

FT BIG READ. FISHING INDUSTRY

Visual Investigation Fish sold by major supermarkets in Europe is harming food security in west Africa. Locals say it is hard to watch basic resources exported 'while we are suffering with poverty'. By Alexandra Heal, Lucy Rodgers, Jack Thompson and Ely Cheikh Mohamed Vadel

The hidden cost of your salmon



In an industrial zone of the coastal city Nouadhibou, the stench of rotting fish is stifling. Guards with fierce-looking dogs are on patrol, surveying the road with suspicion while waving through rusty 1990s Mitsubishi pick-ups stuffed with fresh fish. Factories producing fish oil – and its sister product fishmeal – have multiplied along this coastline over the last decade, as they have in a number of north-west African countries. But the Mauritanian government has embraced production of these obscure but important commodities with extra zeal. It awarded Nouadhibou freeport status in 2015, allowing foreign businesses, including those establishing fishmeal factories, to pay little or no tax. The government hoped the industry would create employment by processing Mauritania's resources on its own shores. Instead, experts say the factories and the foreign vessels that supply them have led to a "dizzing" fall in regional catches of round sardinella – a small oily fish widely eaten in the region.

Plummeting stocks led the industry to target other fish, including flat sardinella, a species showing signs of overexploitation. Corruption and rule-breaking, suggested in interviews with the Financial Times, have made things worse. Scientists fear sardines – the factories' latest target – could be next.

What happens in Mauritania has ramifications across the west African region, where food insecurity has hit a 10-year high and poor prospects force thousands to leave each year. The fish targeted are migratory, meaning catches in Mauritanian waters impact stocks, diets and livelihoods across neighbouring nations, such as Senegal and Gambia. According to interviews with 37 locals, far fewer of these fish are available at markets in Mauritania and Senegal, and prices are rising.

A report from the industry found the price of sardinella in Mauritania had risen from 0.25 to 1.5 euros per kilogramme in recent years, while a fishmonger in Nouadhibou says the price they pay for sardines has gone from 0.41 to 8 euros per two kilogrammes.

Another fishmonger, Khadouj Mohamed, accuses the Nouadhibou factories of "swallowing" the country's stocks: "Fish is my daily food and is for everyone here, but where is the fish now?"

Colossal demand
The fish farming industry consumes enormous amounts of whole, wild fish. Globally, more than 16mm tonnes of whole fish – a fifth of all wild fish caught – was ground into meal or oil in 2020. More than three-quarters of this is fed to farmed seafood.

Norway alone required 2mn tonnes of whole fish to produce 1.5mn tonnes of salmon in 2020, according to a report released on Wednesday by campaign group Feedback. The Norwegian industry, which is the UK's biggest salmon supplier with 44 per cent of the market, is planning to triple output by 2050.

"Three-quarters of this fish, most of which is sourced from countries in the global south, could be eaten directly instead," says Natasha Hurley, campaigns director at Feedback, adding that turning Mauritanian fish into feed "represents a transfer of valuable micronutrients away from regions already suffering acute food insecurity".

The report suggests half a million tonnes of west African fish, enough to feed 33m people, are being turned into meal and oil every year. Academics and campaigners suggest similar factories are also affecting food availability in India, Vietnam, Kenya and elsewhere. All of Mauritania's fishmeal and oil is exported, largely to feed farmed fish. While 70 per cent of the country's meal heads to China, 90 per cent of its fish oil ends up in Europe, where it is fed to salmon sold across the continent.

Salmon farmed in Norway by companies sourcing Mauritanian fish oil is available in several of the UK's biggest grocers. The FT identified the region-farmed salmon stamped with logos used by producer Mowi in Tesco, Lidl and Aldi. Feedback, the NGO, identified the same in Sainsbury's.

While Mowi says it no longer uses sardinella from Mauritania, the company confirmed it sourced Mauritanian sardines. Cargill, another big aquafeed producer feeding Norwegian salmon sold in UK branches of Lidl, says the same. Mauritanian flat sardinella is still used by Danish feed maker BioMar, with the company's produce fed to Norwegian salmon sold in Asda, the FT found.

Both Mowi and Cargill sourced Mauritanian fish oil made from sardinella as recently as 2018 and 2019. Skretting, another leading feed producer and part of Lidl's UK supply chain, was sourcing sardinella from Mauritania in 2022.

It is hard to ascertain how much of Norway's salmon is fed on Mauritanian fish oil because, while Mowi, BioMar, Skretting and Cargill say they have only

Fishermen in the artisanal port in Nouadhibou, Mauritania. Large fishmeal factories in Nouadhibou grind down the catch and ship it to fish farmers across Europe. Below right: two workers sort octopus inside a busy fish processing factory in Nouadhibou's industrial zone

Guy Peterson/FT

used small amounts, between these companies supply almost 100 per cent of the industry's feed, according to Feedback. The Scottish salmon industry, which supplies 45 per cent of salmon sold in the UK, according to analysts Kontali, says it does not use ingredients from west Africa in its feed.

Mowi, BioMar, Skretting, Cargill and Asda say their Mauritanian ingredients are from one of two factories recognised as working to improve the fishery by the industry's certification body, Mar-Trust. All four feed companies say they are committed to sourcing sustainable feed ingredients. Mowi adds it would be "in best case mislabelled" to link its sourcing to declining fish stocks.

Sainsbury's and Aldi say they expect all suppliers to maintain high sustainability standards. Lidl declined to comment and Tesco did not respond. Sea Tank Chartering, the company operating the tanker Key Bay, says it has "no comment on specific assignments [we] carry out for various customers".

Stocks decline
The Mauritanian authorities had hoped their backing the fishmeal industry would boost employment. In reality, it has created few jobs while undermining food security among the region's poorest groups.

Together the factories employ 2,000 people, mainly foreigners, according to an industry-commissioned report, despite burning up huge amounts of fish. In 2020, they treated more than 800,000 tonnes of small pelagics – species that live in schools in open water – up from 50,000 tonnes less than a decade earlier. Exports have risen over 10-fold since 2009.

Many of the country's 29 processing plants are run by Turkish and Chinese owners. Luxury villas and restaurants serving these expatriates have appeared in secluded neighbourhoods of the overwhelmingly poor city of Nouadhibou. The impact on fisheries has been devastating. Annual north-west African stocks of round sardinella plummeted from between 800,000 and 2.8mn tonnes before 2010 to just 160,000 in 2019. Since 2021, catches have fallen to below a tenth of their 2011 peak.

Multiple species used by the factories are considered over-exploited across the region. Several locals, including the Mauritanian fishing union head, Hademine Sidi Mahamed, say it is hard to watch their resources exported to

feed foreign animals "while we are suffering with poverty".

Local and foreign boats have long fished the region's pelagics for human consumption, and climate change is also impacting stocks, but local scientists and economists link the current crisis to unlimited demand from the region's new fishmeal industry.

Factories in Senegal and Gambia have also contributed to the problem, but there are three times as many in Mauritania as both countries combined.

Mauritania's waters are also the region's key feeding and reproduction ground for multiple of these species, meaning catches there have a significant impact on regional stocks and food availability. Round sardinella migrate along the coastline and, although not as well known about the movements of flat sardinella, a Mauritanian scientist confirmed the species migrated between Mauritania and Senegal.

"The Mauritanian region serves as a food source for the entire north-west African region, particularly [both] sardinella species," says Cheikh-Baye Braham, fisheries researcher at the government's oceanographic institute.

Senegal has been particularly badly affected. Small pelagics have traditionally been the country's cheapest protein source, with fish making up 75 per cent of animal protein consumed. But, between 2009 and 2018, the amount of small pelagics available at markets fell by two-thirds and annual consumption per person dropped by half.

Twenty shoppers at a market in Saint Louis, a Senegalese fishing town, spoke of dwindling supplies and rising prices. "A case of yaboi [round sardinella] used to cost 3,000 francs [5 euros], now it costs 50,000," says Fatou Thiolye. The high price of round sardinella is making her family poorer, she adds.

While fish is not as widely eaten in Mauritania as in Senegal, shoppers in Nouadhibou told the FT sardinella and sardines were crucial to the diets of poorer families and some ethnic groups.

Seven industry workers say some Turkish vessels supplying the factories leave their catch at sea for days to rot, rendering it unfit for human consumption. Two of these interviewees, classifiers who price fish, say other boats are unloading fish using tubes with blades to achieve the same outcome.

Four current and one former factory worker also say there is no fish sorting process, resulting in banned species,

such as round sardinella and juveniles, ending up in meal and oil. "We use all types of fish," one worker says. An industry document shows that, in 2022, the factories on average produced 3,077 tonnes of meal each from whole fish – far beyond their maximum quota of 1,044 tonnes. Only 3 per cent came from offcuts or waste fish.

The Mauritanian fisheries ministry says boats have "no interest" in altering the quality of fish because the price received is directly related to the quality of the product. Vessels not returning the required 20 per cent for human consumption are punished, it says.

"There is no desire... to monopolise this [fishery] wealth, much less to impact on the food security of neighbouring and sister countries," the ministry adds in a statement.

Three-quarters of this fish, most of which is sourced from the global south, could be eaten directly instead

Beyond whole fish
To help protect global fish stocks and regional diets, some scientists argue salmon farms and the wider aquaculture industry should eliminate ingredients derived from whole fish altogether.

They suggest consumers should eat wild fish directly or simply leave them in the sea given wider levels of overfishing, with many bigger fish and mammals relying on them for food.

The salmon industry has taken steps to replace fishmeal in feed with soya or other crops, and says 0.93kg of whole fish are now required to produce 1kg of salmon. But it has struggled to reduce its dependency on fish oil because salmon need the omega-3 fatty acids it contains.

Brett Glencross, technical director of the global industry body, IFFO, says that while research is continuing into replacements for fish oil, such as algae oil or genetically modified crops, "it's a slow process".

"The proportion of meal and oil coming from fish by products is increasing, leading to a fall in the amount of whole wild fish used, from 30m tonnes in 1994 to 16m today, says Manuel Barange, fisheries director at the UN Food and Agriculture Organization. Meanwhile, some local companies are working with the Mauritanian government to improve the industry, aiming to achieve better stock data collection, law enforcement and co-operation with neighbouring countries.

Libby Woodhatch, executive chair of the certification body Mar-Trust, says fishmeal factories should continue operating in Mauritania using byproducts and fish "not considered suitable by the food industry". She argues salmon will continue to require ingredients derived from unwanted fish – such as the Peruvian anchoveta, which counts for most global fishmeal and oil production – at certain life stages because they are carnivorous.

But David Willer, sustainable seafoods researcher at the University of Cambridge, suggests eating the species currently turned into meal and oil, which live near the bottom of the food chain, would be more beneficial than consuming salmon, he argues, because 90 per cent of energy is lost at each stage in the food cycle. He says: "It's about trying to create products that make those species appealing."

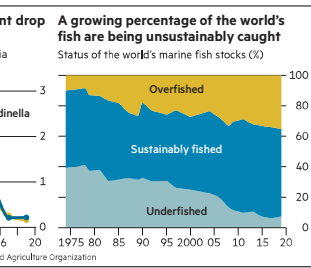
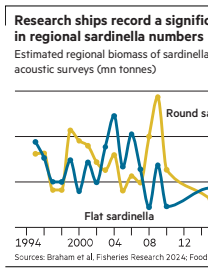
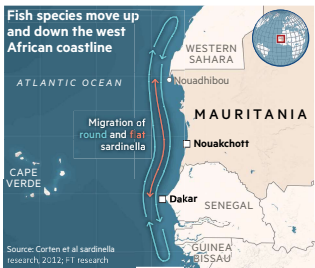


Measures include increased fines for illegal fishing and caps on the amount of fishmeal factories can produce each year. All species except sardines are now banned from fish feed and 20 per cent of those must be set aside for human consumption. These measures – as well as falling catches and the pandemic – are likely behind a drop in meal and oil exports between 2020 and 2022.

But interviews by the FT in Nouadhibou suggest systemic rule-breaking. Seven industry workers say some Turkish vessels supplying the factories leave their catch at sea for days to rot, rendering it unfit for human consumption. Two of these interviewees, classifiers who price fish, say other boats are unloading fish using tubes with blades to achieve the same outcome.

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Source: Corten et al sardinella research, 2012; FT research

Sources: Braham et al, Fisheries Research 2024; Food and Agriculture Organization