a fragmented market with many small players has transformed into a multibillion-dollar industry dominated by a relatively small group of powerful multinational corporations. Now the 10 largest companies account for 82% of all salmon farm licenses.⁶⁴

k According to the FAO State of World Fisheries and Aquaculture 2024 report, in 2022 4,243 thousand tonnes (live weight equivalent) of salmonids were produced. The total production of all major aquaculture species in 2022 (including finfish, crustacean, molluscs, other animals and algae) was 130,917 thousand tonnes (live weight equivalent) were produced. This means that salmonids made up 3.2% of total aquaculture production in 2022.

l A 2017 report by Norsk Industri the Federation of Norwegian Industries, stated that: "The Government's ambition is for Norway to become the world's leading seafood nation through a five-fold increase in salmon production and a six-fold increase in value creation between 2010 and 2050." In our 2024 report, Blue Empire, Feedback found that this represented a tripling of production based on 2020 levels, leading to a tripling of demand for wild-caught fish to produce salmon feed.

(Norsk Industri, 'Summary Roadmap for the Aquaculture Industry: Sustainable Growth' (Oslo, Norway), 25 July 2017, https://www.norskindustri.no/siteassets/dokumenter/rapporter-og-brosjyrer/veikart-for-havbruksnaringen-kortversjon_eng.pdf; Feedback, "Blue Empire: How the Norwegian Salmon Industry Extracts Nutrition and Undermines Livelihoods in West Africa," 2024, <https://feedbackglobal.org/wp-content/uploads/2024/01/Feedback-BlueEmpire-Jan24.pdf>, January 2024, <https://feedbackglobal.org/wp-content/uploads/2024/01/Feedback-BlueEmpire-Jan24.pdf>)

Figure 4: Global aquaculture production of *Salmo salar* (Atlantic salmon)



Source: FAO

Today, 70% of salmon produced worldwide is farmed,⁶⁵ with most raised in open net pens, giant floating cages, normally found in coastal waters, fjords and lochs.⁶⁶ Yet few people realise this is the case. For example, in the UK, only 6% of people know that Scottish salmon is farmed, rather than caught in the wild, according to a 2022 survey by environmental charity Fidra.⁶⁷



Aerial view of Glenan Bay salmon farm, Scotland. Credit: Salmon Media Hub, 2024

“Open-net salmon farming is one of the key threats facing our iconic wild Atlantic salmon populations. From the dispersal of sea lice parasites, which can prove fatal to migrating smolts, to the impacts of escaped farmed fish on genetic fitness – the growth of open-net salmon farming in Scotland has coincided with a catastrophic decline in the wild salmon population. There is no doubt that salmon farming has been a significant contributory factor to this decline.”

Rachel Mulrenan, Scotland
Director, WildFish

Salmon farming is unsustainable, unjust and inefficient

The global salmon farming industry presents itself as an exemplary corporate success story. But behind this façade lies an unsustainable, unjust and inherently inefficient food production system.

Unsustainable

The crux of the matter is the fact that salmon are carnivores, meaning their diets contain wild fish. In comparison to farmed land animals, this means we are eating much higher up the food chain with many more layers of extraction. Farmed salmon's dependence on wild fish, in the form of FMFO, makes it an inherently unsustainable source of animal protein. Research published in 2024 has shown that it can take up to 6 kilogrammes of wild fish to produce just 1 kilogramme of farmed salmon.⁶⁸ This demonstrates the key tension built into the salmon farming industry: its growth depends on the extraction of finite wild fish populations, costing ocean ecosystems and people who could eat this fish directly. According to the FAO, the world's oceans are already in a poor state with 37.7% of our global fish populations being overfished.⁶⁹ Extracting wild fish to feed farmed salmon is only increasing pressure on this critical yet fragile ecosystem.

In addition, the rise of salmon farming has gone hand-in-hand with a precipitous decline in wild salmon populations. In 2023 the International Union for Conservation of Nature (IUCN) confirmed that wild Atlantic salmon are facing an existential crisis, reclassifying UK populations as 'endangered'⁷⁰ and global populations as 'near threatened'.⁷¹ It is well evidenced that salmon farming is negatively impacting these wild salmon populations.⁷² This can be a result of multiple factors, including sea lice infecting wild salmon⁷³ or interbreeding between farmed escapees and wild populations weakening their genetics.⁷⁴ Industrial salmon farming's irresponsible practices are among the factors threatening the very survival of wild salmon.



An Atlantic salmon jumps out of the water. Credit: Kevin Wells Photography (Shutterstock)

Pollution is also a major problem caused by open-net salmon farming. Huge amounts of plastic, chemicals, fish faeces, waste food and antibiotics flow from the pens into the surrounding waters, harming local ecosystems. In January 2025, Scottish investigative outlet *The Ferret* reported that fish farms in Scotland had broken environmental rules more than one hundred times in the previous two years. The worst offender was Norway-listed Mowi.⁷⁵ Pollution from salmon farming was higher than many other polluting industries, including the metals industry, packaging industry and landfill sites. The only industry with more recorded breaches were water and sewage operators.⁷⁶

Unjust

A large share of the wild fish used in salmon farming is caught in regions including Southeast Asia, Latin America and West Africa.⁷⁷ In West Africa these fish are a staple part of people's diets and a vital source of livelihoods and income. The practice by corporations of extracting and exporting this fish to feed farmed salmon is driving the overexploitation of fish in the region, exacerbating an already worsening food security crisis and fuelling food colonialism.⁷⁸

Fuelling global inequities and food crisis

The continuing expansion of the salmon farming industry is driving global inequities. Most of the wild fish used by the global salmon farming industry is extracted from regions such as Southeast Asia, West Africa and Latin America.⁷⁹ This is then directed to the Global North to feed farmed salmon. Wild fish are being funnelled into food production systems where they can make the most profit. These supply chain flows are creating a new type of food colonialism and further entrenching existing global power imbalances.⁸⁰

In West Africa, a key FMFO-producing region, communities are already experiencing worsening food security at the hands of the salmon industry. In 2024, Feedback's *Blue Empire* report revealed that the Norwegian salmon farming industry is extracting around 2 million tonnes of wild fish a year to feed their farmed salmon.⁸¹ A proportion of this was sourced from West Africa where the fish is vital to coastal and inland communities as a staple in diets and important for livelihoods. This is contributing to food insecurity in a region where in 2023 it hit a 10-year high.⁸² The lack of wild fish is also leading to price increases in the region, making the fish unaffordable to local communities. In 2023, Partner Africa reported that in Mauritania, the price of sardinella had risen from €0.25 to €1.5 per kilogramme in recent years.⁸³ While financiers and the salmon farming industry continue to rake in profits, one of the poorest regions in the world suffers worsening food security.⁸⁴



Women activists with their empty traditional calabash bowls, raise their fists in defiance in Mbour, Senegal to highlight their grassroots campaigns against industrial overfishing and coastal industrialisation and demand government action.
Credit: © Clément Tardif _ Greenpeace

"The billions flooding into industrial salmon farming aren't just destroying marine ecosystems, they're stealing food security from African coastal communities. These financial institutions are funding an industry that devours wild fish for fishmeal and fish oil while coastal fishers struggle to feed their families. By bankrolling salmon farms, global investors are choosing corporate profits in the global north over the livelihoods of millions who depend on healthy oceans in the global south. We demand they turn off the financial taps to this extractive industry and invest instead in protecting the marine resources that sustain our communities."

Dr Alio Ba, Ocean Campaign Lead,
Greenpeace Africa



Nutrition^m:

In Feedback's Blue Empire it was calculated that Norway's demand for fish oil is depriving up to 4 million people a in the region of fish required to meet their annual nutritional needs. Fish is a staple food in many diets in West Africa. Yet, the extraction of this wild fish to feed farmed salmon is reducing the availability for human consumption.



Price increases:

The industrial scale of the fish meal industry in West Africa is driving up the price of fish sold across several West African markets. The price of sardinella in Mauritania has risen from €0.25 to €1.5 per kilogramme in recent years. This is making fish unaffordable and therefore less accessible for the local population.



Livelihoods:

The industry's demand for wild fish is also damaging traditional livelihoods that depend on marine resources such as small-scale fisheries and fishmongers.



Migration:

The decline in fish populations is also being linked to the increase in migration in the region as poor prospects force thousands to leave each year. In some instances, this is leading to the migration of fishers between West African coastal states. This has been identified as a factor in stoking conflict between Mauritania and Senegal.



Women:

The small fish targeted by the FMFO industry contain key nutrients including iron, zinc, and calcium. These nutrients are critical for women's health in West Africa, where more than half of the female population suffer from anaemia. Furthermore, it is mainly women who process and sell fish. In recent decades, however, the scarcity of fish stocks has driven more and more women out of business.

Credit: Illustrations by @Raafaye

^m Feedback, "Blue Empire: How the Norwegian Salmon Industry Extracts Nutrition and Undermines Livelihoods in West Africa," 2024; Partner Africa, "Track the Fish. A Human Rights Impact Assessment of the Small Pelagic Fish Value Chain in Senegal and Mauritania," 2023, https://img1.wsimg.com/blobby/go/20e99f05-a548-4933-91bd-89ca35e3187d/downloads/Partner%20Africa%20report_HRIA%20of%20the%20small%20pelagi.pdf?ver=1696496840541; Changing Markets Foundation and Greenpeace Africa, "Feeding a Monster: How European Aquaculture and Animalfeed Industries Are Stealing Food from West African Communities," June 2021, <https://www.greenpeace.org/static/planet4-africa-stateless/2021/05/47227297-feeding-a-monster-en-final-small.pdf>; Annika Hammerschlag, "Anger over Fish Stocks as Senegal Village Mourns Boat Disaster Dead," The Guardian, August 25, 2023, <https://www.theguardian.com/global-development/2023/aug/25/fish-stocks-senegalese-village-boat-disaster-cape-verde>; A. Daniels, "'Fish Are Vanishing' – Senegal's Devastated Coastline," BBC News, November 1, 2018, <https://www.bbc.co.uk/news/world-africa-46017359>; African Population and Health Research Center (APHRC) and West Africa Health Organization (WAHO), "West Africa Region - Policy Brief," November 2019, <https://www.countdown2030.org/wp-content/uploads/2021/04/WA-Regional-policy-brief-final-18112019.pdf>; Feedback, "They Are Fighting for Their Rights, and so Should We!," July 2023, <https://feedbackeurope.org/they-are-fighting-for-their-rights-and-so-should-we/>.

But the problem is not confined to food insecure regions in the Global South; the industry is also devastating communities and fish populations in European waters, where a share of the fish used to feed farmed salmon is caught.⁸⁵ As reported by *Bloomberg* in 2024, much of the Norwegian industry's FMFO is made from fish caught in nearby waters, negatively impacting herring populations.⁸⁶ Blue whiting⁸⁷ and mackerel⁸⁸ populations are also reported to be struggling at the hands of this industry. Evidence is also emerging that the FMFO industry is affecting fisherfolk in Ireland too.⁸⁹ One thing is clear: the salmon farming industry's extractive business model is wreaking havoc no matter the location.

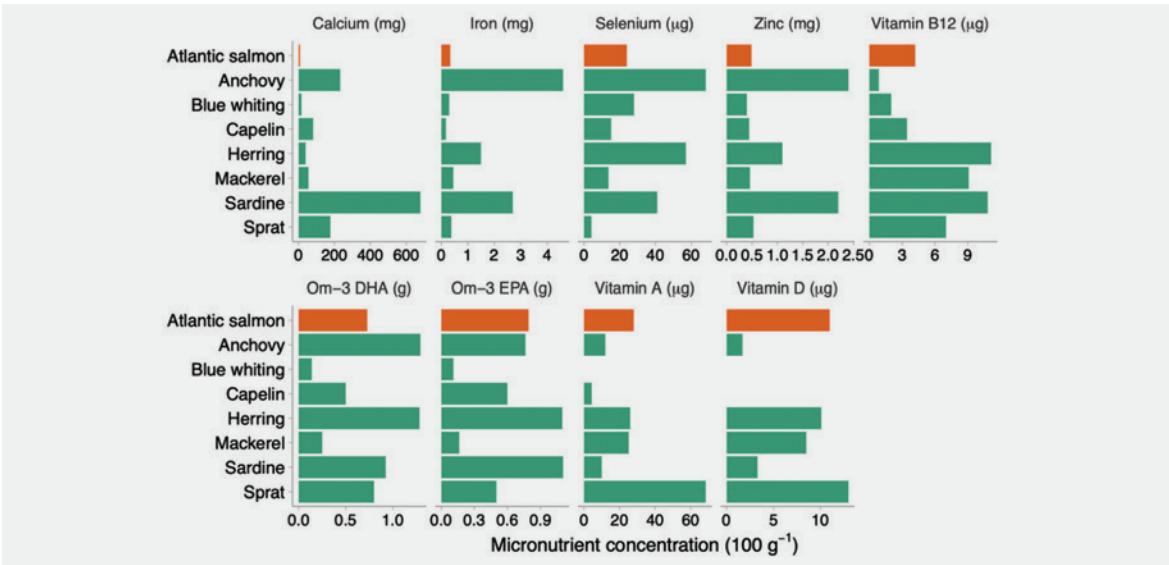


Freshly caught mackerel at fish market. Credit: David Gonzalez Yllera (Shutterstock)

Inefficient

In 2022, Feedback contributed to published research alongside academics at the Universities of Cambridge, Liverpool and Lancaster which found that when it comes to micronutrient retention, farmed salmon performs poorly.⁹⁰ Most edible wild-caught fish species used to produce FMFO have higher concentrations of key micronutrients than farmed salmon, and for some of these micronutrients, such as calcium, iron, selenium and zinc, as little as 1% is retained in farmed salmon (see Figure 5). While salmon farming executives and corporate websites make claims about sustainability and food security,^{91,92,93} the evidence is clear: salmon farming is a highly inefficient way to produce nutritious food.

Figure 5: Micronutrient concentration from wild-caught fish.



Reference: David F. Willer et al., 'Maximising Sustainable Nutrient Production from Coupled Fisheries-Aquaculture Systems', *PLOS Sustainability and Transformation* 1, no. 3 (1 March 2022): e0000005, <https://doi.org/10.1371/journal.pstr.0000005>.



The Bob Brown Foundation filmed thousands of dead fish at Okehampton Bay fish farms, on Tasmania's east coast
Credit: Bob Brown Foundation, 2023

"Given all these issues you may find yourself questioning why anyone would want to get involved with this industry. But the answer is simple: to get rich quick."

Frank Mechielsen, Executive Director, Feedback EU

This inefficiency is compounded by the staggeringly high mortality rates which the farmed salmon industry is notorious for,⁹⁴ which far outpace mortality rates for terrestrial livestock operations. Poor animal husbandry and rising sea temperatures from the climate crisis lead to an increase in pathogens and parasites which pose a significant risk to farmed salmon welfare and survival.⁹⁵

Globally, over the past decade (2013-2023), scientists found 865 million instances of farmed salmon dying prematurely⁹⁶ and in Norway in 2023, over 100 million salmon died in farms.⁹⁷ New figures show that in 2023 Scotland's salmon output fell to the lowest since 2009 due to rising mortality rates.^{98,99} The latest available data from 2021 shows that the survival rate was only 68.7%, the lowest since 1991, when the rate was 66.9%.^{100,101}

There is a double layer of mortality here: when farmed salmon die the wild fish extracted from the ocean to feed them end up being wasted too. Most of these wild fish could have fed people directly instead.¹⁰² It is absurd that while over one-third of the world population are struggling to meet their dietary needs, the salmon farming industry is squandering fishⁿ.¹⁰³

n According to FAO 'The State of the World Fisheries and Aquaculture', 40% of the world population are struggling to meet their dietary needs.

Fishy Finances: What the data tells us about who's bankrolling Big Salmon

Using a dataset covering January 2015 – November 2024, Feedback has identified the top providers of private financing to leading global salmon producers. In addition, we have included some information on public financing, which was identified through internal desk research by Feedback in 2024 and early 2025. While this information is limited, it offers an overview of how rich salmon corporations – including the world's largest producer of salmon, Norway's Mowi – are accessing public funds despite their harmful operations so clearly being at odds with the public interest.

The data on private financing was provided by independent research organisation Profundo. It includes investment and creditor data for some of the world's largest salmon farming companies headquartered in the Northern Hemisphere: Mowi, Grieg Seafood, SalMar (including Icelandic Salmon, Arnarlax and Salmonor), Lerøy Seafood Group, Cooke Aquaculture and Bakkafröst (including the Scottish Salmon Company)^o. These are the world's largest salmon farming companies for which financial data was identified^p.

It must be noted that the information presented in this report can only offer a conservative analysis of overall financial flows to salmon farming. The information on public financial flows is, as noted above, only a partial snapshot. When it comes to creditor and investor data, the numbers provided below are primarily based on information from financial databases, which mostly list syndicated financing. In addition, the research sought to identify bilateral financing through annual reports, company disclosures, media archives and other sources. However, these kinds of deals are not always publicly disclosed by companies, and therefore, it is possible that some information is missing. Finally, Mitsubishi, the parent company of Cermaq, was excluded from our research on the grounds that it was not possible to efficiently separate financing for its salmon farming operations from its other business operations with the desired level of accuracy.



Trading on the stock market. Credit: Travis Wolfe (Shutterstock)

^o Based on 'Top 10 companies in farmed Atlantic salmon 2023' in Salmon Farming Industry Handbook 2024 (Mowi).

^p See the methodology for the rationale behind the selection of these companies.

Salmon farming: key players



Mowi – The world's largest salmon farming company,¹⁰⁴ formerly known as Marine Harvest.¹⁰⁵ Founded in Norway it now operates farms around the world,¹⁰⁶ including Scotland, Canada, Chile, Ireland, Iceland and the Faroe Islands.¹⁰⁷ It is vertically integrated, owning its supply chain from broodstock and genetic selection to processing and sales.¹⁰⁸ It is also one of the world's largest producers of aquafeed, making it self-sufficient in feed for its European operations.¹⁰⁹



SalMar – The world's second-largest salmon farmer.¹¹⁰ Alongside Lerøy Seafood Group it owns 50% of Norskott Havbruk AS, giving it 50% ownership of Scottish Sea Farms.¹¹¹ Its holding company, Kverva, is also the largest shareholder of SalMar.¹¹² Its farms are located in Norway, Iceland and Scotland.¹¹³



Lerøy Seafood Group – A subsidiary of Austevoll Seafood ASA, which in turn is owned by the Norwegian holding company, Laco AS.¹¹⁴ Lerøy Seafood Group is a Norwegian salmon farming company that owns 50% of Norskott Havbruk AS, the owner of Scottish Sea Farms.¹¹⁵



Cooke – A vertically integrated family-owned salmon company that was founded in Canada and now operates in the USA, Chile and Scotland.¹¹⁶ It is also the owner of Tassal, Australia's largest seafood producer, with salmon farming operations in Tasmania.¹¹⁷



Bakkafrost – Based in the Faroe Islands and Scotland, Bakkafrost is one of the world's most vertically integrated salmon farming companies, owning all parts of its supply chain from feed to finished product.¹¹⁸ It acquired the Scottish Salmon Company in 2019, renaming it 'Bakkafrost Scotland'.¹¹⁹



Grieg Seafood – Part of Grieg Maturitas, a family-owned company made up of several marine-focused companies.¹²⁰ Grieg Seafood operates farms in Norway and Canada.¹²¹

All these organisations are companies listed in Norway on the Oslo Stock Exchange apart from Cooke which is a private family-owned company based in Canada.¹²²

Company*	HQ	Annual Revenue 2024 (US\$)	Annual Farmed Salmon Production 2024 (tonnes)
Mowi ¹²³	Norway	\$5.9 billion	502,000 (Fishmeal and Fish Oil: 582,061)
SalMar ¹²⁴	Norway	\$2.4 billion	231,800
Lerøy Seafood Group ¹²⁵	Norway	\$2.8 billion	147,701
Cooke**	Canada	\$2.8 billion (2023)	91,000 (2023)
Bakkafrost ¹²⁶	Faroe Islands	\$1 billion	90,656 (Fishmeal: 66,414, Fish Oil: 10,919)
Grieg Seafood ¹²⁷	Norway	\$0.7 billion	77,704

* All data was taken from company Q4 2024 reports (annual reports had not been published at time of publication).

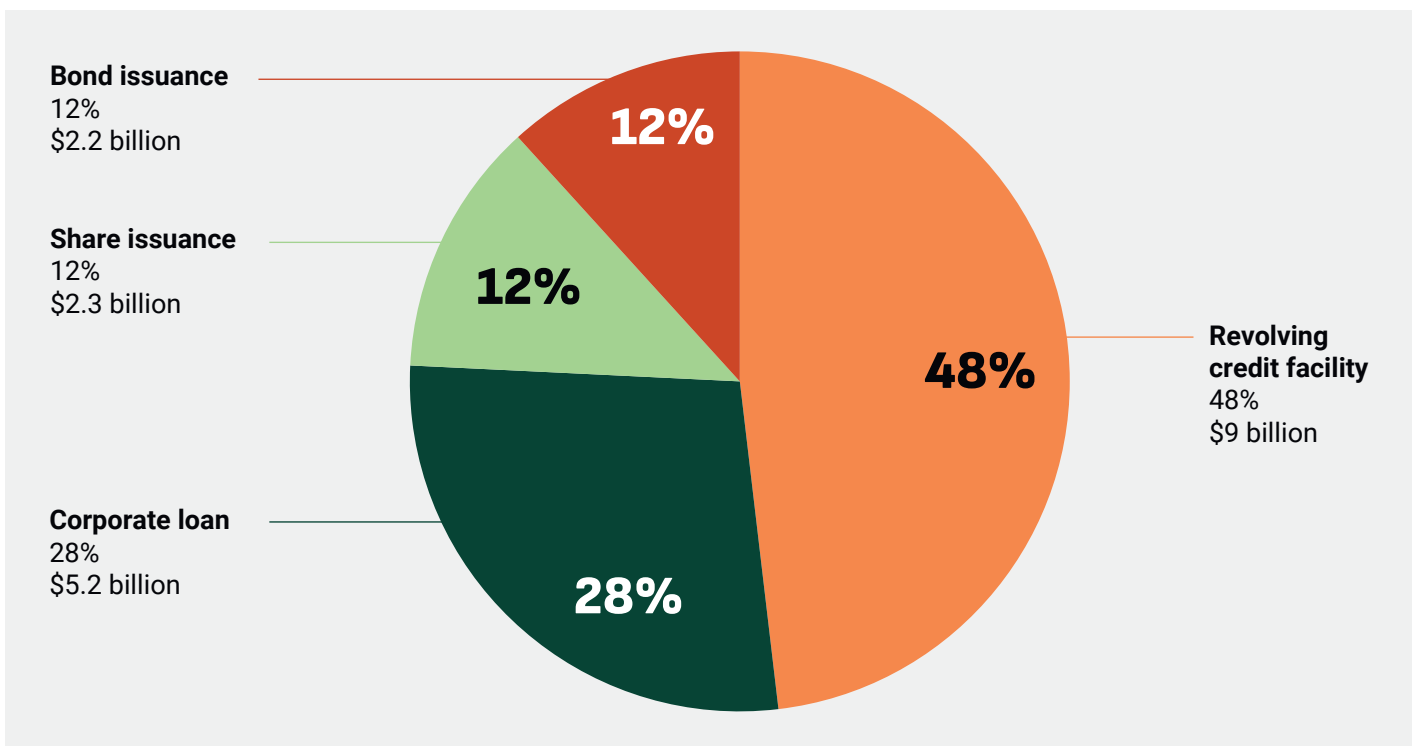
** Data for Cooke 2023 revenues was taken from an interview with Glenn Cooke (CEO of Cooke Aquaculture) on the Insights Podcast.¹²⁸ Data on the tonnes of salmon produced is calculated from Mowi's 2024 Salmon Farming Industry Handbook.¹²⁹

Hall of shame: which investors and creditors are providing the most money to industrial salmon farming?

Creditors

Our identified data shows that between January 2015 – November 2024, financial institutions provided US\$18.8 billion in credit to the salmon farming operations of Mowi (including Mowi subsidiary Arctic Fish), Kverva (principally SalMar alongside Salmonor, Arnarlax and Salmonor), Bakkafröst (including Scottish Salmon Company), Cooke (Cooke Aquaculture), Grieg Maturitas (Grieg Seafood) and Laco (Lerøy Seafood Group). This included different types of finance, with major financial institutions providing up to US\$9 billion in revolving credit facilities, US\$5.2 billion in corporate loans, and underwriting US\$2.3 billion in share issuances and US\$2.2 billion in bond issuances (see Figure 6).

Figure 6: Total credit identified (Jan 15 – Nov 24, US\$ mln) \$18.8 billion

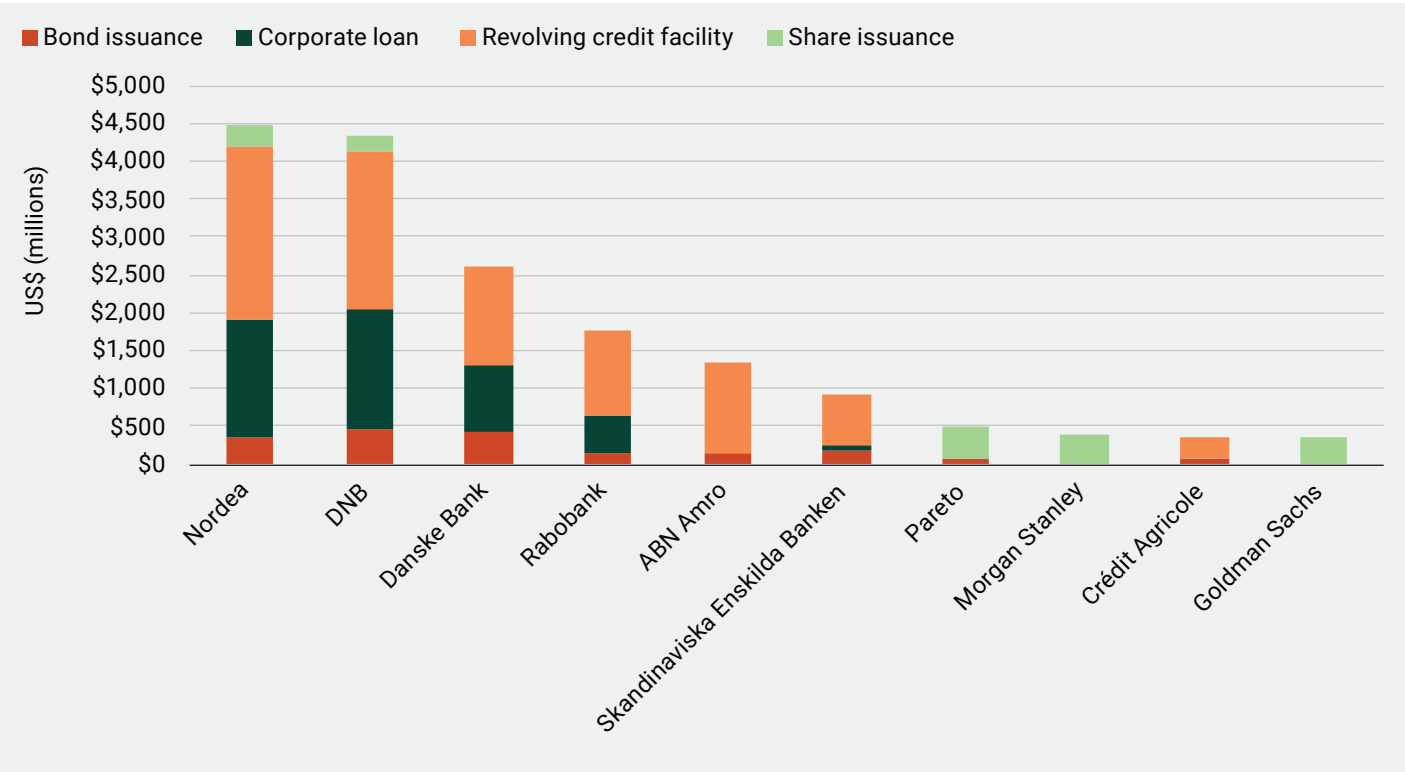


Credit is designed to help companies grow; according to Feedback’s calculations, during a similar time period (2015-2024)^q, total production of farmed salmon increased by almost one-third, from 2.3 million tonnes in 2015 to nearly 3 million tonnes in 2024^r, ¹³⁰considerably outpacing the growth of global meat production^s. ^{131,132}

Top 10 Creditors (see Figure 7)^t:

- 1. Nordea – US\$4.5 billion
- 2. DNB – US\$4.3 billion
- 3. Danske Bank – US\$2.6 billion
- 4. Rabobank – US\$1.8 billion
- 5. ABN Amro – US\$1.3 billion
- 6. Skandinaviska Enskilda Banken – US\$0.9 billion
- 7. Pareto – US\$0.5 billion
- 8. Morgan Stanley – US\$0.4 billion
- 9. Crédit Agricole – US\$0.4 billion
- 10. Goldman Sachs – US\$0.3 billion

Figure 7: Top 10 creditors (Jan 15 – Nov 24, US\$ mln)



q Feedback’s financial data spans from January 2015 – November 2024. The time period for the growth of farmed salmon production spans from January 2015- December 2024.

r Based on yearly global production of farmed Atlantic salmon worldwide, Feedback calculated production increased by 29% between 2015 and 2024. (Using: <https://www.statista.com/statistics/1179062/global-atlantic-salmon-production/>).

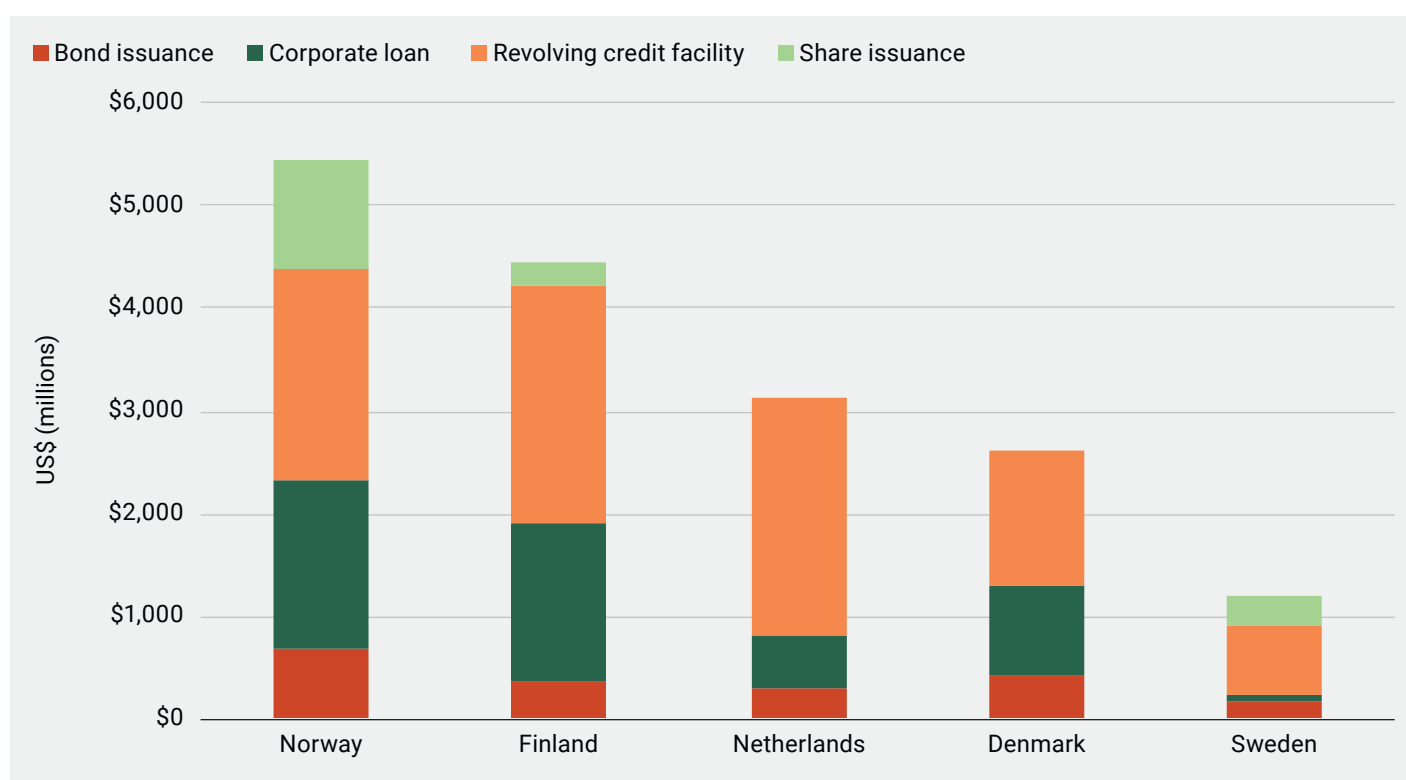
s According to Feedback’s calculations, between 2015-2024, global meat production increased by 18%. According to Our World in Data, in 2025 327 million tonnes of meat was produced globally, According to research from Statista (M. Shahbandeh), in 2024 387 million tonnes of meat was produced.

t See table breakdown in Appendix 2.

Geographic breakdown of credit (see Figure 8)^u:

1. Norway (US\$5.5 billion) – DNB, Pareto, ABG Sundal Collier Holding
2. Finland (US\$4.5 billion) – Nordea
3. Netherlands (US\$3.1 billion) – Rabobank, ABN Amro and ING Group
4. Denmark (US\$2.6 billion) – Danske Bank, Svenska Handelsbanken, Skandinaviska Enskilda Banken, Swedbank
5. Sweden (US\$1.2 billion) – Skandinaviska Enskilda Banken, Carnegie Holding

Figure 8: Geographic breakdown of credit (top 5) (Jan 15 – Nov 24, US\$mIn)



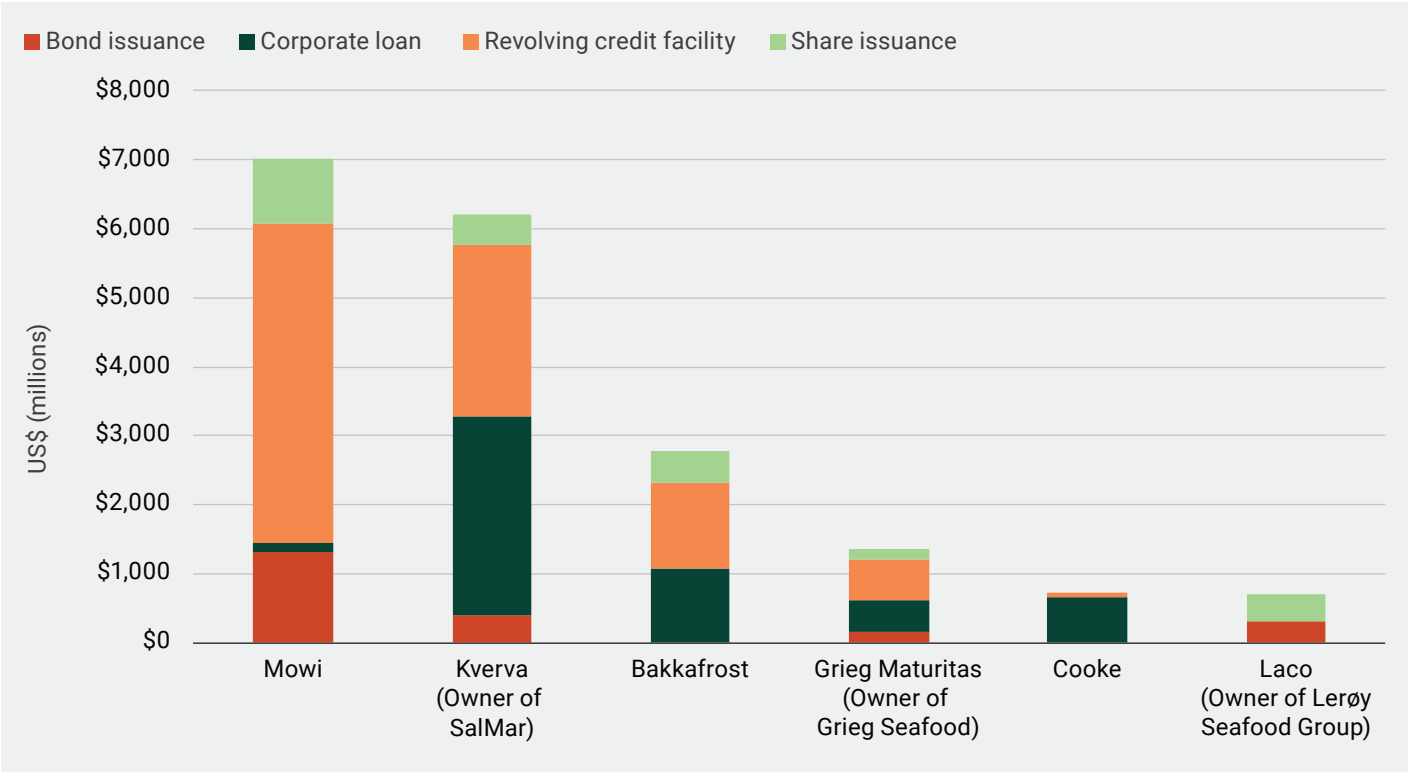
Between January 2015–November 2024, Mowi was the largest recipient of credit, receiving US\$7 billion, more than one-third of the total credit awarded to salmon farming companies. According to our calculations, this has helped boost Mowi's production volumes by around one fifth, from 420,000 tonnes in 2015¹³³ to 502,000 tonnes in 2024^{v,134} and more than double its feed production from 282,000 tonnes¹³⁵ to 582,000 tonnes over the same period.¹³⁶ Kverva, owner of SalMar, received US\$6.2 billion in credit and Bakkafrøst US\$2.8 billion (see Figure 9)^w.

^u See detailed country breakdown in Appendix 3.

^v This is based on Feedback's own workings based on Mowi's 2015 Annual Report and their 2024 Q4 report. At time of publication their 2024 annual report had not been published.

^w See detailed company breakdown in Appendix 4.

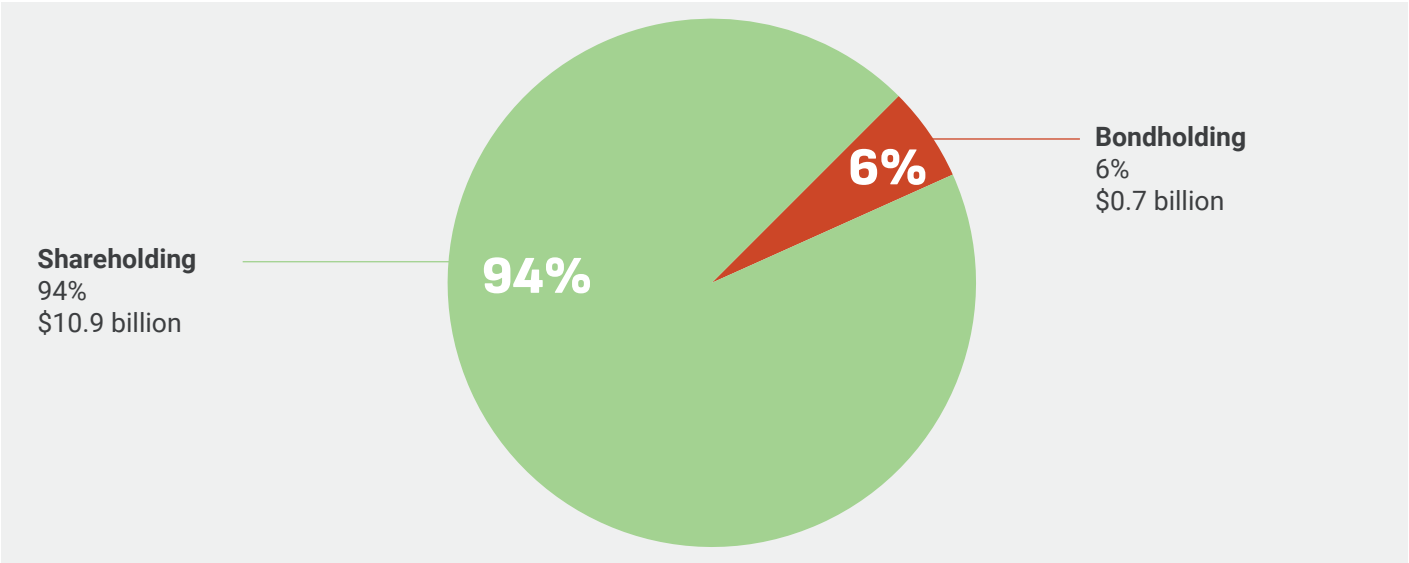
Figure 9: Recipients of credit (Jan 15 – Nov 24, US\$mln)



Investors

As of November 2024, nearly US\$12 billion in investment financing (US\$10.9 billion in shareholdings and US\$0.7 billion in bond holdings) were held by financial institutions in some of the world’s biggest industrial salmon farming companies (see Figure 10).

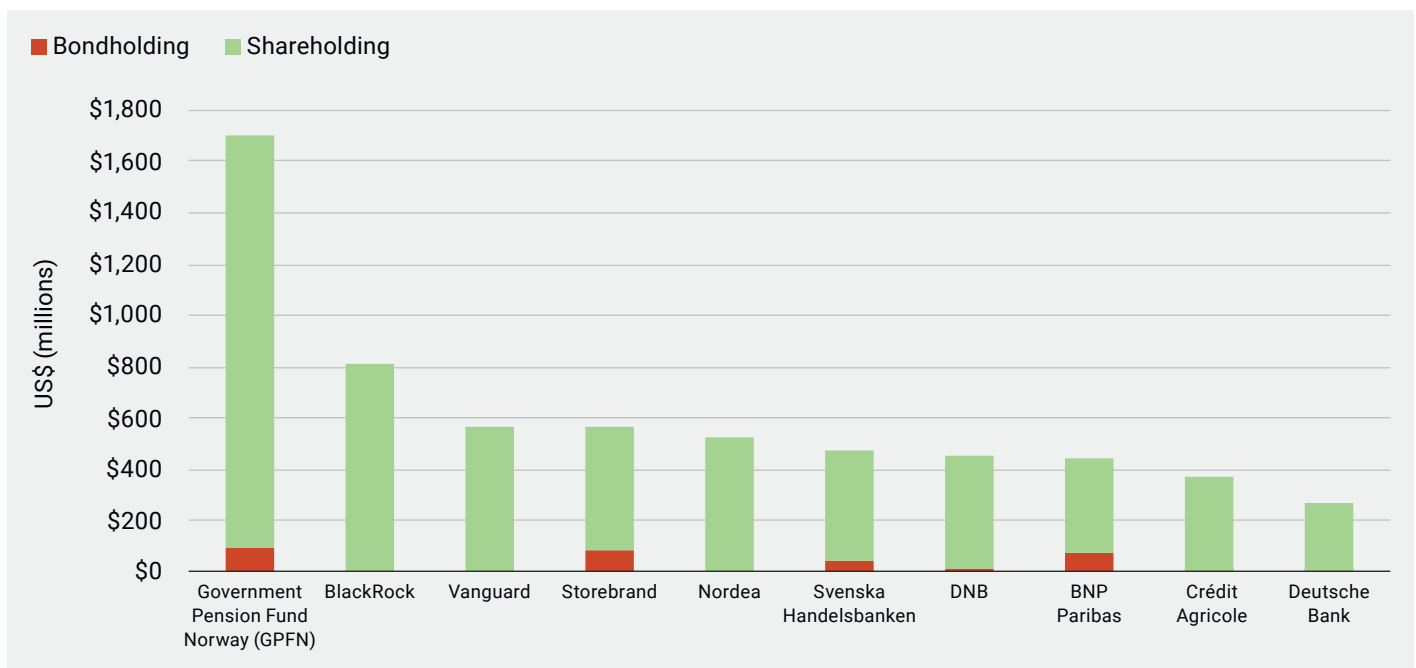
Figure 10: Total investment identified (Nov 24 or latest, US\$ mln) \$11.6 billion



Top 10 Investors (see Figure 11)^x:

1. Government Pension Fund Norway – US\$1.7 billion
2. BlackRock – US\$0.8 billion
3. Storebrand – US\$0.6 billion
4. Vanguard – US\$0.6 billion
5. Nordea – US\$0.5 billion
6. Svenska Handelsbanken – US\$0.5 billion
7. DNB – US\$0.5 billion
8. BNP Paribas – US\$0.4 billion
9. Crédit Agricole – US\$0.4 billion
10. Deutsche Bank – US\$0.3 billion

Figure 11: Top 10 investors (Nov 24 or latest, US\$ mln)



The Norwegian pension fund was the largest investor and pension fund that we analysed in this report, investing US\$1.7 billion. This is equivalent to more than the value of Scotland's entire salmon farming industry.¹³⁷

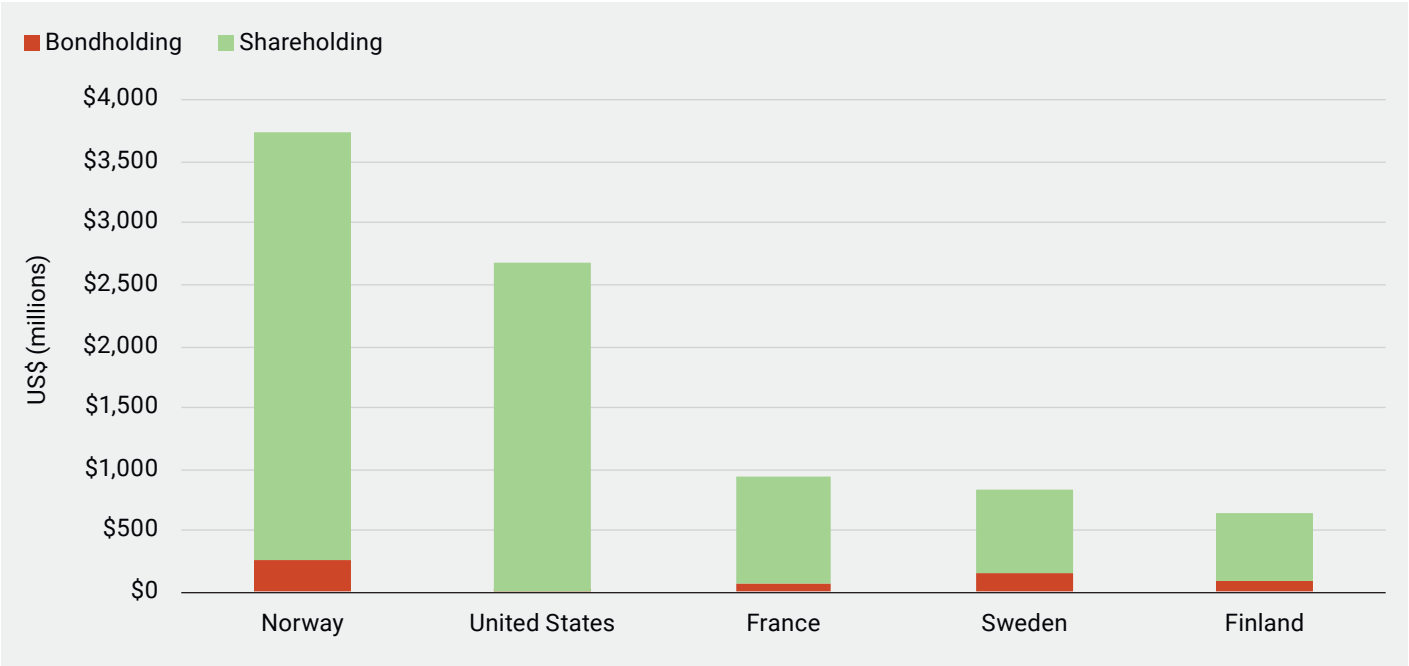
Geographic breakdown of investors (see Figure 12)^y:

1. Norway (US\$3.7 billion) – Government Pension Fund Norway (GPFN), Storebrand and DNB
2. USA (US\$2.7 billion) – BlackRock, Vanguard and Northern Trust
3. France (US\$0.9 billion) – BNP Paribas, Crédit Agricole and Varenne Capital Partners
4. Sweden (US\$0.8 billion) – Svenska Handelsbanken, Skandinaviska Enskilda Banken, Swedbank
5. Finland (US\$0.6 billion) – Nordea, Evli Bank, LocalTapiola Group

^x See table breakdown in Appendix 6.

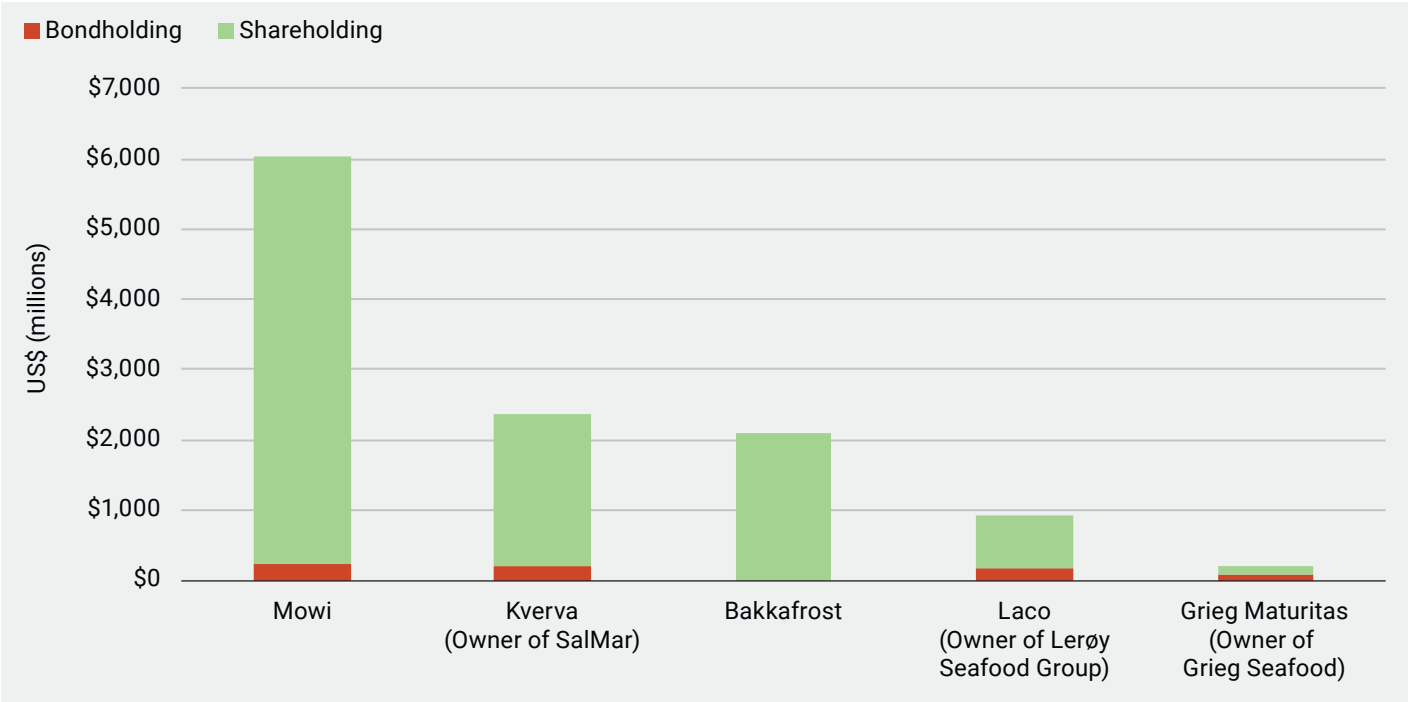
^y See detailed country breakdown in Appendix 7.

Figure 12: Geographic breakdown of investment (top 5) (Nov 24 or latest, US\$ mln)



Mowi is the largest recipient of investment with US\$6 billion, followed by Kverva, owner of SalMar with US\$2.4 billion and Bakkafrøst with US\$2.1 billion (see Figure 13)^z.

Figure 13: Recipients of investment (Nov 24 or latest, US\$ mln)



^z See detailed company breakdown in Appendix 8.

Norway's Government Pension Fund – profile of the world's largest sovereign wealth fund¹³⁸

Norway is one of the world's richest countries. The strength of its economy, per capita, is almost twice that of the UK, and bigger even than that of the US.¹³⁹ This is ultimately thanks to its significant oil reserves, the largest in Europe after Russia's.¹⁴⁰

To ensure that Norway's wealth is sustained, the Sovereign Wealth Fund (also known as the 'Oil fund' or Government Pension Fund Global (GPGF)) was set up in 1990 to invest surplus revenues from the Norwegian petroleum sector.¹⁴¹ It is one of the largest funds in the world;¹⁴² worth US\$1.8 trillion, it posted a record US\$222 billion profit in January 2025.¹⁴³ The fund only invests abroad "so that the Norwegian economy does not overheat" and made 49 risk-based divestments in 2024.¹⁴⁴

Alongside this, there is also a smaller domestic fund called the Government Pension Fund Norway (GPFN) which our research shows is the biggest investor into the global salmon farming industry. It manages US\$34 billion (NOK 381 billion)¹⁴⁵ and made a profit of US\$2.4 billion (NOK 27 billion) in 2024.¹⁴⁶ Folketrygdfondet, the investment manager which manages the GPFN says that it engages with companies on environmental topics, citing the dialogue it has had with aquaculture companies about challenges relating to feed, escaped fish and salmon lice over the past decade.¹⁴⁷ In addition, according to the Norwegian government's website the GPFN's purpose is to contribute to "intergenerational equity, by allowing both current and future generations to benefit from the petroleum revenues."¹⁴⁸

Despite this stated goal, it remains the biggest investor into industrial salmon farming, whose environmental and socioeconomic impacts will burden future generations.

In 2024 the BBC published an article on the guilt felt by Norwegians due to their national wealth coming from oil, noting their reservations about the new areas of growth the Norwegian government is pushing, including salmon farming.¹⁴⁹ This highlights the growing dissatisfaction felt by Norwegians that their government is directing money from one extractive industry into another, namely from oil to salmon.

Pension funds have rightly been put under pressure to divest from fossil fuels – now they must face the same scrutiny for funding destructive industrial salmon farming.¹⁵⁰



Source: <https://www.bbc.co.uk/news/articles/cz5r2mk18k1o>

Getting a fin in the game: even sustainable banks are financing industrial salmon farming despite its terrible track record

Like many mainstream banks and investors, sustainable banks such as Triodos, a European bank which has offices in the Netherlands, Belgium, the United Kingdom, Spain and Germany, are also jumping on the bandwagon by investing into large salmon farming companies.¹⁵¹ Our research has shown that as of November 2024 Triodos had US\$16 million invested in Bakkafrøst.¹⁵²

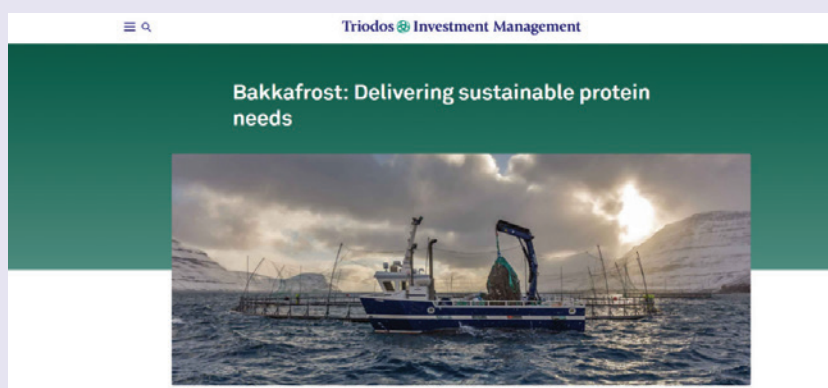
Bakkafrøst is one of the largest fish farming companies in the world and is listed on the Oslo Stock Exchange.¹⁵³ Based in the Faroe Islands it also operates numerous farms in Scotland as a result of its acquisition of the Scottish Salmon Company in 2019.¹⁵⁴ As a vertically integrated company, it also produces its own feed which contains a significantly higher proportion of marine raw materials (e.g. fishmeal, fish oil, krill)¹⁵⁵ than the industry average, representing 51% of feed composition in 2023^{aa, 156} compared to an industry average of 22% in Norway, for example^{ab, 157}.

In addition to this, Bakkafrøst also has a poor track record when it comes to mortality rates, even by aquaculture industry standards. In 2023, Bakkafrøst's mortality rates in Scotland were 20.6%, up from 9.96% in 2019.¹⁵⁸ This is a significant and shocking loss of resources, not just in terms of wasted salmon, but also the inputs (e.g. aquafeed, water, energy, financing) lost in producing fish that were never eaten.

Yet until recently Triodos continued to showcase Bakkafrøst on its website, identifying it as a company which is contributing to Triodos' 'Sustainable Food and Agriculture theme'. This can be seen in the screenshot of the webpage opposite, which has since been taken down.¹⁵⁹

Similarly, a 2024 Triodos presentation in French further stated that "Bakkafrøst is a top-tier producer of quality salmon. [...] Bakkafrøst considers that salmon is a sustainable source of protein which can feed an ever-growing population. The company takes particular care to ensure its carbon footprint is as low as possible"¹⁶⁰

In a recent LinkedIn post, Triodos asked prospective customers if it was time to "break up" with their bank to make sure their money was not being invested into harmful industries, such as fossil fuels and the arms trade.¹⁶¹ Yet the fact that ethical banks like Triodos are invested in salmon farming companies illustrates the powerful grip the industry has over financiers, presenting itself as a sustainable investment option despite all the evidence to the contrary. As it takes a public stand against harmful industries, this report calls on Triodos to 'break up' with salmon farming companies to enable it to uphold its values.



Source: <https://www.triodos-im.com/articles/2019/case-study-bakkafrøst>



Source: https://www.tijd.be/dam/finance-avenue/2024/presentaties/Triodos_FR.pdf

aa This calculation was based on Bakkafrøst's 2023 annual report where it was reported that their feed contained 37.3% marine proteins and 13.4% fish oil.

ab According to Feedback's calculations looking at the inclusion of marine raw materials in fish feed, when taking an average from Mowi, Cargill, BioMar and Skretting in 2022 (the biggest producers of feed) – inclusion of marine raw materials looked closer to 28% (27.88%).

Salmon farming's 'Fat Cats'

In January 2025, Norwegian business magazine *Kapital* published its annual Norwegian rich list.¹⁶² According to our analysis, at least 50 of the 400 individuals featured on this list are involved with the salmon farming industry either as investors, CEOs, chairpersons or founders.

This list gives face to the people who are benefiting from this destructive industry. Below we have highlighted the key figures in the list whose wealth is connected to the Norwegian companies analysed in this report: Mowi, Kverva (SalMar), Laco (Lerøy Seafood Group) and Grieg Maturitas (Grieg Seafood).

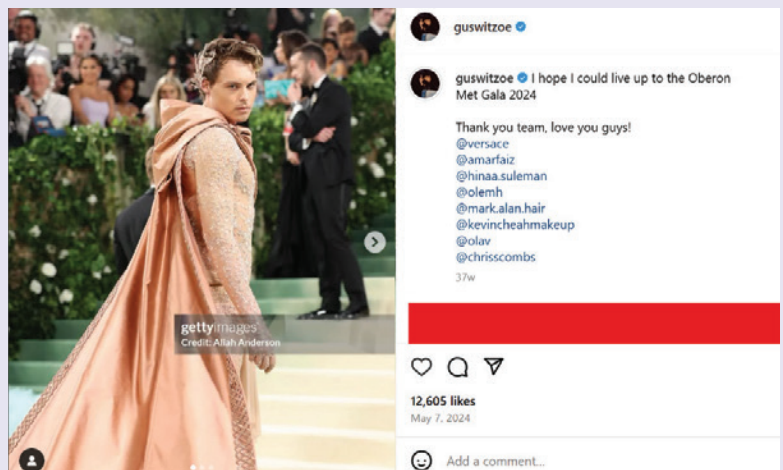
In many cases, the market consolidation that has made these individuals so rich would not have been achievable without significant backing provided by global financiers to the salmon farming industry.

John Fredriksen – NOK 253 billion (US\$22.8 billion).¹⁶³

Although Frederiksen renounced his Norwegian citizenship, enabling him to avoid Norway's wealth tax, this Oslo-born Cypriot national who currently resides in London (although in 2024 he announced plans to leave in response to new UK tax rules)¹⁶⁴ is still placed top of Norway's rich list, with by far the largest fortune.¹⁶⁵ He is the owner of Gevean Trading, Mowi's largest shareholder, which currently owns 14.37% of shares,¹⁶⁶ worth around US\$1.2 billion.¹⁶⁷ This makes him one of the most important people in the global salmon farming industry.¹⁶⁸ His twin daughters are also involved with Mowi.¹⁶⁹ Cecile Fredriksen sat on Mowi's board from 2008 -2021¹⁷⁰ and Kathrine Fredriksen replaced her as a current board member.^{171,172}

Gustav Witzøe – NOK 49.5 billion (US\$4.5 billion).¹⁷³

As the founder of SalMar, the world's second-largest salmon farming company,¹⁷⁴ Witzøe is one of Norway's wealthiest individuals, ranking 7th on the rich list and owning over 40% of SalMar.¹⁷⁵ Although he is no longer involved in the company's day-to-day operations,¹⁷⁶ he remains a key shareholder and is the chairman of the investment company, Kvarv,¹⁷⁷ whose subsidiary company Kverva is both the holding company and largest shareholder of SalMar.¹⁷⁸ In 2013 he gifted his son, Gustav Magnar Witzøe, a large stake in the company making him the world's youngest male billionaire in 2018, aged 24.¹⁷⁹ In 2024 Witzøe Junior made an appearance on the Met Gala red carpet reportedly dressed as a salmon giving a nod to the origins of his wealth.¹⁸⁰ (Image from Instagram)¹⁸¹



Source: https://www.instagram.com/p/C6rIF8DOTfy/?hl=en&img_index=1

Helge Arvid Møgster – NOK 6 billion (US\$0.5 billion).¹⁸²

Møgster is the founder and owner of Laco, a Norwegian holding company invested in fishing vessels, fishmeal plants, salmon farming and other marine activity. One of its main subsidiaries is Austevoll Seafood ASA which owns Lerøy Seafood, a salmon farming company that also owns 50% of Norskott Havbruk AS, the owner of Scottish Sea Farms.¹⁸³ Both Austevoll Seafood ASA and Lerøy Seafood are listed on the Oslo Stock Exchange.¹⁸⁴ Laco was started as a family business and is still controlled by the family, including Møgster's children and siblings.¹⁸⁵

Per Grieg Jr. – NOK 3 billion (US\$0.3 billion).¹⁸⁶

Grieg Maturitas is a family-owned company made up of several companies focused on marine industries.¹⁸⁷ This includes the salmon farming company Grieg Seafood which operates in Norway and Canada and was established by Per Grieg Jr. in the early 1990s.¹⁸⁸ Per Grieg is Chairman of the Board and owns 51.06% of shares in Grieg Seafood, together with his family.¹⁸⁹ Other members of the Grieg family feature on *Kapital*'s rich list too, making them a very wealthy family.

“No wonder these companies are making so much money – they pay little or no rent, Nature provides free heating and cooling and there are no waste or pollution fees”

Frederik W. Mowinckel, member of Mowi’s founding family and now strongly opposed to the industry.

Public money

UK

Alongside private finance, our research indicates that the salmon farming industry is also the recipient of large amounts of public funding. The UK Seafood Fund, a £100 million fund set up to support the long-term future sustainability of the UK fisheries and seafood sector¹⁹⁰ awarded just over £7 million to Mowi Scotland and £5 million to Scottish Sea Farms (co-owned by Lerøy Seafood Group and SalMar) between 2022-2023.¹⁹¹ These were the biggest funding awards to individual companies, making up around 8% and 6% respectively of the fund^{ac}. What makes the subsidy awarded to Mowi even more astonishing is the fact that it is over 5 times as much as the tax the company paid to the UK Treasury in 2022 (£1.269m).¹⁹² This seems like a great deal for a profit-hungry corporation and less so for the UK taxpayer^{ad}.

Scotland

The Marine Fund Scotland was set up to support projects which contribute to an innovative and sustainable marine economy, reducing carbon emissions and supporting coastal communities.¹⁹³ In the most recent funding round, announced in October 2024, a £150,000 grant was awarded to Seafood Scotland, the national trade and marketing organisation for the Scottish seafood industry with the purpose of supporting the Responsible Seafood Summit in 2024. Hosted in St. Andrews, this programme showed a pro-salmon industry bias with one talk titled: ‘Social License Amid a Sea of Misinformation: Salmon producers are facing waves of negative media attention. What can Scotland learn from a longtime industry leader?’¹⁹⁴

The Marine Fund Scotland also has a history of giving lots of money to salmon farming companies. The table below shows the nearly £5 million given to salmon farming companies since 2021. Notably in 2021, Bakkafrost’s £2 million funding amounted to 15% of all that year’s funding^{ae}.

Year	Company	Funding amount awarded
2021-2022	Scottish Salmon Company (owned by Bakkafrost Scotland)	£2 million
2022-2023	Organic Sea Harvest	£1.1 million
	Aquascot	£1.2 million
2023-2024	Mowi Scotland	£50,000
	Aquascot	£105,000
2024-2025	Cooke Aquaculture	£370,000
Total ^{af}		£4.8 million

ac See Appendix (UK Seafood Fund) for more information.

ad These calculations were based on Feedback’s own calculations from looking at the UK Seafood Fund. Under the Infrastructure round of funding, Mowi Scotland was granted £2 million in round 1 and £5 million in round 2; Scottish Sea Farms were given £5 million in round 2. At time of publication, around £90 million of grants have been publicly disclosed. See methodology for more information.

ae These calculations are based on Feedback’s own calculations from looking at the Marine Fund Scotland. In 2024 the fund provided around £14.9 million, in 2023 £14.3 million, 2022 £13.1 million, 2021 £13.3 million. For more information see the methodology.

af See Appendix (Marine Fund Scotland) for more information.

EU

With the departure of the United Kingdom from the EU as the result of the 2016 Brexit referendum, the EU lost the Scottish salmon farming industry which had been the highest-value part of its aquaculture industry, representing 94% of total EU salmon production.¹⁹⁵ However, Brexit did not end the presence of salmon farming in the EU given that Mowi also operates in Ireland.¹⁹⁶ Mowi's farm at Deenish Island,¹⁹⁷ County Kerry has been a source of controversy for some years.¹⁹⁸ The country's Atlantic salmon farming sector as a whole generated €104 million in sales revenues in 2022.¹⁹⁹

The sustainable development of aquaculture is one of the main objectives of the EU's common fisheries policy. Aquaculture production is also recognised by the European Green Deal as a source of "low carbon" protein for food and feed.²⁰⁰ In 2013 the Commission adopted non-binding strategic guidelines for the sustainable development of EU aquaculture, which served as the basis for the development by EU countries of specific national strategic plans for aquaculture.²⁰¹

Part of the mandate of the European Maritime and Fisheries Fund (EMFAF – formerly European Maritime and Fisheries Fund, EMFF) is to support the sustainable development of aquaculture. Our research shows that through this fund, the European Commission has provided significant resources to a research project (SEASTAR, 2019-2022) benefiting the Norwegian salmon industry:²⁰² under the then EMFF, the EU contributed nearly €1 million (€989,637) to a €1.5 million project led by Norwegian salmon farming giant Lerøy (Lerøy Vest AS and Lerøy Seafood Group ASA are both listed as partners alongside the University of Bergen and an underwater wireless communication company).^{203,204} The challenge the project set out to address is summed up as follows:

"The [aquaculture] sector [...] still suffers from high production costs which hinder its expansion. Many daily operations and monitoring activities are performed manually or with costly in-situ interventions. SEASTAR addresses the lack of full digitalization in the sector, by exploiting innovative Internet of Underwater Things Technologies and integrating them with last-generation miniaturized wearable sensors to be placed on each fish. The resulting system is a completely innovative underwater infrastructure that, for the first time, will allow fish farmers to monitor the health of each fish remotely, in real time, and to gather relevant data for accurate risk assessment and forecasting."

Alongside the provision of finance to established salmon farming companies, there is a concerning trend in support for the expansion of land-based salmon farms at EU level, using Recirculating Aquaculture Systems (RAS) which rely on new expensive technology.²⁰⁵ For instance, in 2022, the European Investment Bank, the lending arm of the European Union,²⁰⁶ lent €48 million to Premium Svensk Lax Sustainable Salmon Farm to fund the construction of Sweden's first land-based salmon farm.²⁰⁷ Land-based salmon farming does not solve the issues related to feed sourcing described earlier in this report; it also has a poor economic track record, not to mention shocking welfare conditions.²⁰⁸ As a result, there is increasing community resistance to land-based salmon farms (see below), making this a questionable investment on the part of the EIB.²⁰⁹

All fins point to Mowi

Mowi is the largest salmon company in the world, making €5.6 billion (US\$5.9 billion) in revenue in 2024.²¹⁰ Recently it acquired the family-owned salmon company, Nova Sea for an eye-watering €625 million, further strengthening the company's stranglehold on global salmon farming.²¹¹

In 2025 Mowi Scotland had its Royal Warrant regranted, enabling the company to use the Royal Arms on its products, packaging and website.²¹² The company clearly sees this as a marketing opportunity: following the announcement, a Mowi representative noted that the company is the only supplier of fresh salmon to King Charles III and the Royal Warrant "is recognised and held in high regard globally and lends even greater provenance to the Mowi story."²¹³ King Charles III is known to be a keen angler, and his charitable fund supports the Atlantic Salmon Trust of which he is a patron. It is hard to square his obvious concern for the plight of wild salmon populations with his relationship with the largest producer of farmed salmon in the world.^{214,215}

Mowi's largest shareholder is Norway's richest man, John Fredriksen, who owns 14.37% of shares, worth US\$1.2 billion, in the company through Geveran Trading.²¹⁶ According to our dataset it is also the biggest recipient of finance from private banks and investors, receiving over one-third (US\$7 billion) of all credit combined and over half (US\$6 billion) of all investment. In addition, our research shows that it was awarded £7 million in public money by the UK government between 2022-2023, the largest sum to an individual company, over 5 times as much as the tax the company paid to the UK Treasury in 2022 (£1.269m).²¹⁷ In Q4 2024 alone, Mowi paid out US\$92.1 million in dividends to shareholders. Mowi frequently finds itself at the centre of huge controversies and while it claims to be the world's 'most sustainable protein producer', its track record suggests otherwise.²¹⁸ From breaching environmental laws in Scotland;²¹⁹ facing lawsuits in Chile for massive fish escapes;²²⁰ using banned chemicals on salmon sold to UK supermarkets as organic;²²¹ being implicated in a 'price-fixing' scandal where, alongside other major Norwegian salmon producers, it was alleged to have breached EU antitrust rules by colluding to distort competition in the market,^{222,223} Mowi does not appear to be living up to its purported sustainability credentials. In 2024, more than a million fish died at two adjacent Mowi Scotland sites, the biggest mass die-off of farmed salmon in Scotland in a decade.²²⁴

Mowi Scotland granted Royal Warrant



Mowi Scotland is honoured to be granted a **Royal Warrant of Appointment** for the supply of fresh salmon to His Majesty The King.

Source: <https://mowi.com/uk/blog/2025/01/07/mowi-granted-royal-warrant>

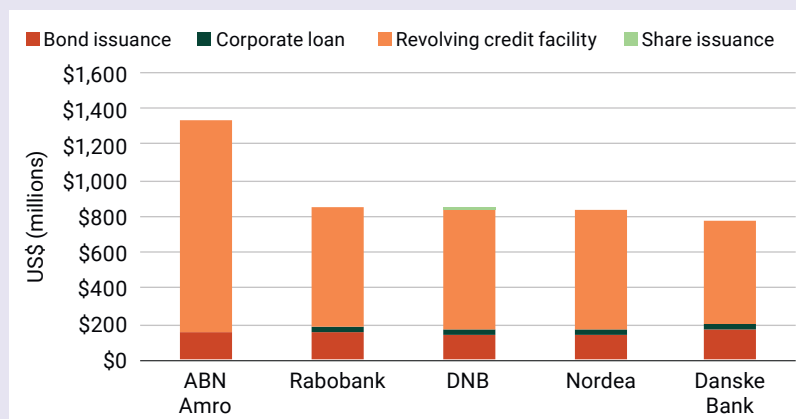
All fins point to Mowi (Continued)

Despite these concerns the financial backing continues to flood in, giving Mowi the heft to continue on its course of global domination.

Mowi's top 5 creditors (including Arctic Fish): (See Figure 14)^{ag}

1. ABN Amro (US\$1.3 billion)
2. Rabobank (US\$0.9 billion)
3. DNB (US\$0.8 billion)
4. Nordea (US\$0.8 billion)
5. Danske Banke (US\$0.8 billion)

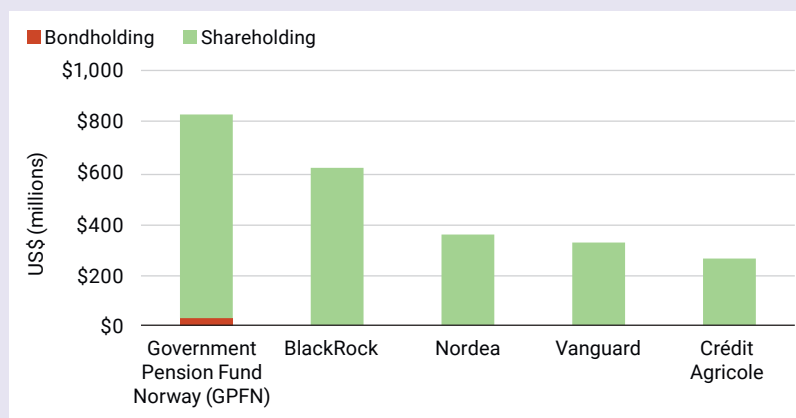
Figure 14: Mowi's top 5 creditors (Jan 15 - Nov 24, US\$ mln)



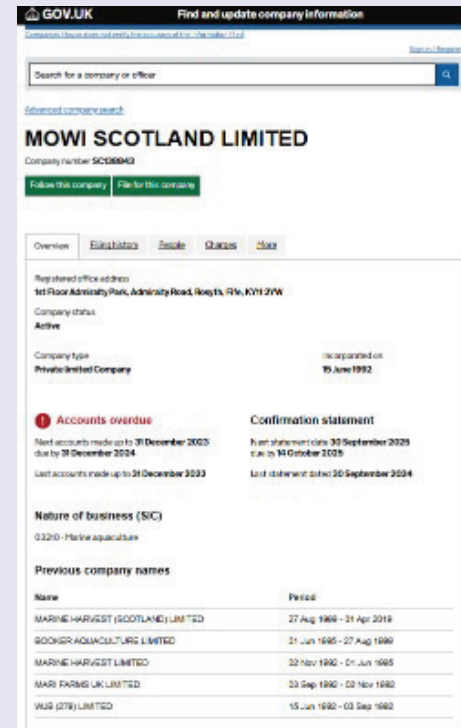
Mowi's top 5 investors (including Arctic Fish): (See Figure 15)^{ah}

1. Government Pension Fund Norway (GPFN) (US \$0.8 billion)
2. BlackRock (US\$0.6 billion)
3. Nordea (US\$0.4 billion)
4. Vanguard (US\$0.3 billion)
5. Crédit Agricole (US\$0.3 billion)

Figure 15: Mowi's top 5 investors (Nov 24 or latest, US\$ mln)



Adding to this, as of time of publication Mowi Scotland's financial accounts to the UK's tax authority, HMRC, are overdue (see image below).²²⁵ It is unclear what lies behind this delay.



Source: <https://find-and-update.company-information.service.gov.uk/company/SC138843>

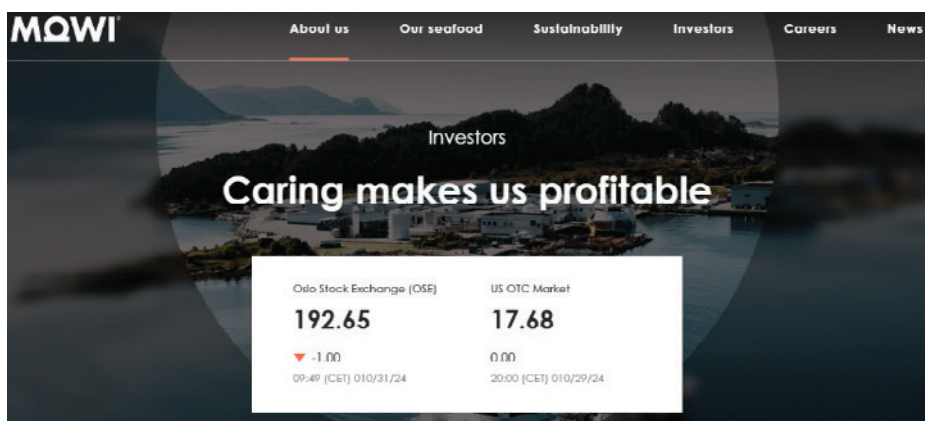
ag For information on other salmon farming companies, see Appendix 5.

ah For information on other salmon farming companies, see Appendix 9.

Reeling in the financiers

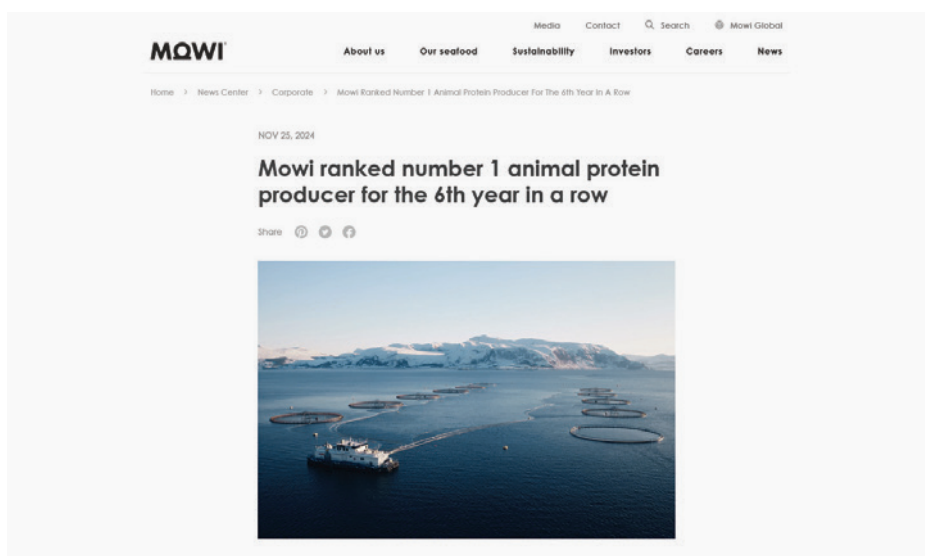
Financiers have bought into misleading narratives invented by the salmon industry

The global salmon farming industry is swimming in money, which has been a key factor in the industry's stratospheric growth. Its ability to access finance has been boosted by sophisticated positioning by some of its biggest players. Take, for example, Mowi's statement in its *Salmon Industry Handbook* that sea-based Atlantic salmon has "the highest level of industrialisation and the lowest level of risk compared to other aquaculture species"²²⁶ as well as claims it produces a 'resource-efficient' and 'climate-friendly product'.²²⁷



Source: <https://mowi.com/investors/>

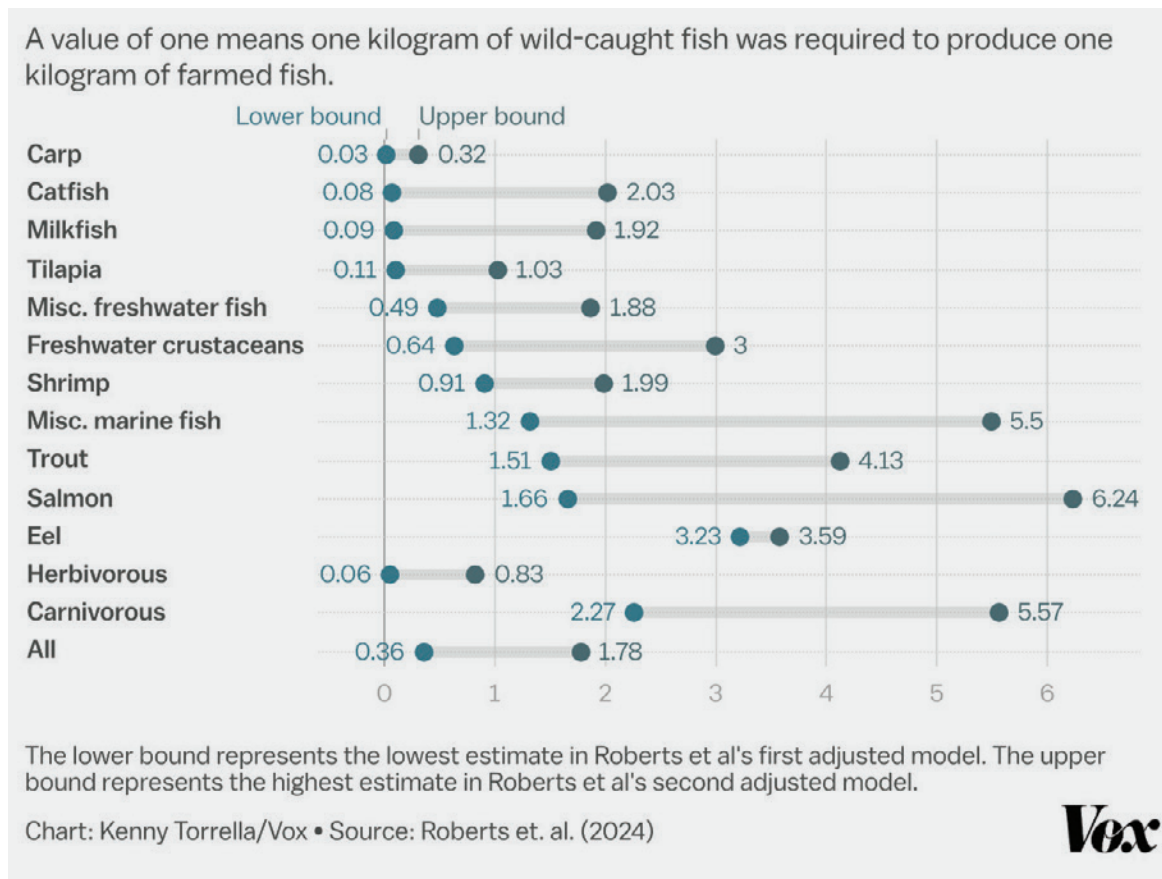
Frustratingly, FAIRR, the global investor network set up in 2015 to ensure investors are better equipped to understand the material risks and opportunities in the food sector²²⁸ has provided Mowi with a valuable greenwashing opportunity several years in a row by ranking it at the top of its Protein Producer Index, which lists aquaculture companies alongside meat and dairy producers.²²⁹



Source: <https://mowi.com/corporate/mowi-ranked-number-1-animal-protein-producer/>

The appealing, yet misleading, narrative that salmon farming is 'green and clean' has been lapped up by global financial players, as well as governments, despite farmed salmon being one of the most resource-intensive species within aquaculture (see Figure 16 below). If financiers were truly motivated by investing in 'resource-efficient' and 'climate-friendly products', they could be investing in less input-intensive forms of aquaculture, such as algae, mussels or oysters.

Figure 16: The amount of wild-caught fish to feed farmed fish, by species

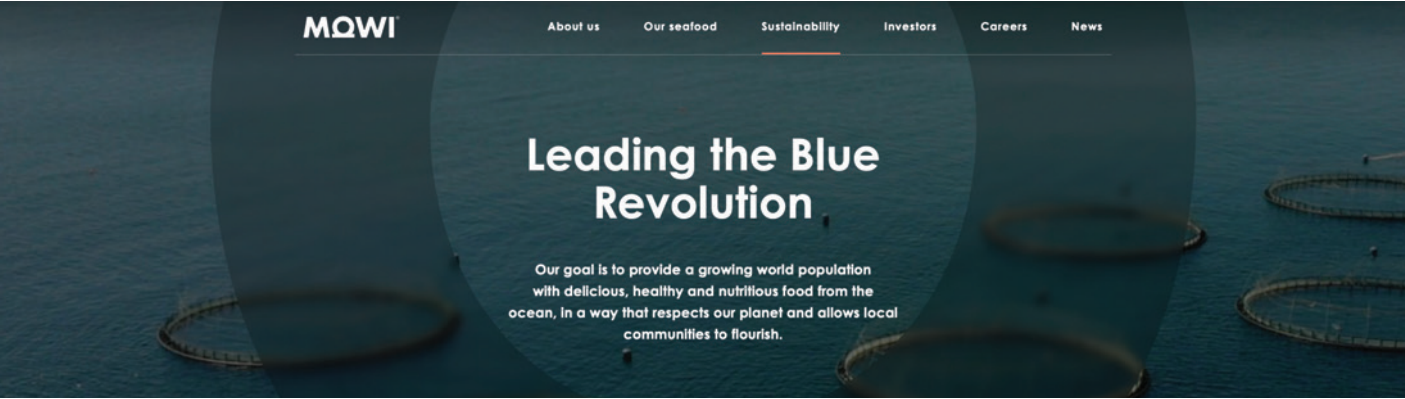


Source: Vox, 2024, <https://www.vox.com/future-perfect/379564/fish-farming-sustainable-wild-caught> (via Roberts et al, *Feeding Global Aquaculture*, 2024, <https://www.science.org/doi/epdf/10.1126/sciadv.adn9698>)

While they may not be the most resource-efficient species, farmed salmon are certainly the most profitable.²³⁰ Much has been written about salmon farming's high returns on investment, which in some cases have been staggering. For example, SalMar shares, which have been listed on the Oslo Stock Exchange since May 2007, were reported to have increased 21-fold in US dollar terms in the decade to 2022.²³¹ The quick returns are clearly reeling in the financiers, but at what cost to society and critical ecosystems?

An equally damaging false narrative seeded and repeated *ad nauseum* by the salmon farming industry is that its expansion will feed the world as the global population continues to grow (see examples below):

Mowi:²³²

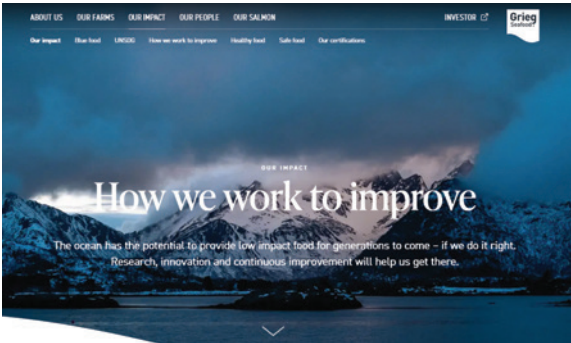


Bakkafrost:²³³

Bakkafrost has an ambitious growth strategy which enables us to compete in the world’s fastest growing food producing sector and make a significant contribution to providing healthy sustainable food for a growing population.



Grieg Seafood:²³⁴

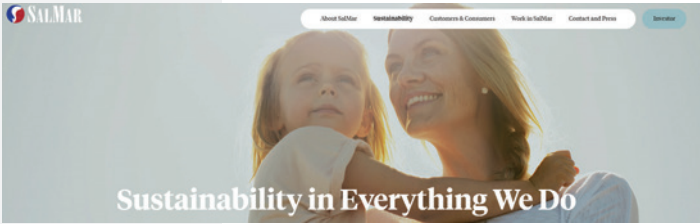


SalMar:²³⁵

Sustainability is a prerequisite for success

SalMar believes it is important to recognise what sustainability is actually about: the future. Sustainability concerns our children and their grandchildren, but also our fellow citizens today. We must acknowledge that we only have one planet Earth, with a limited amount of resources. These resources are vital, and something we must protect at all cost.

The world’s population currently uses more resources than the planet can regenerate. And food production accounts for a major part of human climate and environmental impact. A growing world population therefore requires new ways of producing food, while minimising our impact on the environment. Salmon farming is an important part of the solution.

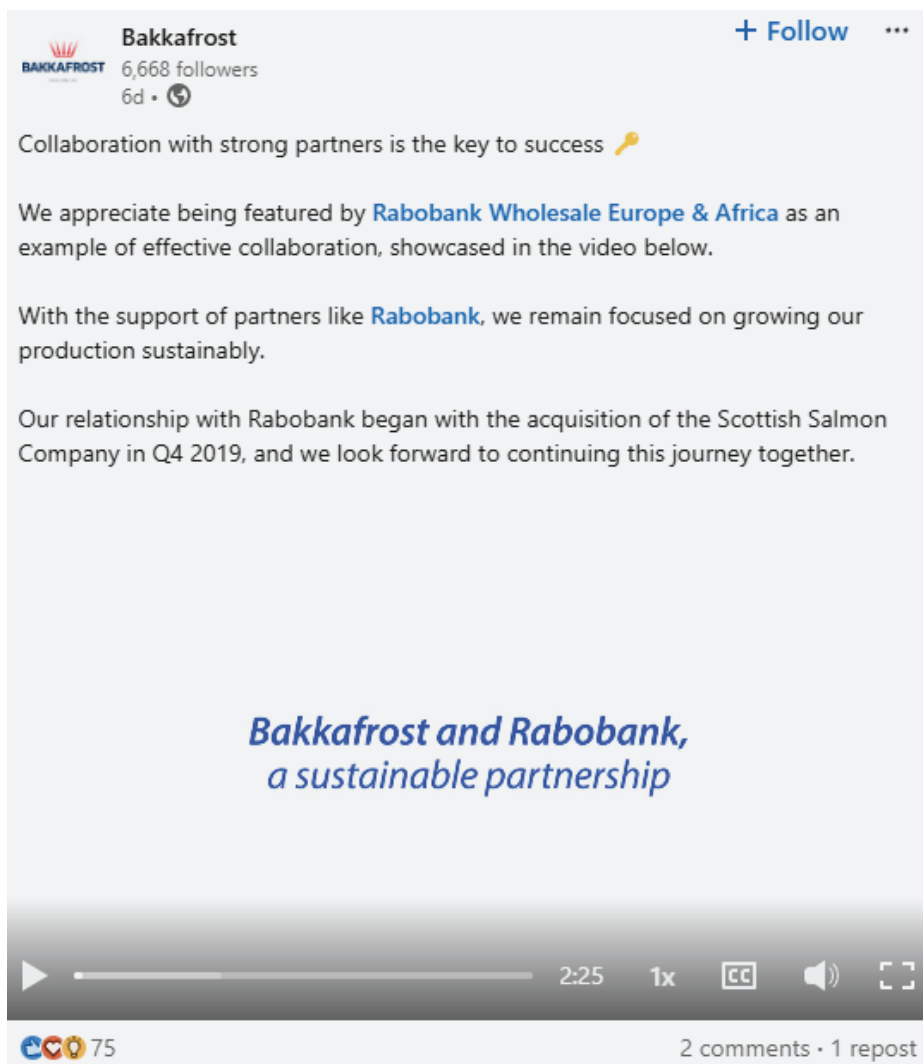


These companies' efforts to package themselves up as a solution to feed the world's growing population are disingenuous at best. Analysis from Planet Tracker in 2023 shows that with its current trajectory aquaculture will fail to feed the world because it will hit up against biological limits, lack of availability of coastal space and an increasingly strict regulatory landscape.²³⁶ In reality, the industry's continued reliance on the use of millions of tonnes of wild-caught fish every year to feed farmed salmon is creating a 'food-feed competition', depriving people around the world of fish that could be part of a balanced diet without recourse to salmon farming in the first place.

Nevertheless, financiers themselves are now also perpetuating this narrative. For example, Triodos features Bakkafrost on its website, stating that Bakkafrost contributes to the UN Sustainable Development Goal 2: Zero Hunger despite the company's significant use of FMFO.²³⁷ This echoes Bakkafrost's own annual report, which contains the company's assessment of how it contributes to the SDGs.²³⁸ A LinkedIn post at the end of 2024 from Bakkafrost includes a promotional video putting a spotlight on its 'sustainable partnership' with the Dutch bank Rabobank. Martin van Hulst, a Senior Banker at Rabobank states in the video: "As a co-operative bank, an important part of our mission is to contribute to sustainable production of food for consumers around the world."²³⁹

"The salmon industry peddles the narrative that it is 'feeding the world' to feed its bottom-line, growing healthy profits at the expense of wild fish population, sound nutrition and livelihoods."

Carina Millstone, Executive Director, Feedback



Source: https://www.linkedin.com/posts/bakkafrost_collaboration-with-strong-partners-is-the-activity-7255180865410920448-09IK/?utm_source=share&utm_medium=member_desktop

"Our landmark case sends a powerful message: animals matter, and planning authorities must take their legal responsibilities seriously or risk serious legal challenges. On-land salmon farms have no place in the UK – they are highly energy and water intensive, generate vast amounts of toxic waste, and condemn fish to a lifetime in cramped, unnatural conditions. Factory farming is not the future of food production, and councils must take heed."

Abigail Penny, Executive Director of Animal Equality UK

In January 2025, DNB, the world's largest seafood lender, downgraded its outlook on some salmon farming companies including Mowi and Grieg Seafood from 'Buy' to 'Hold'.²⁴⁰ This followed concerns voiced in early 2024, when DNB warned that salmon farming was at its 'biological ceiling' and risked losing its social licence as farms are forced to contend with climate change and rising sea lice levels resulting in high mortality.²⁴¹

Dag Sletmo, senior vice president of DNB bank, likened the salmon farming industry to a frog in a pot of gradually heating water.²⁴² The analogy was intended to create a sense of urgency for the industry to fix its reputation problem, including by reducing mortality rates. In an article for specialist media outlet IntraFish, Sletmo stated that for the industry "repairing social license should be priority number 1. How do you do that? Mortality must go down."²⁴³ He further stated that companies need to "Create a new narrative about the industry based on sustainability to replace the money-focused story the industry itself likes to tell and to replace the media's 'death & decay' narrative."²⁴⁴

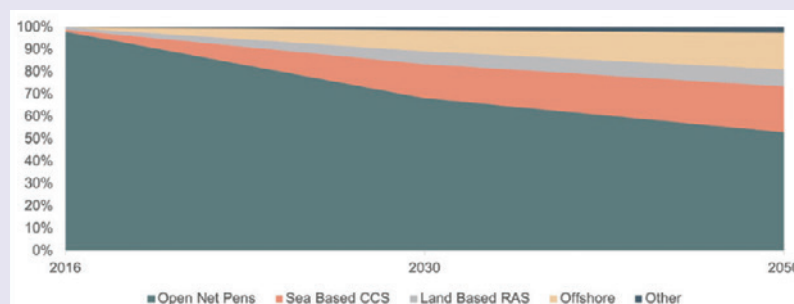
Land-based fish farming – the new frontier

To overcome concerns investors may have around open-net salmon farming, the salmon industry is leaning on new, more expensive technologies such as closed and semi-closed salmon farms to present itself as a future-proof investment.²⁴⁵ There are high hopes for these technologies, and correspondingly high growth projections. PwC projects that by 2050, 50% of all salmon production will take place inland using RAS or offshore in closed containment systems, which will add to the cost of production (see Figure 17).²⁴⁶

However, the animal welfare implications of these systems are grave, with several mass mortality events reported in recent years. In late 2023, close to 1.9 million young salmon died at a Lerøy owned land-based facility in Norway²⁴⁷ and around a further 500,000 died at the same facility in March 2024.²⁴⁸

Despite peddling the narrative that technology will save the industry, they are hitting up against local and international opposition. In the UK, the first fully land-based salmon farm was approved in Cleethorpes in North-East Lincolnshire in late 2023. If it goes ahead, it would have an annual production capacity of 5,000 tonnes.²⁴⁹ However, it is now facing a judicial review, led by NGO Animal Equality UK, on the grounds that the council deliberately failed to consider animal welfare as a potential material land use consideration.²⁵⁰ If this case results in the withdrawal of planning permission, it would set a precedent for other land-based farms around the UK, making their development more challenging.

Figure 17: Projection of Salmon Production by Type to 2050



Source: PwC, 2017, <https://www.pwc.no/no/publikasjoner/pwc-seafood-barometer2017.pdf>

Communities are rising up to resist the industry

As salmon farming companies have expanded worldwide, adversely impacting people and nature at each end of sometimes long and complex supply chains, the industry's environmental and social impacts have become global issues. As a consequence, more and more communities around the world are organising to resist the expansion of this destructive industry, many of them under the umbrella of the Global Salmon Farming Resistance (GSFR),²⁵¹ an international alliance comprising more than 100 NGOs, activists, scientists, and individuals from 19 different countries who share a common vision: oceans free from open-net salmon farms allowing depleted marine ecosystems to thrive once again. The groundswell of opposition to destructive salmon farming embodied by GSFR and other groups poses a serious threat to destructive salmon farming as global campaigns gain momentum and traction with policymakers around the world.

From Norway to Argentina to Tasmania this powerful alliance of communities around the world are coordinating together to resist the destructive salmon farming industry. See the map (Figure 18) below to learn more about the movements taking place around the world.

"All over the world, communities are rising up to defend their waters, cultures, and livelihoods from the destruction caused by open-net salmon farming. Through the GSFR, we are uniting this resistance into a powerful global movement – not just to fight back, but to create a future where food systems truly respect nature and people."

Agustina Copello, The GSFR coordinator

Figure 18: Salmon farming: a map of global destruction and resistance





Argentina – Tierra del Fuego – Salmon farming ban – Argentina became the world's first country to ban open-net salmon farming in 2021

In 2018 Argentina signed an agreement to install intensive salmon farms in the waters surrounding Peninsula Mitre in the Beagle Channel. This was met by a relentless three-year campaign opposing the establishment of open net farms in the region, resulting in the local government of Tierra del Fuego passing a law banning intensive salmon farming in the Beagle Channel in July 2021.²⁵² This was a world first.

Inspired by Argentina's abolition of salmon farming and the efforts of other activists, the Global Salmon Farming Resistance (GSFR) was founded to coordinate all of these actions worldwide.²⁵³

Argentina – Santa Cruz – Community Resistance

Although a ban on open-net salmon farming has been passed in the Beagle Channel, the industry is still looking for new opportunities to capitalise off the Argentinian coast, and Argentinian and Norwegian companies are reported to have entered into conversations about installing open-net salmon pens in Santa Cruz.²⁵⁴ However, the local community have stood strongly against it, coming together with the Por El Mar foundation, the GSFR alliance and chef Lino Adillón to demand a Patagonian Sea free of the salmon farming industry.²⁵⁵ The salmon farming resistance in Argentina is strong and continues to defend the country's coasts from this destructive industry.



Action against the instalment of salmon farms in Argentina's congress, 2021. Credit: Por El Mar, Argentina

Falkland Islands / Islas Malvinas – Salmon farming ban



Inspired by the campaign in Argentina, Islanders have also fought against the installation of salmon farms with the result that in April 2022, the Executive Council resolved that large-scale aquaculture, including salmon farming, would be banned in the Falkland Islands/Islas Malvinas.²⁵⁶ This is a win for the salmon farming resistance, showing the lack of appetite for these salmon farms in places where they do not yet exist.

Canada – British Columbia – Increasing Restrictions, Reputational Damage



To date, about 40 open net pen salmon farms have been removed from British Columbia waters, but over 60 remain.²⁵⁷ In June 2024, the Canadian federal government announced it would ban open-net pen salmon farms off the coast of British Columbia in 2029, with the Minister of Fisheries, Oceans and the Canadian Coast Guard stating: “The government is firmly committed to taking concrete steps to protect wild Pacific salmon.”²⁵⁸ The announced ban is widely seen as a response to fierce community and NGO resistance; however, these groups are dismayed that it is set to enter into force several years after the initial planned deadline of 2025 and are calling for a much earlier transition,²⁵⁹ with one organisation qualifying the postponement as a “predatory delay”.²⁶⁰



Campaign against Salmon Farms, led by Clayoquot Action and Watershed Watch in Tofino, British Columbia, 2022.
Credit: Clayoquot Action, British Columbia



Canada – Nova Scotia – Community resistance, Political Challenges, Reputational damage

In Nova Scotia, there has also been strong community resistance against salmon farming, including from lobster harvesters up in arms about its impact on their livelihoods.²⁶¹ In addition, the Nova Scotia Premier has expressed concerns about the potential environmental impact and lack of consultation with local communities regarding proposed aquaculture expansion,²⁶² rejecting salmon farming giant Cooke Aquaculture's application for new licenses and leases in the province's Liverpool Bay in February 2024.²⁶³ Such has been the level of resistance that in 2020, Mitsubishi-owned Cermaq announced that it would not be proceeding with its proposed US\$500 million expansion to the east coast of Canada at all.²⁶⁴



USA – Washington State – Salmon farming ban

Since 2017, more than 10,000 people and more than 100 organizations and businesses have supported an initiative called "Our sound, Our Salmon" (OSOS), a campaign dedicated to protecting Puget Sound from the impacts of commercial net pen aquaculture.²⁶⁵

In July 2020, OSOS launched a new initiative to advocate for Washington's Commissioner of Public Lands Hilary Franz to deny new decade long leases to net pen and seafood giant Cooke Aquaculture. This resulted in a new executive order banning all industrial marine net pen aquaculture in Washington state waters in November 2022.²⁶⁶ The ban was adopted into law in 2025.²⁶⁷

USA – Maine – Salmon farming ban, Increasing Restrictions

Protect Maine's Fishing Heritage Foundation (PMFHF) is collaborating with ten towns in Maine on projects to pass ordinances regulating aquaculture, with the objective of prohibiting large-scale aquaculture farms in the State's coastal waters. Four out of ten towns have passed ordinances so far. If the six other towns followed suit, 90% of Maine's coastal waters would be protected from destructive salmon farming.²⁶⁸ This would be a huge win for the campaign and a major setback for the industry.

In addition to this, Cooke Aquaculture, which operates farms in several locations across Maine, is facing a lawsuit led by Conservation Law Foundation related to toxic discharges of fish faeces, sea lice, diseases, chemicals, trash, and escaped fish.²⁶⁹



Norway – Reputational Damage

As detailed at length in a prize-winning 5-year investigation, *The New Fish*,²⁷⁰ Norwegian salmon companies have found themselves at the centre of countless salmon farming disasters. These have included the escape of five thousand farmed salmon,²⁷¹ the dramatic closure of the most important salmon rivers in Norway due to historically low stocks,^{272,273} huge mortality incidents leading to 62.8 million salmon dying at Norwegian salmon farms in 2023.²⁷⁴ At the start of 2025 Mowi

offered to pay fishers £36 a fish after 27,000 farmed salmon escaped their pens, highlighting the chaotic state of Norway's salmon farming industry.²⁷⁵

A survey carried out by market research firm Kantar TNS shows that the industry's reputation is in freefall.²⁷⁶ On a scale of 0 to 100, where 100 is the best, the aquaculture industry receives a score of only 29 in Norway.²⁷⁷ Communities and a growing number of NGOs are resisting the industry and putting the pressure on policymakers to hold the industry to account.²⁷⁸ However, it's not just within Norway's borders, the international dominance of Norway's salmon farming industry means that it is also an 'unwanted guest' globally, facing resistance in Iceland, Canada and Chile too.²⁷⁹

Scotland – Community Resistance, Reputational Damage



Near salmon farming sites across Scotland, there has been huge community resistance to the industry's reckless expansion, which is polluting lochs and blighting lives. For example, in Ullapool, a village around 45 miles north of Inverness, the local community has stood strong against the planned expansion of a site operated by salmon farming giant Mowi.²⁸⁰ The story is captured in the film *Stop Salmon Farming for Good*, which exposes the tactics used by the industry to deceive communities and emphasises the urgent need for local people to have the final say over these destructive developments in the places they call home.²⁸¹

Chefs are also adding their voices to the campaign to end destructive salmon farming in the UK by pledging their support for the Off the Table initiative, which calls on restaurants to take farmed salmon off their menus. This highly impactful campaign has been replicated in Iceland, Australia and Canada and to date has more than 300 restaurants/chefs signed up.²⁸²

France – Community Resistance



Seastemik's campaigning in France places the spotlight on land-based salmon farming, supporting the local mobilisation in Verdon-sur-Mer, a commune in the Gironde department in Nouvelle-Aquitaine in South West France, where locals are challenging Pure Salmon's proposed "salmon factory farm". Pure Salmon, a company headquartered in Abu Dhabi in the United Arab Emirates plans to raise and slaughter 2 million salmon per year at the site.^{283,284} Seastemik describes the salmon farming industry as an "ecological and social bombshell", and salmon "the pink bomb of an exhausted food system".²⁸⁵ With three land-based salmon farms currently on the drawing board in France, it has called for a national moratorium on salmon factory farms.²⁸⁶

Australia, Tasmania – Community Resistance, Political Challenges, reputational damage



Campaign group Neighbours of Fish Farming (NOFF) has campaigned tirelessly to protect Tasmania's coastline from the encroachment of industrial salmon farming, which is releasing tonnes of antibiotics, chemicals, feed waste and faeces into waterways, suffocating marine life and habitat, contaminating beaches and bays, and subjecting coastal communities to "24/7 industrial noise and light."²⁸⁷

According to polling, 72% of Tasmanians want salmon farms out of their waterways^{288,289} and support the recommendation of the Parliamentary Inquiry²⁹⁰ on Fin Fish Farming in Tasmania to reduce inshore salmon farming sites, with priority given to ceasing operations in sensitive, sheltered, and biodiverse areas.²⁹¹

The campaign has influenced politicians to take a stand against the industry. In 2024, independent members of Tasmania's minority government joined forces with other political parties to back NOFF's call for an inquiry into the Environmental Protection Agency over its multiple failures to protect Tasmanian waterways, marine life and coastal communities from the depredation of the multinationals that own the salmon industry.²⁹²



Salmon Out Flotilla in Tasmania's D'Entrecasteaux Channel, 2023. Credit: Neighbours of Fish Farming, Tasmania, 2023



Iceland – Political Challenges, Community Resistance, reputational damage

With the warming of the oceans as a result of the climate crisis, salmon farming is migrating north into territory once considered too cold for the industry to establish itself.²⁹³ In Icelandic waters, open net pen salmon farming has grown eighteen fold since the turn of the century. In 2023, thousands of farmed salmon escaped from an open net pen, following which suspected escapees were found in at least 32 rivers across north-west Iceland.²⁹⁴ Since then, shocking reports revealed mass mortalities and sea lice infestations at Mowi's Icelandic subsidiary, Arctic Fish.²⁹⁵ Against this backdrop, it is unsurprising that according to a survey conducted by Gallup in July 2024, 65.4% of Icelandic people oppose open-net salmon farming²⁹⁶ and calls for a ban on salmon farming have been growing.²⁹⁷ These calls have been amplified by international celebrities, Björk and Rosalía, who have collaborated on a song to fight the industry²⁹⁸ showing that the fight against salmon farming is now bleeding into mainstream pop culture.

Widespread popular resistance to salmon farming brought about the collapse of Iceland's coalition government in 2024 when the Icelandic parliament was unable to reach a decision about the future of the salmon farming industry.²⁹⁹ Through campaigning and community action, the issues surrounding salmon farming have become mainstream debates, posing a real threat to the future of the industry in Iceland.



Protest against open-net pen salmon farming outside the Icelandic parliament

Credit: Sigurjon Ragnarsson, 2023

“Right now a licence is being processed for open net pen fish farming in the town of Seyðisfjörður, where 70% of the people do not want it. Locals have been fighting this for years, but the company doesn't care. This industry does not care about what the locals want, the protection of their pristine fjord, they only care about the money”.

Elvar Fridriksson, CEO of North Atlantic Salmon Fund (NASF – Iceland)

Chile – Community Resistance, Reputational damage

In Chile communities are resisting proposed modifications to the 'Lafkenche Law' – which gives native peoples the right to decide what happens on their coasts – to benefit the salmon farming industry. At the end of 2024, the proposed changes to the Lafkenche Law were suspended, representing a major victory for the communities.³⁰⁰



The Chilean salmon farming industry has also come under scrutiny as a result of investigative research which has shown that salmon sold in Europe certified as 'sustainably farmed' was produced in Marine Protected Areas.³⁰¹ This is damaging the reputation of the industry and putting these issues in the spotlight at a global scale. In 2024 the *Salvemos la Patagonia* (Save Patagonia) campaign was launched to ensure that the industry withdraw from these Marine Protected Areas³⁰² and *Defendamos Chiloé* created a video drawing attention to these issues which featured on a billboard in Times Square, New York.^{303,304}

Conclusion: It's time to stop financing industrial salmon farming

"Far from being passive bystanders, financial institutions are actively driving an industry that values profits over everything else."

The global salmon farming industry is plundering our ocean and extracting food from communities living in some of the poorest parts of the world. Precious wild fish populations are being squandered to feed farmed salmon, while wild salmon populations facing collapse are plagued by sea lice infestations and mass escapes from salmon farms. Our ecosystems are drowning in plastics, chemicals, and fish faeces. And still, money continues to pour into this destructive industry.

The lure of big profits is reeling in global financiers, who are pouring billions into salmon farming, fuelling the industry's rapid growth and enabling harms to continue. The explosive rise of salmon farming companies in the space of mere decades would not have been possible without this financial support. Far from being passive bystanders, financial institutions are actively driving an industry that values profits over everything else.

Some of the world's biggest banks and asset managers are bankrolling the salmon farming industry. Nordea, DNB, Danske Bank, Rabobank, ABN Amro, BlackRock, Storebrand and Vanguard are at the forefront of funding what can only be described as factory fish farming – a practice similar to the worst kinds of animal agriculture. Our research reveals that many of salmon farming's financial backers are supposedly 'sustainable banks', including Triodos, which has invested US\$16 million in Bakkafrøst, one of the world's largest salmon farming companies – directly contradicting its stated values. Triodos recently asked, "Your money isn't just sitting in your bank account – it's being used to fund something. But is it funding what you believe in?".³⁰⁵ Very few of its customers would support industrial salmon farming when presented with the evidence set out in this report.

Alongside salmon farming's success in attracting finance from major investors and creditors, public money is also pouring into this industry. At a time of increasingly squeezed government finances, how can it be that a company like Norway's Mowi, which made €5.6 billion (US\$5.9 billion) in revenue in 2024,³⁰⁶ received millions of pounds from the UK taxpayer between 2022-2023, over 5 times higher than the tax the company paid to the UK Treasury in 2022 (£1.269 million)?³⁰⁷ And why is the European Investment Bank providing tens of millions of euros to a Swedish company for a land-based salmon farm,³⁰⁸ when land-based salmon farming raises such grave ethical questions and is being fiercely rejected by communities around Europe?

Communities across the world are seeing through the salmon farming industry's greenwashing. Their lived experience of the destruction caused by salmon farming is becoming increasingly hard to ignore and has already resulted in some serious setbacks for Big Salmon, including in Argentina, Canada and Tasmania. Fierce opposition to salmon farming in Iceland, the UK, France, Chile, Norway, the USA and the Falkland Islands/Islas Malvinas will continue to hamper corporate expansion and ultimately drive the industry out. But the fight is far from over. Mowi, with its vast wealth and easy access to capital, has just purchased two uninhabited islands off Scotland's west coast to build new salmon farms – highlighting the huge challenge facing people who take a stand against this industry.³⁰⁹

It is time for financiers to listen to what communities around the world are saying and stop financing salmon farming. To protect people, wild salmon, and our precious ocean ecosystems.

Investor and Creditor
Financial data

Feedback commissioned the not-for-profit research firm Profundo to map the financial backers of industrial aquaculture companies. The financial research utilised Refinitiv, Bloomberg, IJGlobal, Trade Finance Analytics, company publications, company registers and media archives to identify financial relationships.

This report covers loans and underwriting between January 2015 and November 2024. Unless otherwise stated, shareholdings and bondholdings relate to the most recent filing date at the time the data was retrieved, November 2024 . This includes filing dates from as early as 2022 that have not been updated/adjusted by the investor and/or the financial database. This may be due to differences in regulatory requirements, for example, and may also indicate that there is no change in position, i.e. the number of shares held has not changed.

This research is primarily based on data from financial databases, which only list syndicated financing. In addition, the research sought to identify bilateral financing through annual reports, company disclosures, media archives and other sources.

However, bilateral financing is not always publicly disclosed by companies. Therefore, where no financing of industrial aquaculture companies was found, it is possible that the financial institution either 1) does not provide finance to these industrial companies, or 2) bilateral financing has been provided which was not disclosed and as such did not show up our research.

Due to a lack of available data on financial databases, we are aware that this report does not provide data on some of the major salmon farming companies such as Mitsubishi/ Cermaq. Whilst we could find the relevant data for parent companies of these salmon farms, often the parent companies are invested in a range of other businesses, making it hard to decipher which investments or loans were going directly into salmon farming companies. Thus, they were excluded to ensure any financial data we were looking at was directly linked to salmon farming.

For the companies we have included it is likely that the data available on financial datasets does not give the full picture. Therefore, the figures provided in this report are conservative and it can be assumed that **at least** 'X' amount has been invested in or borrowed by the relevant company where we provide amounts of credit and investment.

The databases relied on for this research do not always include details on how individual banks contribute to a financial deal. For syndicated loans and underwriting, this information is included where possible. When this information is not available, a two-step method was used to calculate this amount drawing on the total value of a loan or issuance, as well as the number of banks involved.

In step one, a ratio of an institution’s management fee to the management fees received by all institutions is calculated.

Participant’s contribution =
$$\left(\frac{\text{individual participant attributed fee}}{\text{sum of all participants’ attributed fees}} \times \text{principal amount} \right)$$

When the fee is unknown for one or more participants in a deal, a second method is used, called the ‘bookratio’. This determines the commitment distribution of bookrunners and other managers.

Bookratio =
$$\frac{\text{number of participants} - \text{number of bookrunners}}{\text{number of bookrunners}}$$

The table below shows the commitment assigned to bookrunner groups with this estimation method. When the number of total participants in relation to the number of bookrunners increases, the share that is attributed to bookrunners decreases. This prevents very large differences in amounts attributed to bookrunners and other participants.

Table: Commitment assigned to bookrunner groups

Bookratio	Loans	Issuances
> 1/3	75%	75%
> 2/3	60%	75%
> 1.5	40%	75%
> 3.0	< 40%*	< 75%*

* In case of deals with a bookratio of more than 3.0, a formula was used which gradually lowers the commitment assigned to the bookrunners as the bookratio increases. The formula used for this:

$$\frac{1}{\frac{\sqrt{\text{bookratio}}}{1.443375673}}$$

The number in the denominator is used to let the formula start at 40% in case of a bookratio of 3.0. As the bookratio increases the formula will go down from 40%. In case of issuances the number in the denominator is 0.769800358.

Rich List

To determine the richest people in salmon farming Feedback used *Kapital's* Norwegian rich list, focusing on the individuals associated with salmon farming companies featured in this report. This included well boat companies that work with salmon farms, investors, chairpersons, CEOs and founders of salmon farming companies.

Public Money

The **UK Seafood Fund** is a £100 million fund set up to support the long-term future and sustainability of the UK fisheries and seafood sector. The fund is split into 4 groups:

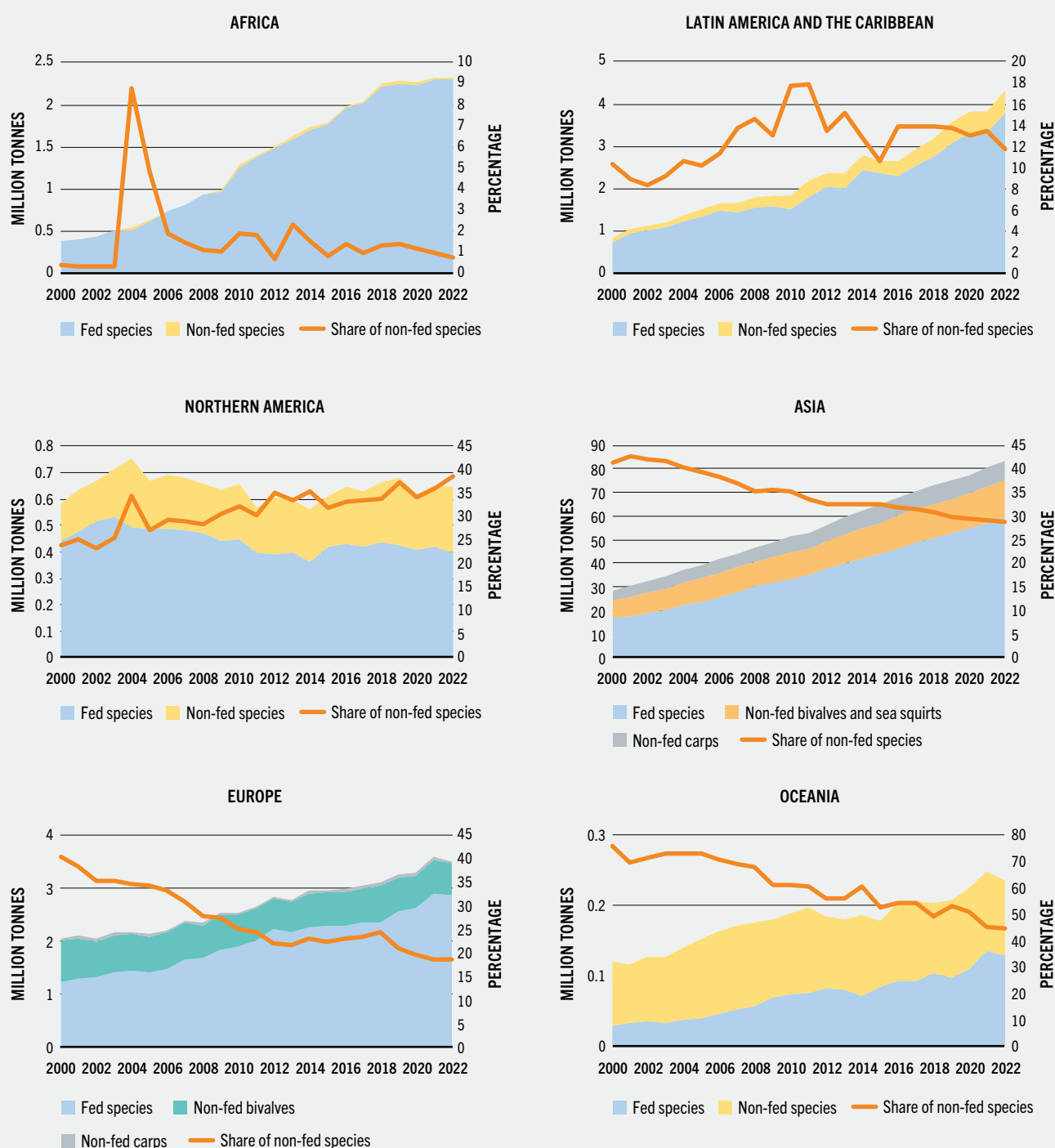
1. Infrastructure – £65m (Awaiting round 3 disclosure)
 - a. Split into 4 rounds – 1,2,4 disclosed
2. Innovation – £24m (Disclosed)
 - a. Split into Fisheries, Industry, Science, Partnerships (FISP) (split into 4 rounds) and Seafood Innovation Fund
3. Skills and Training – £10m (Disclosed)
 - a. Split into 2 rounds
4. Exports support – £1m (Waiting for approval)

UK subsidy calculations were made using information available on the UK Government's website, combining all 4 groups. Using the publicly available data (excluding Infrastructure round 3 and Exports support, which were not disclosed at time of publication) we conducted analysis on the subsidies granted by the government by categorising the companies the grants were awarded to. This enabled us to work out which companies were receiving the most.

The **Marine Fund Scotland** was set up to support eligible individuals, businesses, organisations and communities to deliver projects which contribute to an innovative and sustainable marine economy, reducing carbon emissions and supporting coastal communities. For analysis, Feedback downloaded the most up-to-date excel workbook including grants awarded from 2021-2024. Using the same categorisation methodology as the UK Seafood Fund the key grantees were established.

Appendices

Appendix 1: Fed and non-fed aquaculture production of animal species by region, 2000–2022



NOTE: Data expressed in live weight equivalent.

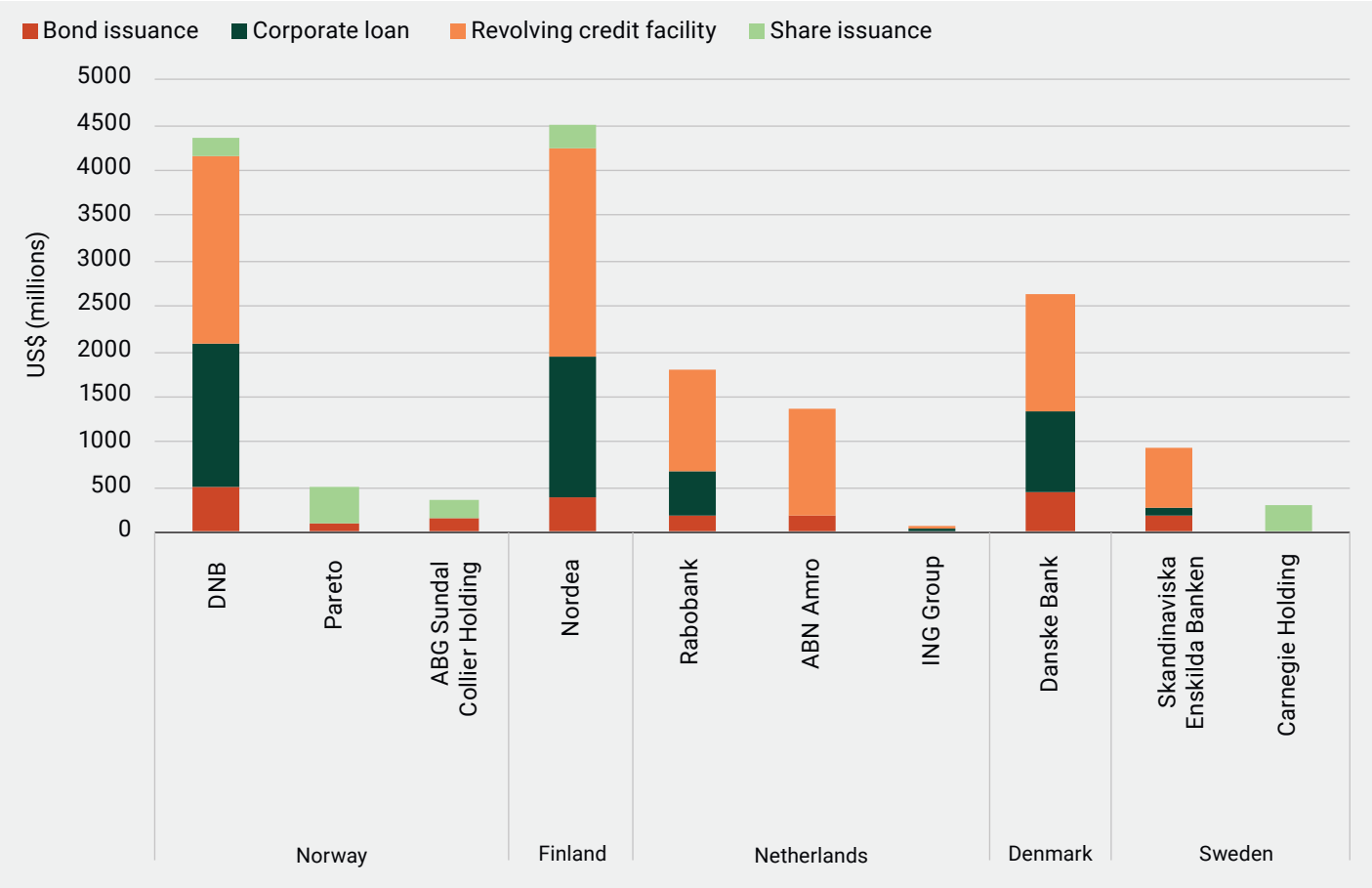
SOURCE: FAO estimates based on FAO. 2024. FishStat: Global aquaculture production 1950–2022. [Accessed on 29 March 2024]. In: FishStatJ. Available at: www.fao.org/fishery/en/statistics/software/fishstatj. Licence: CC-BY-4.0.

Creditors

Appendix 2: Top 10 creditors

Top 10 creditors (Jan15–Nov24, US\$ mln)	Bond issuance	Corporate loan	Revolving credit facility	Share issuance	Grand Total
Nordea	\$357.65	\$1,543.75	\$2,310.35	\$250.72	\$4,462.49
DNB	\$471.10	\$1,579.14	\$2,066.07	\$224.38	\$4,340.69
Danske Bank	\$423.11	\$877.29	\$1,312.22		\$2,612.63
Rabobank	\$156.40	\$482.87	\$1,126.45		\$1,765.72
ABN Amro	\$156.40		\$1,178.75		\$1,335.15
Skandinaviska Enskilda Banken	\$167.27	\$70.84	\$682.44		\$920.55
Pareto	\$87.99	–	–	\$393.94	\$481.93
Morgan Stanley	–	–	–	\$383.12	\$383.12
Crédit Agricole	\$55.41	–	\$301.50		\$356.91
Goldman Sachs	–	–	–	\$337.43	\$337.43
Grand Total	\$1,875.33	\$4,553.90	\$8,977.80	\$1,589.59	\$16,996.62

Appendix 3: Top creditors by country (top 3) (Jan 15 – Nov 24, US\$mIn)

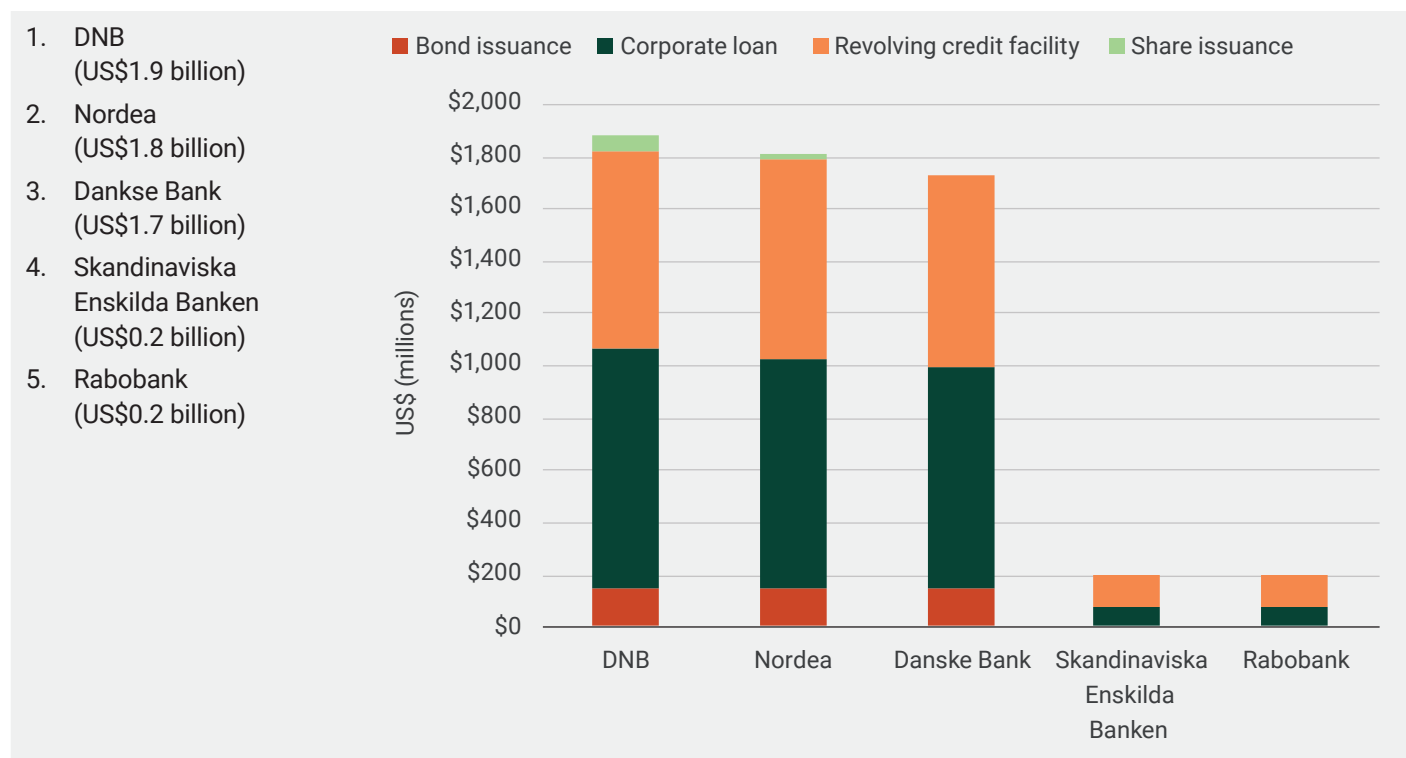


Appendix 4: Recipients of credit (Jan15 – Nov 24, US\$ mln)

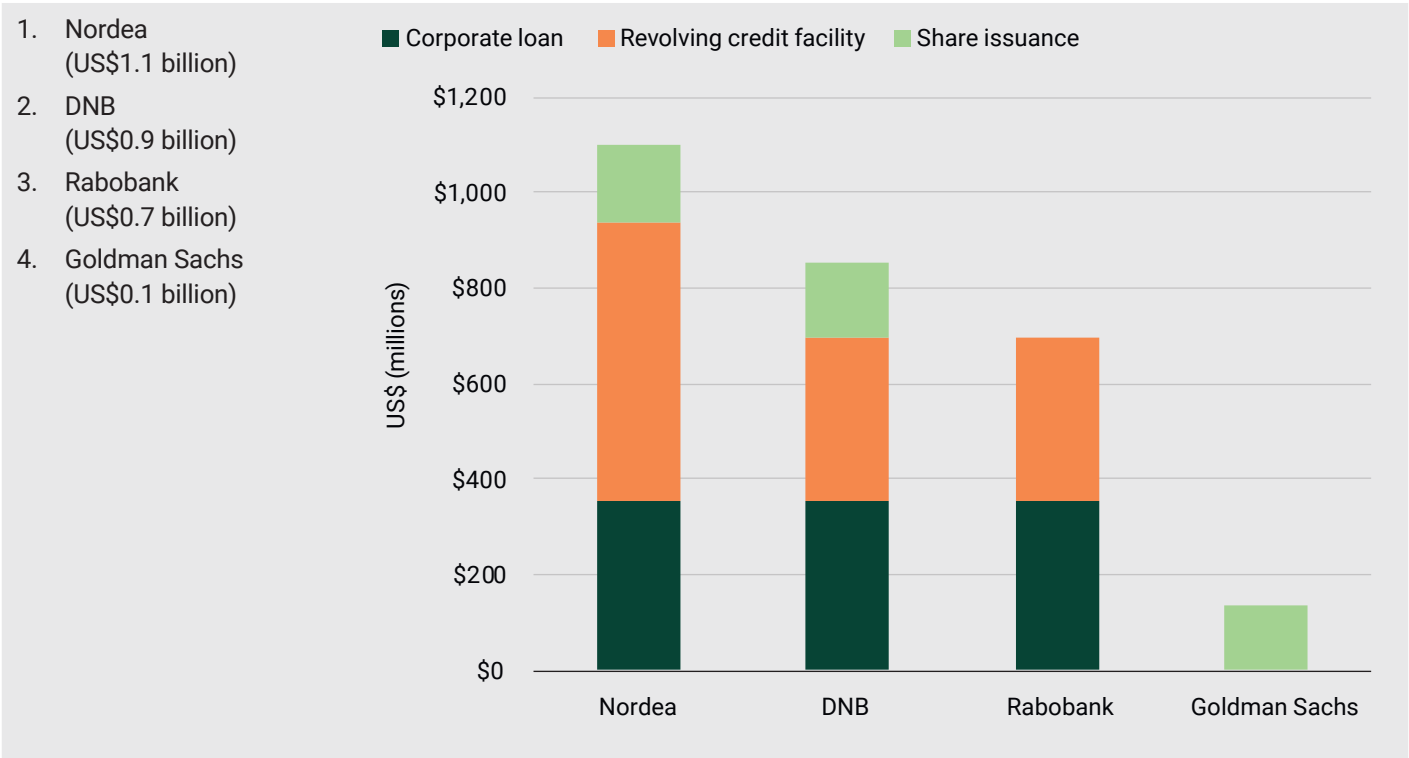


Appendix 5a: Biggest creditors by salmon farming company

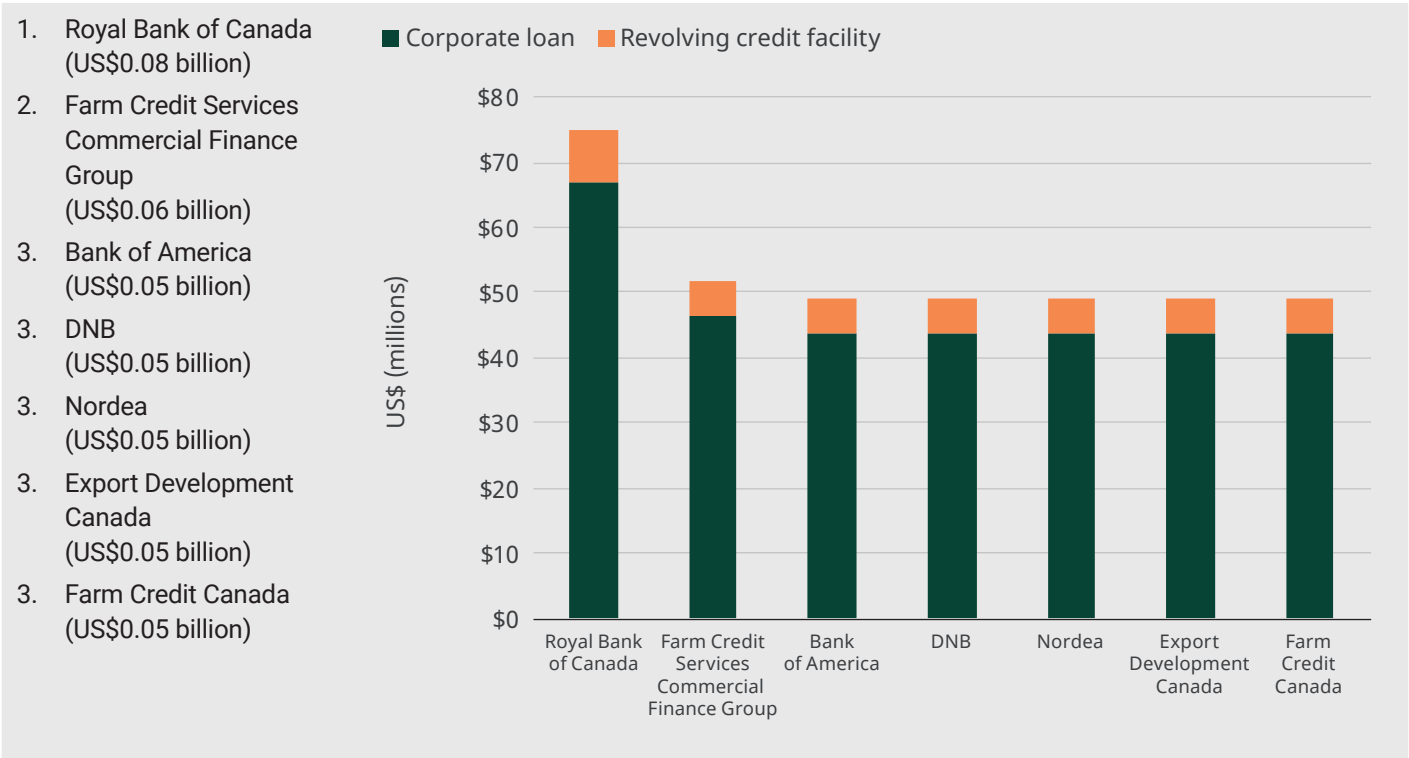
Kverva (SalMar, Salmonor, Arnarlax, Icelandic Salmon) (Jan15 – Nov 24, US\$ mln)



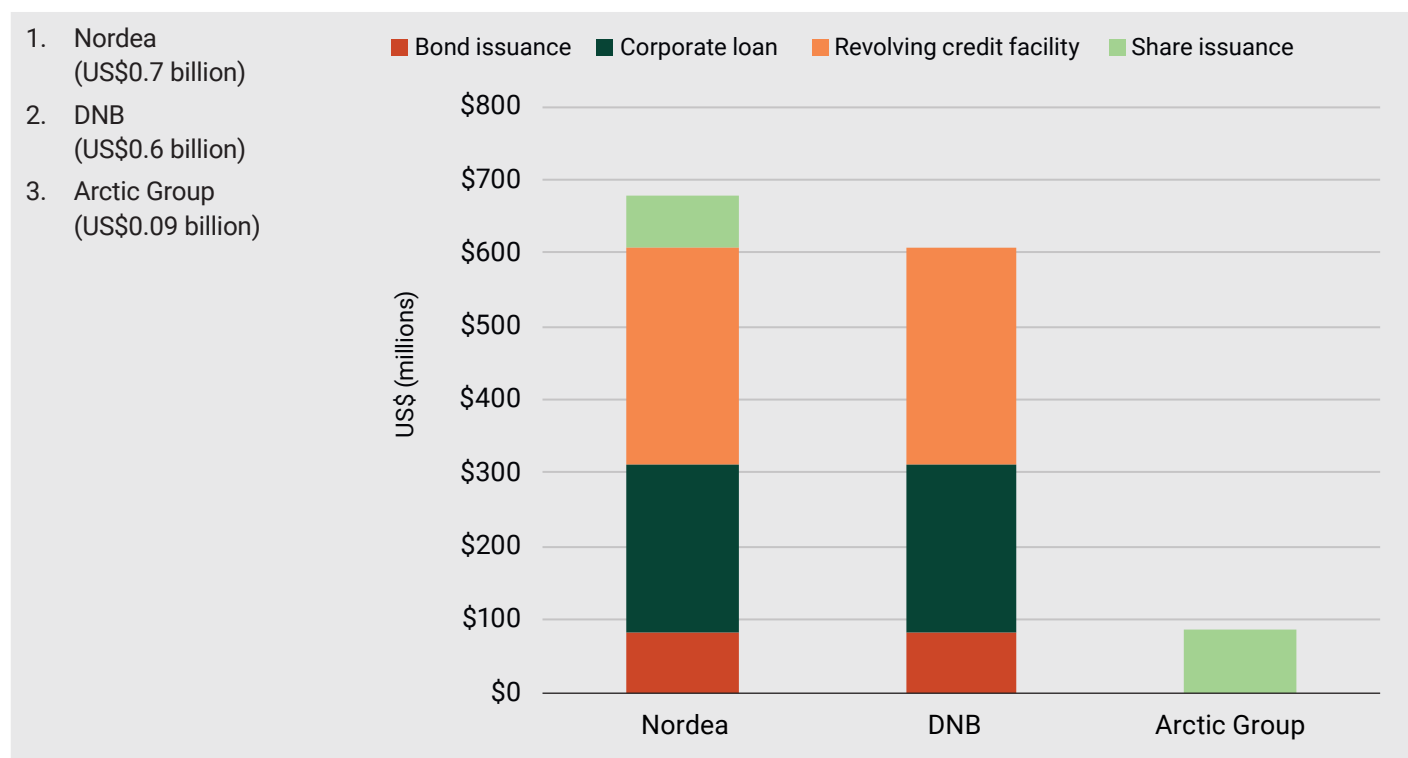
Appendix 5b: Biggest creditors by salmon farming company
Bakkafrost (including Scottish Salmon Company) (Jan15 – Nov 24, US\$ mln)



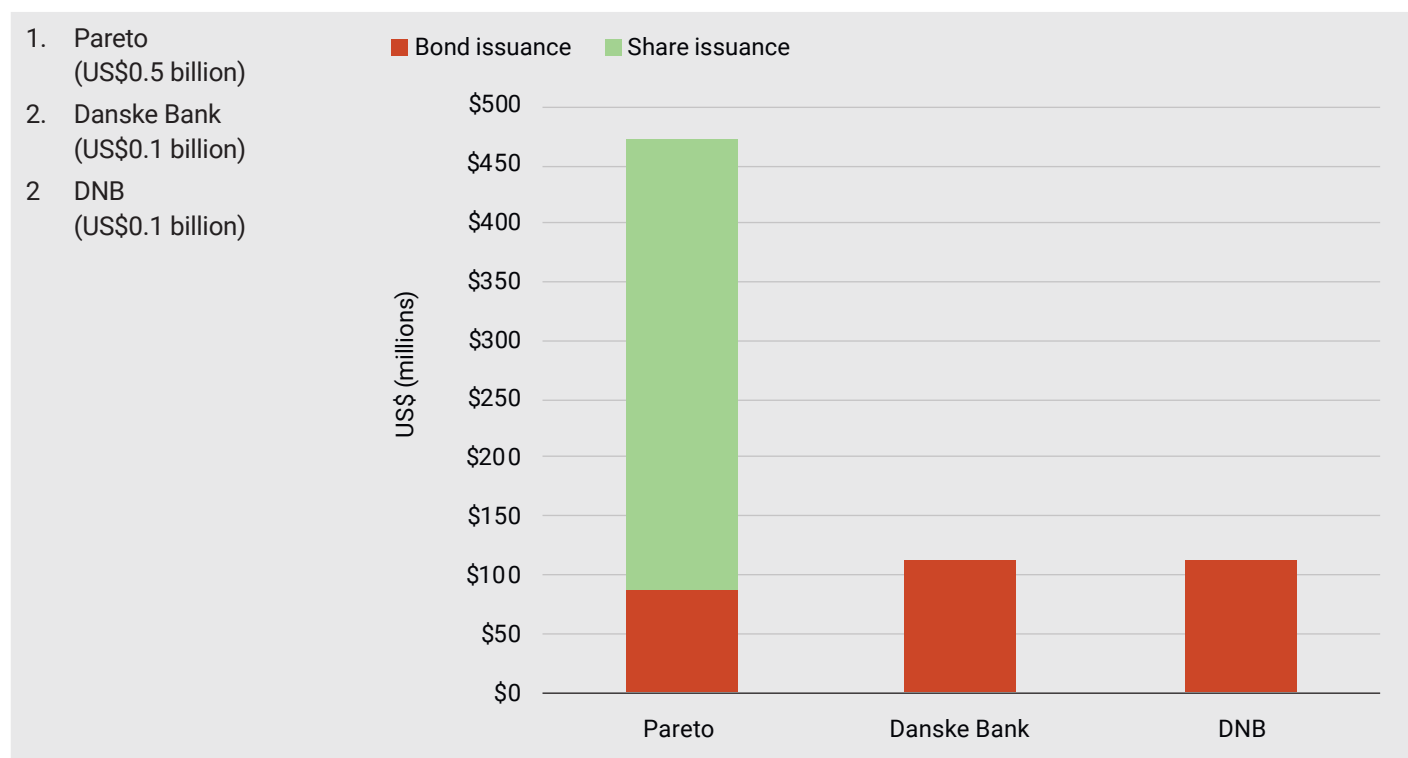
Appendix 5c: Biggest creditors by salmon farming company
Cooke Aquaculture (including Scottish Salmon Company) (Jan15 – Nov 24, US\$ mln)



Appendix 5d: Biggest creditors by salmon farming company
Grieg Maturitas (Grieg Seafood) (Jan15 – Nov 24, US\$ mln)



Appendix 5e: Biggest creditors by salmon farming company
Laco (Lerøy Seafood Group) (Jan15 – Nov 24, US\$ mln)

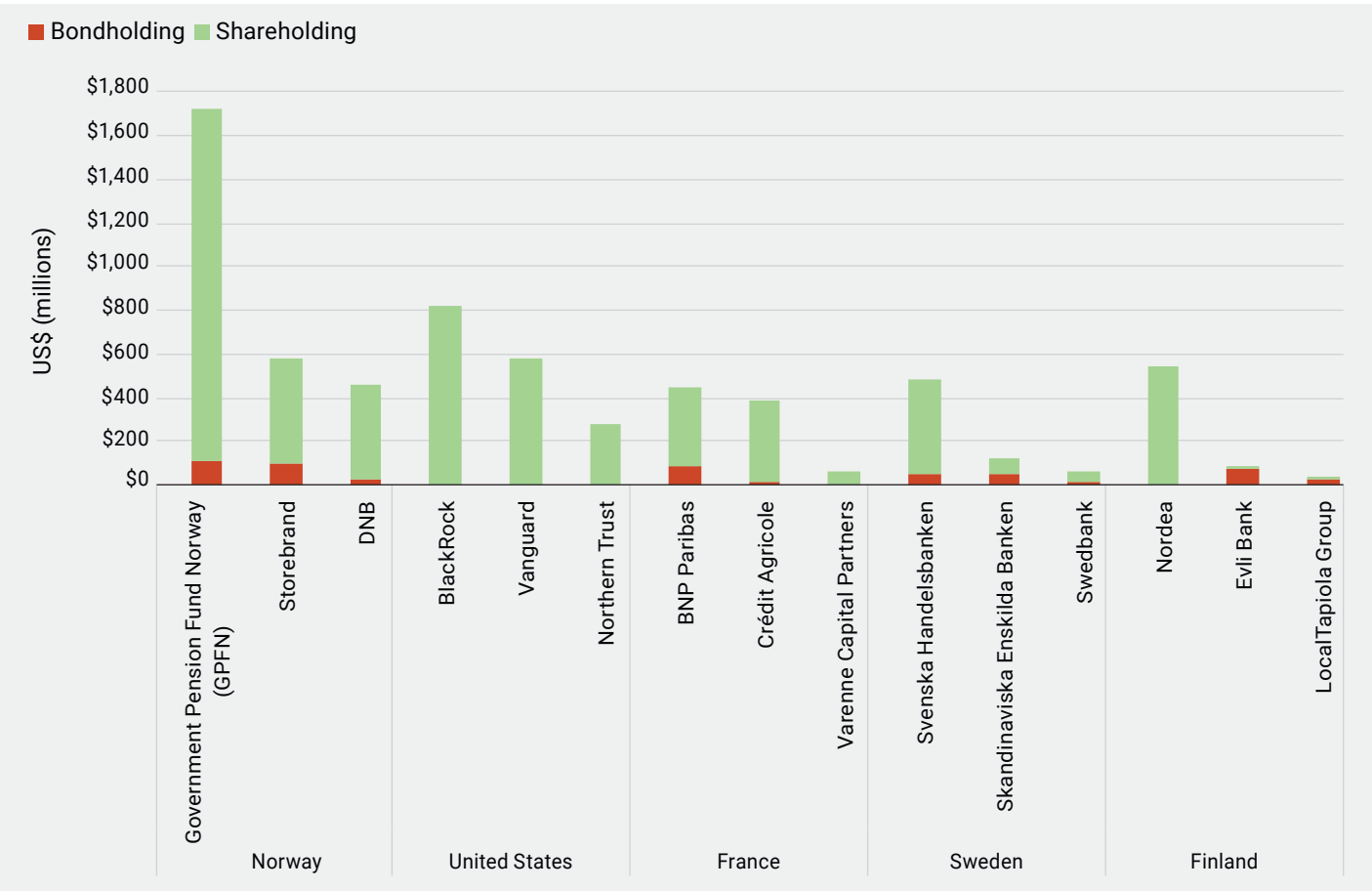


Investors

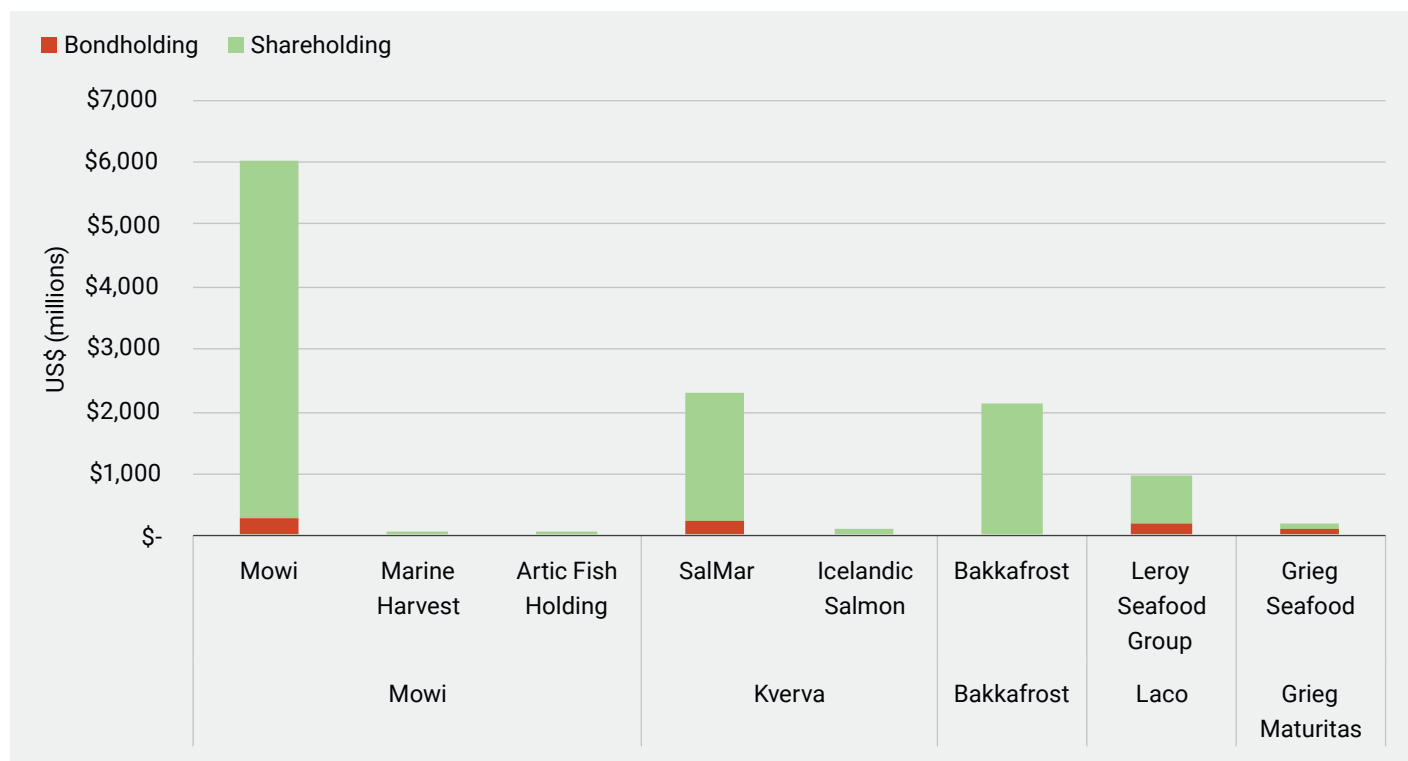
Appendix 6: Top 10 investors

Top 10 investors (Nov 24 or latest, US\$ mln)	Bondholding	Shareholding	Grand Total
Government Pension Fund Norway (GPFN)	\$99.83	\$1,602.42	\$1,702.25
BlackRock		\$809.06	\$809.06
Vanguard		\$566.70	\$566.70
Storebrand	\$87.28	\$476.03	\$563.31
Nordea		\$529.76	\$529.76
Svenska Handelsbanken	\$47.15	\$430.31	\$477.46
DNB	\$16.99	\$433.35	\$450.33
BNP Paribas	\$77.28	\$362.62	\$439.90
Crédit Agricole	\$1.13	\$374.37	\$375.50
Deutsche Bank	\$0.10	\$266.87	\$266.97
Grand Total	\$329.76	\$5,851.48	\$6,181.24

Appendix 7: Top investors by country (top 3) (Nov 24 or latest, US\$ mln)

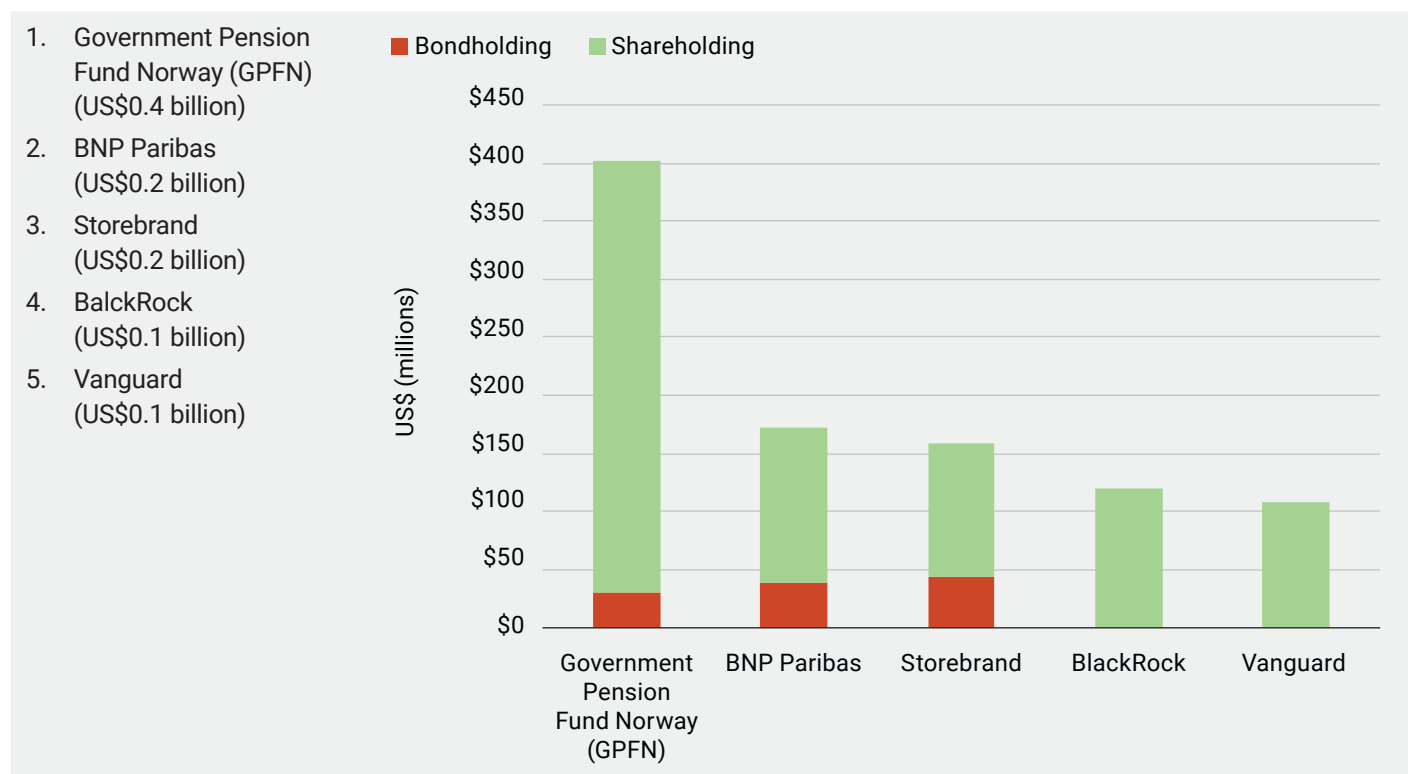


Appendix 8: Recipients of investment (Nov 24 or latest, US\$ mln)

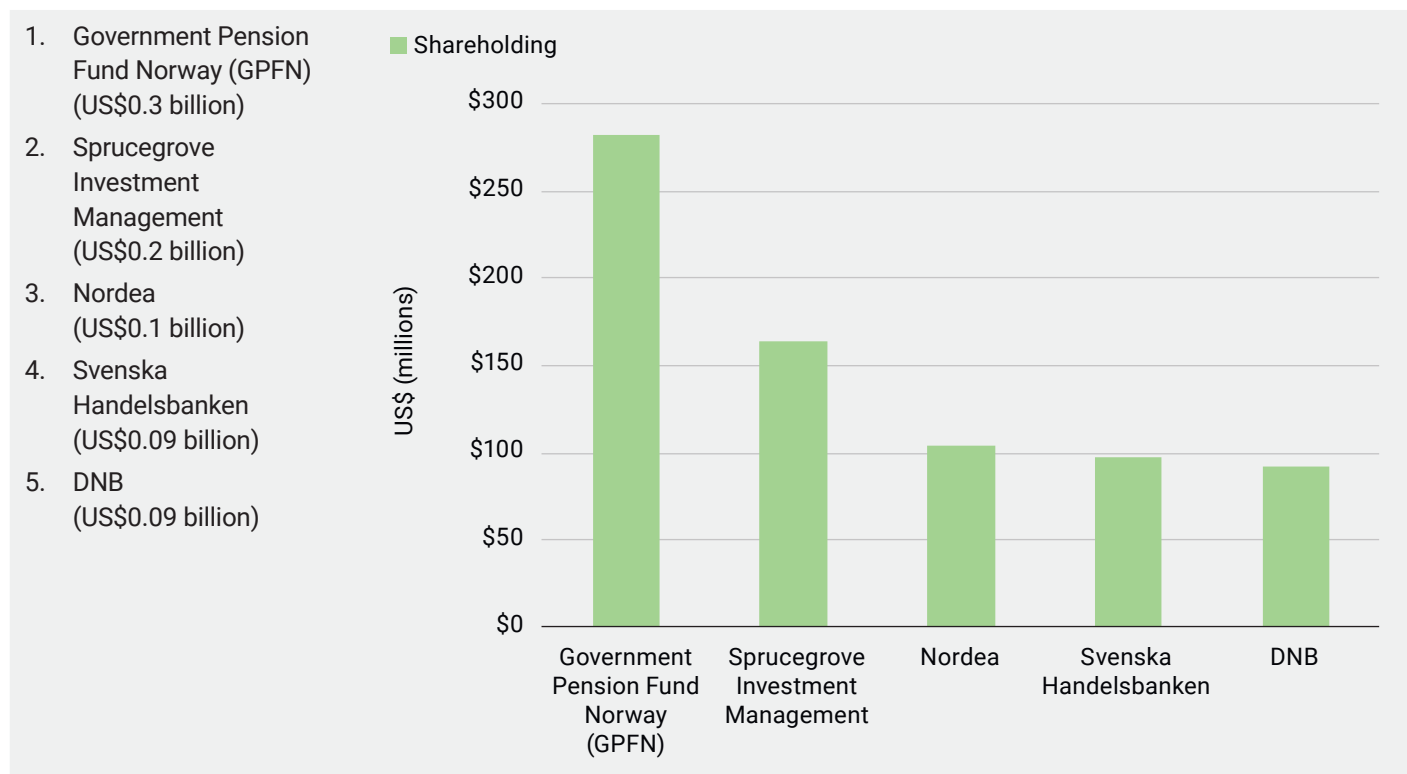


Appendix 9a: Biggest investors by salmon farming company:

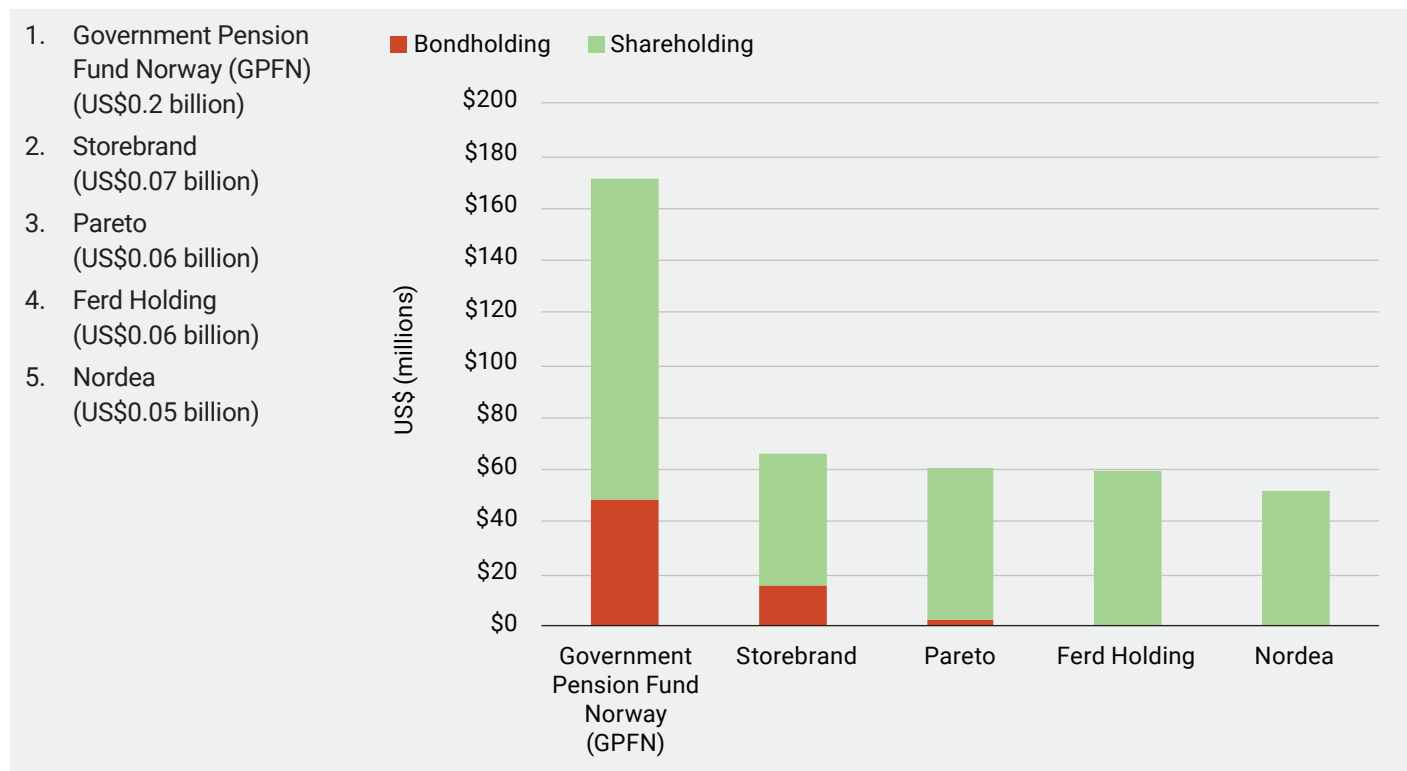
Kverva (SalMar, Salmonor, Arnarlax, Icelandic Salmon) (Nov 24 or latest, US\$ mln)



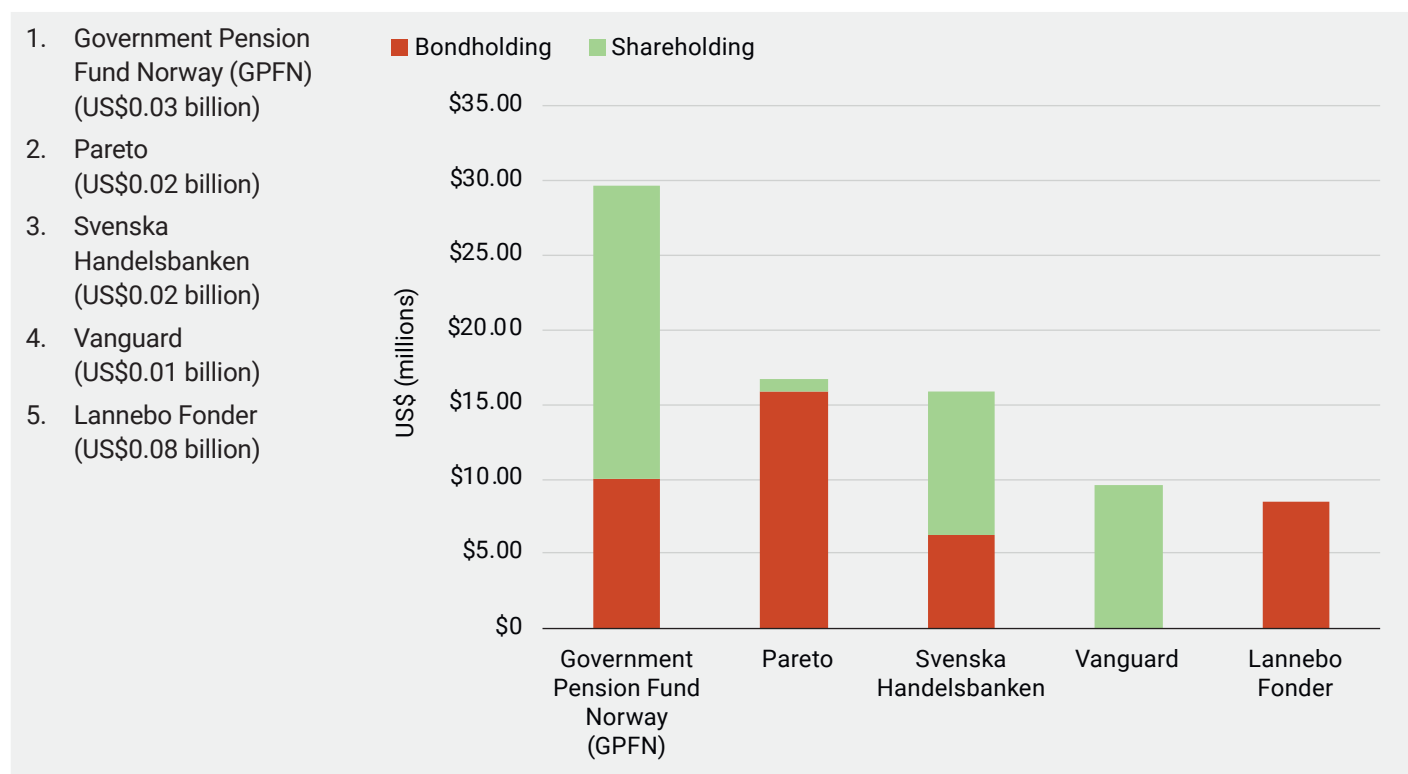
Appendix 9b: Biggest investors by salmon farming company:
Bakkafrost (including Scottish Salmon Company) (Nov 24 or latest, US\$ mln)



Appendix 9c: Biggest investors by salmon farming company:
Laco (Lerøy Seafood Group) (Nov 24 or latest, US\$ mln)



Appendix 9d: Biggest investors by salmon farming company:
Greig Maturitas (Grieg Seafood) (Nov 24 or latest, US\$ mln)



UK Seafood Fund

Year	Grant	Round	Applicant name	Description	Grant awarded
2022-2023	UK Seafood Fund – Infrastructure	1	Mowi Scotland Limited	Defra has awarded £2 million to Mowi Scotland Limited to buy equipment that will rapidly process fish and improve despatching of their premium salmon. This is part of a wider project to expand and modernise their aquaculture processing facility. The project will: • Increase throughput from 65,000 tonnes to at least 95,000 tonnes per year. • Reduce the number of single use polystyrene boxes by 40% by 2026. This is a substantial contribution to reducing the carbon footprint of this product. • Introduce automation to reduce manual labour, contributing to the health, safety and wellbeing of employees on the site.	£2,030,700.95
2022-2023	UK Seafood Fund – Infrastructure	2	Mowi Scotland Limited	Defra has awarded £5 million to MOWI Scotland Limited to establish a new, state-of-the-art, brood stock farm at Mowi Scotland's Ardessie site. The brood stock are the breeding fish which produce the next generation of eggs (ova). The facility will be a recirculating aquaculture system, including the construction of new buildings, and aquaculture equipment such as chillers, tanks, filters and an ice machine. The project will produce 25 to 30 million eyed (fertilised) eggs (ova) annually.	£5,000,000.00
2022-2023	UK Seafood Fund – Infrastructure	2	Scottish Sea Farms Limited	Defra has awarded £5 million to Scottish Sea Farms Limited to build a Recirculating Aquaculture System (RAS) at an existing post smolt facility in Barcaldine, Argyll. The facility will have the capability to receive 6 million salmon smolts a year from the existing smolt facility. The project includes the construction and internal fit out of the new building and the RAS system. The project will: • maintain a controlled environment with optimal conditions for fish health, welfare and growth • minimise water and energy use for heating and cooling by treating and recycling up to 99% of production water • reduce fossil fuels at Scottish Sea Farms by around 25%	£5,000,000.00

Marine Fund Scotland

Year	Grant	Reference	Applicant name	Description	Total Cost	Grant awarded
2021-2022	Marine Fund Scotland	SCOMFF1264	Scottish Salmon Company	Investment in an innovative Recirculating Aquaculture System reducing water use & waste, this aims to revolutionise the Scottish aquaculture process, specifically regarding the rearing of larger juvenile salmon within land-based freshwater sites.	£7,113,075.69	£2,000,000.00
2022-2023	Marine Fund Scotland	SCOMFF1516	Aquascot Limited	Improvements and modernisation of the salmon and trout processing facilities at the factory. This will increase production while reducing waste, energy and water use. Aquascot are the largest employee-owned business in Scotland.	£3,417,898.00	£1,200,000.00
2022-2023	Marine Fund Scotland	SCOMFF1514	Organic Sea Harvest	Installation of innovative full containment facilities at Lochinver, which aims to reduce the number of wasted sea journeys due to bad weather. This will reduce fuel use, improve animal welfare, and allow the company greater continuity of supply.	£3,200,000.00	£1,100,000.00
2023-2024	Marine Fund Scotland	1074	Aquascot Limited	Investment to increase processing capacity and long term sustainability of the business.	£381,024.65	£105,307.39
2023-2024	Marine Fund Scotland	1248	Mowi Scotland LTD	Testing of a new system to repel phytoplankton and micro jellyfish.	£156,869.00	£47,060.80
2024-2025	Marine Fund Scotland	2264	Cooke Aquaculture UK LTD	Cooke Aquaculture Scotland – Shetland water borne feeding system	£1,247,094.00	£374,128.20

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