What Lies Beneath:

Uncovering the truth about Peru's colossal fishmeal and fish oil industry

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

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Glossary and list of key players in Peru's FMFO industry

Aquaculture – the farming of aquatic species, including molluscs, crustaceans and fish, both on land and in the sea.

Aquafeed – a range of products used to feed aquatic organisms. It can be made from animal-derived sources, such as FMFO and insects; from plant-based sources, such as soy; and from new alternatives, such as insects, bacteria and microalgal oils.

Centre for Development and Sustainable Fisheries (CeDePesca) – CeDePesca is a non-governmental organisation that works towards socially, economically and ecologically sustainable fisheries in Latin America. By implementing Fisheries Improvement Projects (FIPs), CeDePesca trains stakeholders, builds the capacity of small-scale fishers, encourages and conducts research, and spreads management systems that ensure the sustainable use of fishery resources in the region. CeDePesca is also the organisation behind the launch of Peru's FIP.[1]

El Niño – climate pattern in which the sea surface temperature in the Pacific rises more than 0.5°C above the long-term average. This can lead to widespread changes in the climate system that last several months, including droughts and major harvest shortfalls in Africa and Indonesia, forest fires in Australia and flooding in South America. In the sea, a thickened surface layer of warm water prevents cold and nutrient-rich deep ocean water from reaching the surface layer where photosynthesis occurs, putting a brake on ocean production. This lowers the availability of food to local fish species such as anchoveta, which in turn either migrate southwards or suffer a productivity collapse. Climate change has both increased the frequency of El Niño events, and the chances of a so-called 'super El Niño'.

FMFO – acronym for fishmeal and fish oil. Fishmeal and fish oil are protein-rich products derived from forage fish or low trophic level species such as anchovy, sardines, and krill which play a critical role in ocean food webs. FMFO is mainly used in feed for aquaculture and, to a declining extent, agriculture (primarily for chickens and pigs).

Forage fish – small, schooling, pelagic fish (such as anchovy and sardines) which are preyed upon by larger predators, such as carnivorous fish, seabirds or marine mammals. They play an important function in marine ecosystems by converting energy from lower trophic levels, such as plankton, into food for species higher in the food chain.

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Humboldt Current System – one of the most productive marine ecosystems on earth, the HCS extends along the west coast of South America from southern Chile up to Ecuador and the Galapagos Islands near the equator. The HCS is an underwater cold stream, which causes an upwelling process that makes the waters rich in plankton.

Instituto del Mar del Perú (IMARPE) – Within the Ministry of Production (see below), IMARPE is a specialised scientific agency in charge of conducting stock assessments and recommending annual catch limits to the ministry, taking into account the high ecosystem variability and consequent uncertainty and rapid fluctuations in anchovy biomass.

IFFO – international trade organisation representing the marine ingredients industry, such as fishmeal, fish oil and other related industries. Its members account for over 55% of world production and 75% of the fishmeal and fish oil traded worldwide.

Juvenile fish –fish that are not yet sexually mature. Catching juvenile fish is problematic in terms of fisheries management, as the fish have not yet reproduced, and so the fish stocks are not able to replenish themselves.

Kelvin Wave – an extremely long ocean wave that propagates eastwards towards the coast of South America, where it causes the upper ocean layer of relatively warm water to thicken and the sea level to rise. The arrival of the Kelvin Wave brings with it a large mass of warm water, which pushes anchovy to migrate to cooler waters.

MarinTrust – business-to-business certification programme for the production of marine ingredients. Founded by IFFO, and formerly known as IFFO RS (Responsible Supply), MarinTrust claims to certify more than half of the world's production.

Marine Stewardship Council (MSC) – international non-profit organisation founded in 1997 by the World Wildlife Fund (WWF) and Unilever (although it has been an independent body since 1999). MSC runs a consumer-facing ecolabel programme as well as a fishery certification programme.

Ministry of Production (PRODUCE) – Fisheries management in Peru falls under the jurisdiction of the Vice-Ministry of Fisheries in PRODUCE. Its responsibilities include developing and implementing policies and management plans, conducting fisheries research, establishing the regulatory framework for fisheries management, and issuing and administering regulations. The ministry also has the final say on annual catch limits.

National Fisheries Society (Sociedad Nacional de Pesquería, SNP) – SNP was founded in 1952 and represents private fishing companies in Peru. Its members represent 75% of fishmeal and fish oil production in Peru.[2]

National Labour Inspection Superintendence (SUNAFIL) – SUNAFIL is Peru's national labour-inspection agency, and is in charge of overseeing implementation of Covid-19 safety protocols for fishing fleets and fishmeal factories. The agency is under the Ministry of Labour and Employment Promotion.

Executive summary

Overview

Peru is the largest fishmeal and fish oil (FMFO) producer in the world. It accounts for one-third of global production,[3] and exports over 1 million tonnes of FMFO every year.[4] According to the international FMFO trade body, the Marine Ingredients Association (IFFO), the amount of FMFO produced from Peruvian anchovy (*anchoveta*), the main target species, is enough to supply half the world's fed farmed fish.[5]

Unslowed by the global Covid-19 pandemic, the sector is expected to generate $2 billion in export revenue in 2020.[6] It has customers in countries around the globe, from Asia to Europe and North America.

The industry portrays itself as a model of sustainability, boasting that more of its FMFO plants are certified by the MarinTrust Global Standard for Responsible Supply (formerly IFFO RS) than anywhere else in the world.[7] However, in reality, it is plagued by corruption and scandals – from underreporting fish catches and overfishing juvenile fish[A] to diverting thousands of tonnes of anchovy destined for human consumption to FMFO production instead. Recent investigations show that Chimbote, the 'fishmeal capital of the world,'[8] remains one of the most polluted places on the planet.[9]

This wanton plundering of Peru's precious anchovy populations is all the more indefensible, given the key role the species plays in the Humboldt Current System, one of the most productive marine ecosystems on earth.[10] Assessing the status of the anchovy population under a precautionary ecosystem-based approach would require careful consideration of the impacts on fish, bird and marine-mammal populations; however, to the best of our knowledge ecosystem impacts are not given adequate consideration when *anchoveta* quotas are set, and there is no strategy to do so in the near future. Moreover, while the Peruvian FMFO industry and global aquafeed producers are keen to gain Marine Stewardship Council (MSC) certification of the *anchoveta* fishery to improve their image, scientists point to numerous risk factors affecting the fishery which increase the likelihood of overexploitation of the stock, particularly when considered alongside the threat posed by climate change. Against this backdrop, experts interviewed for this report expressed concerns about future prospects for the *anchoveta* fishery – including fears of a potential collapse, similar to that which took place during the 1972 El Niño.[11]

Although Peru is by far the world's largest FMFO producer, very little is known about its supply chain or relationships with companies in Europe, which trade data shows to be a key FMFO export market. This report sets out to address this knowledge gap by mapping the links between Peruvian FMFO companies and major international feed and aquaculture corporations based in Europe. It shows the farmed fish, such as salmon, that ends up on European plates is produced with FMFO inputs from companies that have been involved in corrupt and unsustainable

A Peruvian fishing vessels are permitted by law to catch 10% of juveniles, on condition they notify the authorities of this. However, companies regularly exceed this limit, despite protests by fishermen themselves, who view this practice as a threat to the future of the fishery. In January 2020, fishermen desperate at the very high presence of juvenile fish in catches (in some cases, 100% of the catches were made up of juveniles) marched from Coishco to Chimbote to protest against the 'pillaging' of Peru's anchovy stocks, and demanded the immediate closure of the fishing season to protect fish stocks. Correo (2020) Bloquean túnel y exigen veda de anchoveta. 1 August. [ONLINE] Available at: https://diariocorreo.pe/edicion/chimbote/bloquean-tunel-y-exigen-veda-de-anchoveta-929394/.

practices such as fishing high volumes of juvenile anchovies – a practice that can have a devastating impact on marine ecosystems. It also highlights complicity between FMFO companies and Peruvian regulators, which have not only turned a blind eye to the industrial fleet's plundering of precious fish stocks but also actively encouraged overfishing by setting unscientific and overly high fishing quotas.

To make matters worse, at a time when Peru is struggling to cope with one of the worst Covid-19 crises in Latin America, hundreds of fishermen and FMFO workers have fallen ill, largely as a result of companies' failure to ensure their safety and provide them with medical care. Industry lobbying overturned an initial decision by the Peruvian government that deemed the FMFO industry non-essential, which led to the resumption of the fishing season, indicating the drive to catch fish to supply the voracious FMFO industry overrode considerations about workers' health. In the end – after a slow start, owing to a juvenile fishing scandal – the first 2020 season was another bumper season for Peru's FMFO fleet.[12]

This report provides evidence that two major companies – Peru's largest FMFO producer, Tecnológica de Alimentos (TASA), and the Norwegian-owned Austral Group – that supply FMFO to customers around the world violated their own health and safety protocols, putting their workers' health at risk and (at least in TASA's case) leading to widespread infections.

The biggest fishery in the world

In 2018, 18 million tonnes (Mt) of global fish catches were used to make FMFO.[13] Peru's anchovy fishery, which mainly supplies the country's FMFO sector, made up a significant share of these catches, and is the largest single-species fishery in the world.

Globally, catches of *anchoveta*, the vast majority of which is supplied by Peru, topped 7 Mt in 2018, representing 10% of overall marine-capture production.[14] The scale of the Peruvian *anchoveta* fishery is eye-watering: In 2018, 6,053,201 metric tonnes (MT) of anchovy destined for FMFO were landed in Peru, representing an 88% increase on the previous year (3,219,612 MT).[15]

The cumulative impact of the fishery is staggering: Between 1950 and 2006, more than 285 Mt of anchovy were caught off the coast of Peru.[16] In weight terms, that's the equivalent of 2.3 million blue whales being taken out of the ocean over that period, or 41,000 blue whales disappearing every single year.[B]

In recent years, some of Peru's top FMFO producers have presided over significant anchovy catches and FMFO production, despite evidence that companies have repeatedly engaged in unsustainable fishing practices. In 2018, Peru's biggest FMFO producer, Tecnológica de Alimentos (TASA), landed 1,352,468 MT of anchovy (a 64% increase on 2017), representing 22.3% of the national catch. Austral, a Norwegian-owned company, landed 557,336 MT of anchovy (a 105% increase on 2017), equivalent to 9.2% of national landings. Most of this was made into FMFO.[C]

B Calculation made for a blue whale weighing 125 tonnes. The Marine Mammal Center (2020) *Blue whales: The largest animal on Earth*. [ONLINE] Available at: https://www.marinemammalcenter.org/education/marine-mammal-information/cetaceans/blue-whale.html.

C Although Peru is the largest fishmeal producer in the world, with a sector that generates hundreds of millions of dollars in revenues every year, until 2019 FMFO companies only paid 0.25% tax on their exports, equivalent to around $3.75 per tonne of fishmeal (based on an international market price of $1,500 per tonne). From 2019, this percentage was increased – but only to 0.43%, representing $6.45 per tonne (based on the same price).

The investigation

This investigation was carried out between February and October 2020. It involved telephone interviews with relatives of industrial fishermen who had died of Covid-19, as well as fishermen and FMFO plant workers who had been infected. We also spoke, in person and over the phone, to senior FMFO company officers (who spoke on condition of anonymity), local activists and trade union representatives. The investigation included an analysis of Peruvian trade data from the SUNAT Peruvian customs agency, gathered via the Veritrade database, as well as official company records and corporate documents to establish supply-chain links with companies in Europe.

Key findings

Global supply chain: the Norwegian connection

For the first time, this report maps the links between the Peruvian companies that produce FMFO and their overseas clients, which supply feed to global aquaculture giants in Europe and around the world.

In 2019, almost one-third of Peru's fishmeal exports (32%) and fish oil exports (29%) were generated by two companies – TASA and Austral Group[17] – which have been linked to not only overfishing juvenile anchovies and underreporting catches but also violating critical health and safety standards as the global Covid-19 pandemic ravages Peru.

Supply-chain analysis shows TASA has supplied FMFO to feed giants that collectively produce millions of tonnes of aquafeed for the global market. Among its customers are Norwegian feed companies EWOS/Cargill and Skretting, as well as Danish-owned BioMar, which in turn supply to the world's biggest fish-farming companies.[D] These companies' customers are major retailers, including the likes of Aldi, Marks & Spencer and REWE in Europe. All three aquafeed companies are also listed as suppliers to Lerøy, the world's second-largest farmed Atlantic salmon producer,[18] in the company's 2017 and 2018 sustainability reports.[19,20]

In 2019, Mowi – Norwegian salmon-farming and feed giant, and the world's largest producer of farmed Atlantic salmon – sourced 40.2% of its fish oil from *anchoveta* fished in Peruvian and Chilean waters.[21] Mowi supplies farmed salmon to some of Europe's biggest supermarket chains; for example, trade reports indicate it is UK retail giant Sainsbury's main supplier.[22]

Lerøy sourced over one-quarter (26.4%) of its fish oil from Peru in 2019.[23] Like its sister company Austral, Lerøy is a subsidiary of Norwegian seafood giant Austevoll, one of the largest fishing groups in the world. In turn, Lerøy supplies farmed salmon to major international retailers, including Ikea,[24] Tesco,[25] Carrefour[26] and Spanish retailer Mercadona.[27] Through its UK subsidiary, Scottish Sea Farms, Lerøy also supplies salmon to British retailer Marks & Spencer.[28]

D Over the past decade, the aquafeed industry has become increasingly consolidated. The four feed producers mentioned here (Mowi, Skretting, EWOS/Cargill and BioMar) now control the majority of salmon-feed output. Mowi (2020) *Salmon farming industry handbook 2020*. [ONLINE] Available at: https://mowi.com/it/wp-content/uploads/sites/16/2020/06/Mowi-Salmon-Farming-Industry-Handbook-2020.pdf.

OVERVIEW OF PERU'S MAJOR FMFO PRODUCERS, THEIR CUSTOMERS AND INVOLVEMENT IN CORRUPTION, ENVIRONMENTAL AND SOCIAL SCANDALS

COMPANY	SHARE OF MARKET	CERTIFIED?	INTERNATIONAL SUPPLY CHAIN LINKS	MEMBERSHIP
Pesquera Exalmar **OWNERSHIP** MAJORITY SHAREHOLDER CALETA DE ORO HOLDING SA (CHILEAN PRIVATE COMPANY)	12.74% *EXPORTS (2019)* 9.42% *EXPORTS (2019)*	marinTrust (5 SITES) GMP+ Friend of the Sea	BioMar, Cargill EWOS, Olvea, Kister Marine Proteins, Mowi, Grobest, Skagen Seaweed, Skretting, Norsildmel	IFFO, Seafood Nutrition Partnership
TASA **OWNERSHIP** REGISTERED IN LIMA, PERU. PARENT COMPANY – GRUPO BRECA	22.3% *OF NATIONAL ANCHOVY CATCH (2018)* 22.07% *EXPORTS (2019)* 16.76% *EXPORTS (2019)*	marinTrust (9 SITES) GMP+ Friend of the Sea	BioMar, Cargill EWOS, Skretting, Grobest, Kister Marine Proteins, Kilic, Norsildmel	IFFO, Seafood Nutrition Partnership, GSSI Global Sustainable Seafood Initiative
Austral Group S.A.A. Austevoll Seafood Company **OWNERSHIP** SUBSIDIARY OF AUSTEVOLL SEAFOOD (NORWEGIAN COMPANY)	9.33% *EXPORTS (2019)* 7.34% *EXPORTS (2019)*	marinTrust (4 SITES) Friend of the Sea	Lerøy, BioMar, Cargill EWOS, Skretting, Kister Marine Proteins, Grobest, Norsildmel	IFFO, Seafood Nutrition Partnership (Amcham)
Pesquera Diamante **OWNERSHIP** REGISTERED IN PERU	11.31% *EXPORTS (2019)* 6.07% *EXPORTS (2019)*	marinTrust (5 SITES) GMP+ Friend of the Sea	BioMar, Cargill EWOS, Skretting, Kister Marine Proteins, Grobest	IFFO, Seafood Nutrition Partnership
Copeinca Corporacion Pesquera Inca S.A. **OWNERSHIP** REGISTERED IN NORWAY. PARENT COMPANY – CFG INVESTMENT	14% *EXPORTS (2019)* 11.52% *EXPORTS (2019)*	marinTrust (4 SITES) GMP+ Friend of the Sea	Cargill, Skretting, Grobest, Kister Marine Proteins, Mowi, Skagen Seaweed	IFFO, Seafood Nutrition Partnership
CFG Investment SAC **OWNERSHIP** OWNED BY CHINA FISHERY GROUP. REGISTERED IN HONG KONG	7.8% *EXPORTS (2019)* 4.5% *EXPORTS (2019)*	marinTrust (5 SITES) GMP+ Friend of the Sea	Cargill EWOS, Grobest, Olvea, Kister Marine Proteins, Mowi	IFFO, Seafood Nutrition Partnership
Hayduk **OWNERSHIP** REGISTERED IN PERU	10.68% *EXPORTS (2019)* 9.54% *EXPORTS (2019)*	marinTrust (4 SITES) GMP+ Friend of the Sea	Cargill EWOS, Grobest, Kister Marine Proteins, Skretting, BioMar	IFFO, Seafood Nutrition Partnership

INVOLVED IN RECORDINGS SCANDAL? · UNDERREPORTING CATCHES? · FISH MEAL · ANCHOVY

ACCUSED OF OVERFISHING JUVENILES? · COVID SAFETY PROTOCOL VIOLATIONS? · FISH OIL · INDICATES COMPANY INVOLVEMENT

Flawed certification body

The certification body Peru's European clients rely on as a guarantor of the industry's sustainability, MarinTrust, is fatally flawed.

Despite its recent rebrand,[29] the MarinTrust Global Standard for Responsible Supply (formerly IFFO RS) continues to certify destructive companies and practices in Peru's *anchoveta* fishery, and companies it certifies are now seeking to use MSC certification to further greenwash these.[30] Specifically, this report shows MarinTrust has certified as sustainable Peruvian companies that have:

- historically underreported fishing catches;
- participated in highly unsustainable fishing practices, including overfishing juveniles, which puts the renewal of wild-fish populations at risk;
- recently been involved in a national corruption scandal, in which government officials inflated the anchovy biomass (and therefore fishing quotas) by several million tonnes – to the benefit of the industrial fishing and FMFO sector.

Fishermen on deck
© Rodrigo Abd

In addition – and continuing a trend first analysed by international marine conservation group, Oceana[31] – this report reveals that, between 2012 and 2018, Peru produced an average of 885,663 tonnes of fishmeal and reported 931,954 tonnes of fishmeal exports every year. This annual mismatch of 46,000 tonnes of 'phantom' fishmeal further undermines claims the sector's sustainability claims.

Covid-19 cover-up

Hundreds of FMFO workers and fishermen were infected with Covid-19 – and several died of the virus – during the fishing season, which started on 13 May 2020 and ended in late July.[32]

Evidence presented in this report shows TASA, Austral Group and other companies flouted their own safety regulations by mixing fishermen and crews without respecting quarantine procedures, putting their workers at risk amid one of the most deadly outbreaks of Covid-19 in the world.

Companies have been reluctant to reveal the true extent of infections among their workforce. However, evidence from two of TASA's ten plants suggests infections have been widespread. According to information shared with Changing Markets, 76% of workers represented by the company's main trade union, SINTETASA, were infected at TASA's Vegueta plant (160km north of Lima), while 48% of the entire workforce at its Samanco plant – located near Chimbote, the '*fishmeal capital of the world*'[33] (430km north of Lima) – were infected.

We have also found evidence that TASA failed to report at least two Covid-19 cases in its workforce to the Peruvian Ministry of Health, suggesting the company is trying to cover up the true scale of infections among its workforce.

This report lifts the veil on a deeply unsustainable industry that seems to stop at nothing – not even a global pandemic – in its pursuit of ever more wild-caught fish to feed the booming aquaculture sector. Mindful of shielding its reputation, it has instrumentalised certification standards, such as MarinTrust, to cover up its failings and improve its access to the lucrative global market. This report examines why Peru's FMFO industry is failing to live up to its sustainable image, and why its global customers in the feed and retail sectors should think twice about sourcing from Peru. Exposing a sector rife with environmental and social violations, it calls for a rapid phase-out of FMFO from the global aquaculture industry.

1. Peru's fishmeal and fish oil industry

The Peruvian anchovy fishery is the largest fishery resource in the world and the source of raw materials for the country's fishmeal and fish oil (FMFO) industry. Peru produces approximately one-third of the world's FMFO, with some three-quarters of its production destined for China.[34]

The industry is based on the Peruvian anchovy (*anchoveta* or *Engraulis ringens*), a small, silvery member of the anchovy family that teems in massive schools in Peruvian waters. The Pacific Ocean off the Peruvian coast is extremely rich in nutrients thanks to the Humboldt Current, an underwater cold stream, which causes an upwelling process that makes the waters rich in plankton.

Peruvian anchovy stocks have historically suffered from rampant overfishing and (since the early 1970s in particular) the vagaries of El Niño, which, because of Peru's role as the world's predominant supplier of FMFO, have contributed to high volatility in the global FMFO market. Following the collapse of the *anchoveta* fishery in 1972, the Peruvian government introduced a quota system to prevent further decline of stocks, but there continue to be periodic collapses in Peru's anchovy catch. Scientists predict extreme El Niño events will become more frequent in the Humboldt Climate System as a result of climate change, resulting in major regime shifts in fisheries and an overall decrease in plankton abundance.[35]

Between 2000 and 2015, 99% of Peruvian *anchoveta* catches were landed by the industrial fishing fleet.[36] By law, industrial *anchoveta* landings are almost exclusively used to make FMFO.[37] There are approximately 90 licensed fishmeal-processing plants in Peru, and the main ports are Chimbote, Pisco, Supe, Callao and Ilo.[38] The catches of artisanal and small-scale fleets are processed for direct human consumption,[39] although recent investigations have shown significant quantities of human-grade fish being diverted to FMFO production, as will be explored later in this report.

Peru has two major fishing seasons and two main anchovy-fishing grounds off its coast. The first fishing season is April–July for the north-central coast and February–June for the southern coast. The second fishing season is November–January for the north-central coast and July–December in the south. The seasons can vary significantly each year, depending on fish availability and size.

Shoal of anchovies
©iStock

1.1. Fishmeal

In 2019, Peru exported approximately 1 million tonnes (Mt) (1,060,905) of fishmeal – a similar figure to the two previous years, when it exported 1,035,924 tonnes in 2018 and 1,041,525 tonnes in 2017. In 2019, 74% of these exports, equating to 779,000 tonnes, went to China to feed pigs and farmed seafood (see Table 1.1 and Figure 1.1).

YEAR	FISHMEAL EXPORTS (IN TONNES)
JAN–JUN 2020	221,534
2019	1,060,905
2018	1,034,924
2017	1,041,525
2016	644,455
2015	713,708
2014	870,146
2013	866,331
2012	1,352,592

Table 1.1. Peru's fishmeal exports, 2012–June 2020

Source: *Veritrade*

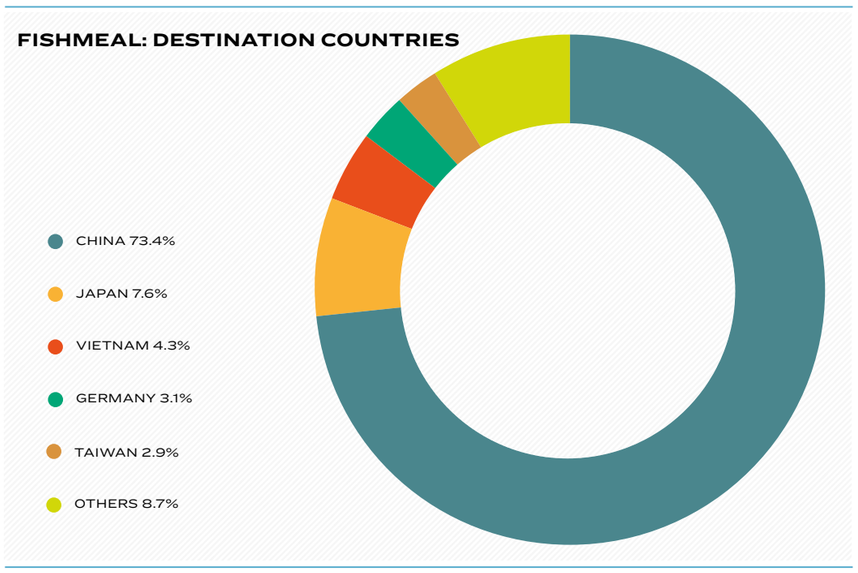


Figure 1.1. Peru's fishmeal exports per country, 2019

Source: *Veritrade*

The Peruvian fishmeal export market is concentrated in just a few major players (see Table 1.2). In 2019, 22% of all fishmeal exports were generated by a single company, Tecnológica de Alimentos (TASA). The other key players were Corporación Pesquera Inca S.A. (21.8%), Exalmar (12.7%), Diamante (11.3%), Hayduk (10%) and Austral Group (9.3%).

COMPANY	2012	2013	2014	2015	2016	2017	2018	2019	JAN–JUN 2020
PERU FISHMEAL EXPORTS	**1,352,592**	**866,331**	**870,146**	**713,708**	**644,455**	**1,041,525**	**1,034,924**	**1,060,905**	**221,534**
CFG/Copeinca	285,596	175,779	187,606	140,539	40,102	147,596	231,618	231,854	39,572
% total	*21.11%*	*20.29%*	*21.56%*	*19.69%*	*6.22%*	*14.17%*	*22.38%*	*21.85%*	*17.86%*
Exalmar	123,405	72,415	82,143	64,524	58,878	137,299	114,671	135,134	34,765
% total	*9.12%*	*8.36%*	*9.44%*	*9.04%*	*9.14%*	*13.18%*	*11.08%*	*12.74%*	*15.69%*
Diamante	153,338	104,739	99,321	92,738	71,840	104,241	110,753	120,036	18,440
% total	*11.34%*	*12.09%*	*11.41%*	*12.99%*	*11.15%*	*10.01%*	*10.70%*	*11.31%*	*8.32%*
TASA	318,399	197,472	223,024	191,484	156,397	267,162	242,559	234,190	50,233
% total	*23.54%*	*22.79%*	*25.63%*	*26.83%*	*24.27%*	*25.65%*	*23.44%*	*22.07%*	*22.68%*
Hayduk	107,570	85,870	68,048	62,119	162,134	173,866	112,318	106,927	23,876
% total	*7.95%*	*9.91%*	*7.82%*	*8.70%*	*25.16%*	*16.69%*	*10.85%*	*10.08%*	*10.78%*
Austral	114,975	83,077	65,824	55,020	52,042	83,220	93,637	98,982	13,203
% total	*8.50%*	*9.59%*	*7.56%*	*7.71%*	*8.08%*	*7.99%*	*9.05%*	*9.33%*	*5.96%*

Table 1.2. Company fishmeal exports, 2012–June 2020: amounts declared to customs (in tonnes)

Source: *Veritrade*

1.2. Fish oil

Peru exported 183,000 tonnes of fish oil in 2019 – a similar amount to 2018, when it exported nearly 196,000 tonnes. Similarly to fishmeal, Peruvian fish-oil exports are concentrated in just a few major players (see Table 1.3). In 2019, 16.7% of all fishmeal exports were generated by a single company, TASA. The other key players were Corporación Pesquera Inca S.A. (16%), Hayduk (9.5%), Exalmar (9.4%), Austral Group (7.3%) and Diamante (6%).

COMPANY	2012	2013	2014	2015	2016	2017	2018	2019	JAN–JUNE 2020
PERU FISH OIL EXPORTS	**311,881**	**126,160**	**163,487**	**118,776**	**95,054**	**171,086**	**195,985**	**183,083**	**44,846**
CFG/Copeinca	55,676	22,580	29,953	18,581	4,701	24,089	41,476	29,349	3,533
% total	17.85%	17.90%	18.32%	15.64%	4.95%	14.08%	21.16%	16.03%	7.88%
Exalmar	21,182	5,839	11,169	7,042	3,786	13,281	20,205	17,248	4,894
% total	6.79%	4.63%	6.83%	5.93%	3.98%	7.76%	10.31%	9.42%	10.91%
Diamante	10,215	289	8,923	10,287	1,020	4,615	8,959	11,120	2,605
% total	3.28%	0.23%	5.46%	8.66%	1.07%	2.70%	4.57%	6.07%	5.81%
TASA	62,559	27,890	260	20,641	15,080	32,663	35,710	30,676	8,568
% total	20.06%	22.11%	0.16%	17.38%	15.87%	19.09%	18.22%	16.76%	19.10%
Hayduk	26,571	8,663	9,054	7,497	7,965	12,714	18,871	17,463	2,085
% total	8.52%	6.87%	5.54%	6.31%	8.38%	7.43%	9.63%	9.54%	4.65%
Austral	22,961	11,875	10,715	6,298	5,150	10,939	16,628	13,434	2,524
% total	7.36%	9.41%	6.55%	5.30%	5.42%	6.39%	8.48%	7.34%	5.63%

Table 1.3. Company fish oil exports, 2012–June 2020: amounts declared to customs (in tonnes)

Source: *Veritrade*

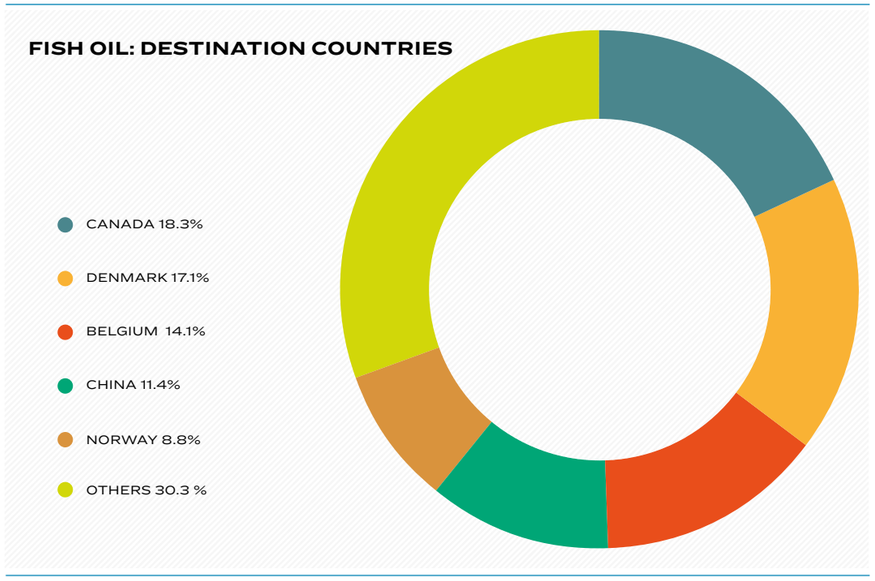


Figure 1.2. Peru's fish oil exports per country, 2019

Unlike in the case of fishmeal, however, fish oil was exported more evenly across several countries, with most going to five destinations: Canada (18.3% of the total), Denmark (17.1%), Belgium (14.1%), China (11.4%) and Norway (8.8%).

YEAR	FISH-OIL EXPORTS (IN TONNES)
Jan–Jun 2020	44,846
2019	183,083
2018	195,985
2017	171,086
2016	95,054
2015	118,776
2014	163,487
2013	126,160
2012	311,881

Table 1.4. Peru's fish oil exports, 2012–June 2020

Source: *Veritrade*

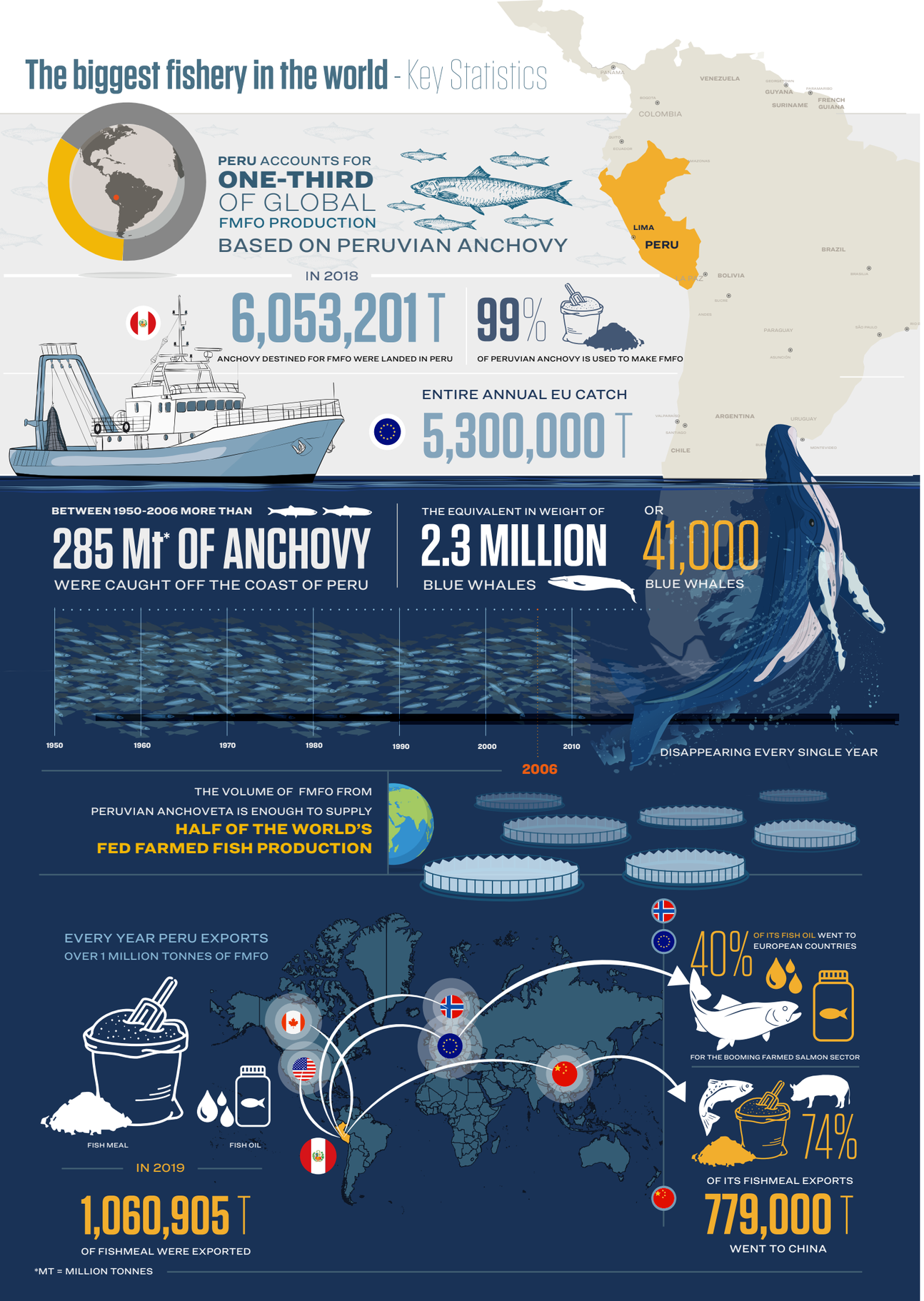
BOX 1.3: **What is FMFO used for and how is it made?**

FMFO is mainly used as an ingredient in feeds for aquaculture and agriculture.[40] Almost one-fifth of the world's annual wild-fish catch is taken out of the ocean for this purpose.[41] Roughly one-third of FMFO goes to the agricultural sector (5% to chickens, 23% to pigs[42]), but aquaculture became the dominant user of 'reduction fisheries' (which supply fish for FMFO rather than for direct human consumption)[43] in the early 2000s.[44] In 2016, 69% of fishmeal and 75% of fish-oil production went to seafood farming.[45] Global demand for FMFO is mainly driven by China's huge aquaculture sector,[46] but export-oriented sectors – such as salmon farming in Norway and Scotland, and prawn farming in Asia – are also significant consumers.

Acording to the UN Food and Agriculture Organisation, fish can be reduced to meal and oil in a number of ways. Common to all methods are the following processing steps:

- heating, which coagulates the protein, ruptures the fat depots and liberates oil and physico-chemically bound water;
- pressing (or occasional centrifugation), which removes a large fraction of the liquids from the mass;
- separation of the liquid into oil and water (stickwater). This step may be omitted if the oil content of the fish is less than 3%;
- evaporation of the stickwater into a concentrate (fish solubles);
- drying of the solid material (presscake) plus added solubles, which removes sufficient water from the wet material to form a stable meal,
- grinding the dried material to the desired particle size.[47]

The production of FMFO can be a highly polluting process, generating significant air and water emissions. People living close to FMFO factories complain of intolerable smells and experience significant health impacts.[48]



1.3. Company profiles

Based on extensive examination of Peruvian media reports and NGO research, as well as findings from our own investigation, our analysis shows that the six companies responsible for the lion's share of Peru's global FMFO exports have been involved in highly unsustainable practices stretching back over several years – potentially decades – despite being certified under the MarinTrust (formerly IFFO RS) standard. The table on page 11 provides a summary of these.

This section examines two of these companies in detail: TASA, Peru's biggest producer of FMFO; and Austral, a Norwegian-owned company responsible for a significant share of Peru's FMFO exports. As will be seen, both of these companies, whether through ownership or supply chain, have direct and indirect business relationships with the largest producers of aquafeed and Atlantic salmon in the world.

TASA and Austral Group's track records reflect a range of corporate accountability failings. However, it is important to state these failings are typical of the Peruvian FMFO sector as a whole, as the overview presented on page 11 clearly shows.

1.3.1. *Tecnológica de Alimentos S.A.*

Source: TASA

Tecnológica de Alimentos S.A. (TASA) is the biggest FMFO producer in the world,[49] and has been operational since 2002.[50] It claims to operate '*in harmony with the community and the environment*'.[51] Humberto Speziani, Director of TASA, is on the MarinTrust governing body.[52]

The company operates 11 plants along the Peruvian coast,[53] including its refinery in Pucusana. It supplies refined fish oil for use in aquafeed and petfood, as well as in human dietary supplements, infant formula and pharmaceutical products.[54]

In 2018, the company was reported to be considering cutting less profitable divisions, such as its fishing unit for human consumption, which employs around 300 people.[55]

Supply-chain analysis shows TASA has supplied FMFO to feed giants that collectively produce millions of tonnes of aquafeed for the global market. Among its customers are the Norwegian companies EWOS/Cargill and Skretting,

as well as Danish-owned BioMar, which, in turn, supply to the world's biggest fish-farming companies, which themselves supply major retailers, including the likes of Aldi, Marks & Spencer and REWE. All three companies are also listed as suppliers of aquafeed to Lerøy in the company's 2017 and 2018 sustainability reports.[56]

Source: Austral

1.3.2 Austral Group

Austral Group is almost fully owned by Dordogne Holdings Inc., an offshore shell company created in Panama by Icaza, the attorney that acted as Mossack Fonseca's branch in Peru. As revealed in the Panama Papers investigation,[57] Mossack Fonseca was a law firm based in Panama that sold shell companies in tax havens in the Caribbean for a range of different global actors, including Russian President Vladimir Putin and football player Lionel Messi, as well as drug dealers and corrupt politicians from around the world.[58]

Dordogne Holdings' beneficial owner is the Norwegian company Austevoll Seafood ASA. Austevoll is among the world's largest FMFO producers, and is listed on the Oslo stock exchange.

COMPANY

TASA

LEADERSHIP

CEO:
GONZALO DE ROMAÑA

DIRECTOR:
HUMBERTO SPEZIANI

EMPLOYEES

2,800

OWNERSHIP

BRECA
GRUPO EMPRESARIAL

BRECA IS A PERUVIAN CONGLOMERATE ACTIVE ACROSS A DIVERSE RANGE OF ECONOMIC SECTORS INCLUDING BANKING (BRECA OPERATES THE PERUVIAN SUBSIDIARY OF BBVA BANK), MINING, CONSTRUCTION AND REAL ESTATE.

VOLUMES OF ANCHOVETA

2018: TASA LANDED

1,352,468 Mt OF ANCHOVY

22.3% OF THE NATIONAL CATCH

+64% ON 2017

ITS OWN FLEET CAUGHT
869,645 Mt OF ANCHOVY

IT PURCHASED AN ADDITIONAL
482,822 Mt OF ANCHOVY

PRODUCTS

FISHMEAL | FISH OIL | FRESH FISH | FROZEN FISH

CUSTOMERS/SUPPLY CHAIN

BioMar | Cargill EWOS | GROBEST | Köster Marine Proteins | KILIC | NORSILDMEL | SKRETTING

VOLUMES OF FMFO

FISHMEAL
2018 PRODUCTION:
331,504 MT **(+ 64% on 2017)**
2018 SALES:
243,470 MT
AT AN AVERAGE PRICE OF US$1,547 PER MT
2018 EXPORTS:
NET WEIGHT: 232,745 MT
23% OF PERU'S TOTAL FISHMEAL EXPORTS

FISH OIL
2018 PRODUCTION:
58,248 MT **(+139% on 2017)**
2018 SALES:
36,771 MT
AT AN AVERAGE PRICE OF US$1,758 PER MT
2018 EXPORTS:
NET WEIGHT: 35,093 MT
20% OF PERU'S TOTAL FISH OIL EXPORTS

EXPORT MARKETS

FISHMEAL: China, Vietnam, Taiwan, Japan, Germany, Chile, France, Netherlands, Spain, Canada, Australia, United States.

FISH OIL: Norway, Denmark, Peru, Chile, Canada, Australia, Japan, China.

REFINED AND CONCENTRATED FISH OIL: New Zealand, United States, Canada, South Korea, Germany, Australia, United Kingdom, Spain, Brazil, China, Thailand, Singapore, Taiwan, Colombia, Japan, China.

CERTIFICATIONS

TASA HOLDS 10 MARINTRUST STANDARD CERTIFICATES FOR ITS SITES IN:

SAMANCO
CHIMBOTE
SUPE
CALLAO
MALABRIGO SUR
VEGUETA
ATICO
MATARANI
PISCO SUR

COMPANY

Austral Group S.A.A.
Austevoll Seafood Company

LEADERSHIP

CHAIRMAN
OF THE BOARD OF DIRECTORS:
ARNE MØGSTER
(also CEO of parent company Austevoll)

CEO:
ADRIANA CARMEN GIUDICE ALVA

EMPLOYEES

1,300

OWNERSHIP

Austevoll Seafood ASA

AUSTRAL IS OWNED BY NORWEGIAN PELAGIC FISHERY AND SEAFOOD GIANT AUSTEVOLL SEAFOOD SA, ONE OF THE LARGEST FISHING GROUPS IN THE WORLD, WHICH HAS OPERATIONS IN NORWAY, THE UK, PERU AND CHILE.

89.35% OF SHARES ARE OWNED BY DORDOGNE HOLDINGS INC., LOCATED IN PANAMA.

VOLUMES OF ANCHOVETA

2018: AUSTRAL LANDED

557,336 Mt OF ANCHOVY

9.2% OF THE NATIONAL CATCH

+105% ON 2017

ITS OWN FLEET CAUGHT
869,645 Mt OF ANCHOVY

PRODUCTS

FISHMEAL | FISH OIL | FRESH FISH | FROZEN FISH

CUSTOMERS/SUPPLY CHAIN

BioMar | Cargill EWOS | NORSILDMEL | Köster Marine Proteins | LERØY | SKRETTING | GROBEST

IN 2019, LERØY SOURCED OVER ONE-QUARTER (26.4%) OF ITS FISH OIL REQUIREMENTS FROM PERU.

VOLUMES OF FMFO

FISHMEAL
2018 PRODUCTION:
130,887 MT **(+ 104% on 2017)**
2018 SALES:
93,636 MT (+13% HIGHER ON 2017)
AT AN AVERAGE PRICE OF US$ 1,521.89 PER MT
2018 EXPORTS:
NET WEIGHT: 92,499 MT
9% OF PERU'S TOTAL FISHMEAL EXPORTS

FISH OIL
2018 PRODUCTION:
2,252 MT **(+203% on 2017)**
2018 SALES:
16,933 MT **(+48% on 2017)**
AT AN AVERAGE PRICE OF US$ 1,806 PER MT
(+20% on 2017).
2018 EXPORTS:
EXPORTS ACCOUNTED FOR **98%** OF TOTAL SALES

EXPORT MARKETS

AUSTRAL ANNUAL REPORT 2018 STATES THAT ITS PRODUCTS **ARE SOLD NATIONWIDE AND EXPORTED TO 30 COUNTRIES ON 5 CONTINENTS**, INCLUDING:

Germany, Denmark, Italy, United Kingdom, Spain, France, Bulgaria, Norway, New Zealand, Australia, South Africa, United States

CERTIFICATIONS

AUSTRAL HOLDS FOUR MARINTRUST STANDARD CERTIFICATES FOR ITS SITES IN:

CHANCAY
COISHCO
PISCO
ILO

One of Austevoll's subsidiaries is Lerøy Seafood Group ASA – the leading exporter of seafood from Norway and the world's second-largest producer of farmed Atlantic salmon[59] – which sourced over one-quarter (26.4%) of its fish oil from Peru in 2019.[60] In turn, Lerøy supplies farmed salmon to major international retailers, including Ikea,[61] Tesco,[62] Carrefour[63] and Mercadona.[64] In the United Kingdom, Lerøy owns 50% of Norskott Havbruk AS (also known as Scottish Sea Farms Ltd),[65] a supplier to British retailer Marks & Spencer.[66] Lerøy jointly owns Scottish Sea Farms with SalMar,[67] another Norwegian company – and another of the world's largest producers of farmed salmon.

1.4. International supply-chain links

Although Peru is by far the world's largest producer of FMFO, little is known about its supply chain and relationship with companies in Europe, which is a key export market. This section attempts to address this knowledge gap by describing the links between the companies profiled above and major international feed and aquaculture corporations headquartered in Europe, based on trade data from Peru's customs agency, SUNAT,[E] and information provided in company reports. It is important to bear in mind that the figures in tables 1.5 and 1.6 only consider export forms submitted to SUNAT, which detail the end customers; the actual export figures to these companies may be higher, as, in some cases, that information is not provided to SUNAT.

From a survey of aquafeed company reports, volumes of FMFO imported from Peru to Europe appear significant. For example, Norwegian salmon-giant Mowi imported 17,874 tonnes of fish oil from Peruvian anchovy (40.2% of total volume) in 2019,[68] while BioMar, a major global supplier of aquaculture feeds based in Denmark, imported 49,954 tonnes of fishmeal (22.6% of total volume) and 20,034 tonnes of fish oil (18.9% of total volume) from the Peru/Chile catch region in 2019.[69] Based on standard industry yield figures for fishmeal (22.5%) and fish oil (4.8%),[70] and figures on FMFO consumption and origin available in aquafeed company reports (which only provide a very partial snapshot), this means – at a minimum – the equivalent of hundreds of thousands of tonnes of Peruvian anchovy are exported to European feed producers every year in the form of FMFO (see Table 1.7).

1.4.1. *Who buys Peru's fishmeal?*

Our analysis of SUNAT data reveals that TASA, Austral Group, Exalmar, Diamante and Hayduk have all sold fishmeal to three of the world's biggest aquafeed suppliers – BioMar, EWOS/Cargill and Skretting – while CFG-Copeinca, Exalmar and Diamante have also sold to Danish FMFO producer FF Skagen (see Table 1.5). CFG-Copeinca has also sold fishmeal to EWOS/Cargill.

According to these figures, TASA was the biggest supplier of fishmeal to these European companies, shipping 95,167 tonnes between 2012 and June 2020.

One of TASA and Austral Group's main clients is BioMar. BioMar supplies aquafeed to Scottish salmon companies – such as Grieg Seafood[71] and Scottish Sea Farms (which supplies British retailer Marks & Spencer[72]) – while EWOS/Cargill, another of their major clients, supplies feed for Cooke Aquaculture. Another is Skretting, which supplied feed to Lerøy in 2017 and 2018.[73]

The fishmeal exports of these six companies reflect the overall country trend, with most exports going to China. Specifically, Exalmar, Diamante, TASA and CFG Investment exported 70.8% of their fishmeal to China, followed by Germany (6.6%), Japan (5.7%), Chile (4.1%) and Vietnam (3.8%), as shown in Figure 1.1.

E The trade data in this report has been provided by Veritrade, which, in turn, sources its information directly from SUNAT.

What Lies Beneath: Uncovering the truth about Peru's colossal fishmeal and fish oil industry

	CFG/COPEINCA	EXALMAR	DIAMANTE	TASA	HAYDUK	AUSTRAL
BIOMAR	-	3,909	5,070	23,589	1,023	3,672
EWOS / CARGILL	2,979	21,937	9,222	10,642	3,606	1,879
FF SKAGEN	496	3,142	6,019	-	-	-
SKRETTING	3,070	6,974	8,197	51,368	1,088	4,672
TOTAL TO THE 4 EUROPEAN COMPANIES	6,545	35,961	28,509	85,599	5,717	10,223

Table 1.5. Company fishmeal exports to European customers, 2012–June 2020 (declared amounts, in tonnes)

Source: *Veritrade. Shows amounts where export clients have been declared to SUNAT. Actual export figures to these companies may be higher, as, in some cases, information on the end customer is not provided to SUNAT.*

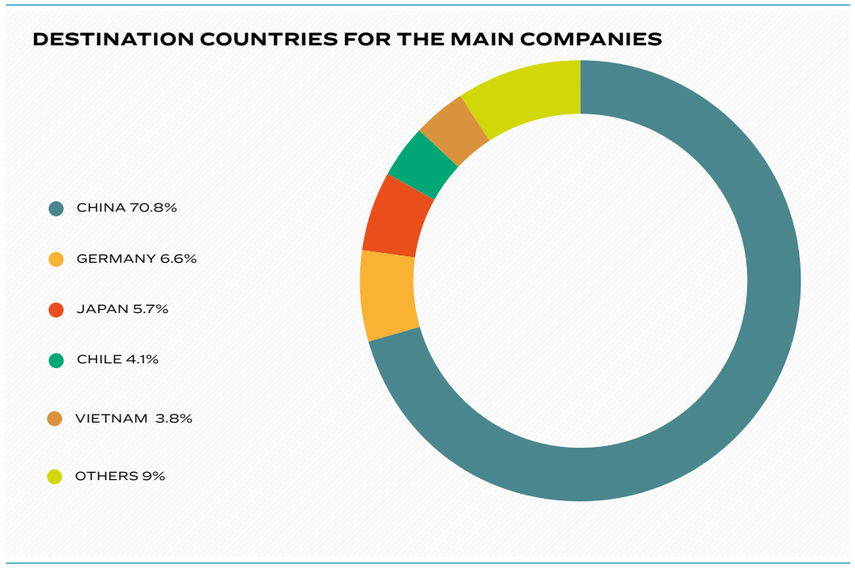


Figure 1.3. Fishmeal destination countries for TASA, Austral Group, Exalmar, Diamante, CFG/Copeinca and Hayduk exports, 2012–June 2020

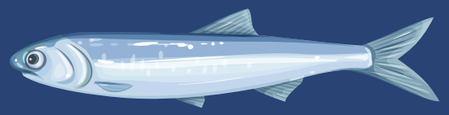
Source: *Veritrade*

1.4.2. *Who buys Peru's fish oil?*

According to SUNAT data, which as noted does not account for all volumes exported, significant quantities of Peruvian fish oil have been purchased by Köster Marine Proteins GmbH (KMP), which operates the biggest fishmeal terminal in Europe in the German port of Bremen.[74] KMP and its sister company Köster Marine Oils GmbH (a joint venture with Dutch group Marvesa[75]) are both certified under the MarinTrust Chain of Custody standard,[76] and the company is a key supplier of FMFO to the European feed industry.

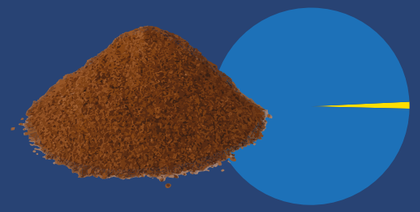
FEEDING AQUACULTURE

Every year, millions of tonnes of anchovy are taken out of the ocean off the coast of Peru, depriving seabirds, marine mammals and other fish of a key source of food.



ALMOST ALL

OF PERU'S ANCHOVY CATCH IS EXPORTED TO THE GLOBAL MARKET AS FMFO



Peruvian anchovy catches are landed by the industrial fishing fleet.

01 RAW MATERIALS:

PERUVIAN ANCHOVY *OR ANCHOVETA*

FMFO production can generate huge air and water pollution

02 PERU HAS 90 LICENSED FMFO FACTORIES

The main fishing ports are Chimbote, Pisco, Supe, Callao and Ilo

ANIMALFEED **28%**

AQUAFEED **69%**

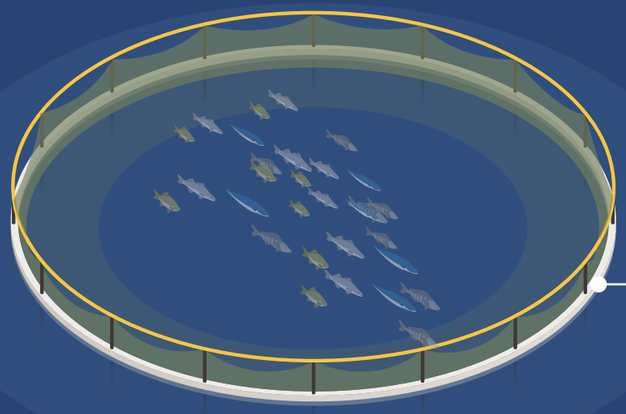
03 PERUVIAN FMFO PRODUCERS SELL

to traders such as KMP and ED&F Man and feed suppliers such as Cargill, Skretting and BioMar

04 NORWAY IS A KEY MARKET FOR PERUVIAN FISH OIL

LERØY MOWI

The world's largest salmon farming companies, Norwegian-owned Mowi and Lerøy, source large amounts of fish oil from Peru



05 PROCESSORS AND DISTRIBUTORS

In Europe, salmon farmed in Norway is transported to Poland for processing before being sold to major retailers across the EU

06 RETAILERS AND RESTAURANTS

Farmed fish popular in high-income markets such as salmon and sea bass are fed a diet containing Peruvian FMFO

KMP bought 34,331 tonnes of fish oil from TASA, Austral, CFG-Copeinca, Exalmar, Diamante and Hayduk between 2012 and June 2020 (see Table 1.7), with EWOS/Cargill (8,496 tonnes) and Skretting (8,026 tonnes) appearing as the next major buyers.

Fish oil exports from these six major Peruvian companies broadly reflect the national trend, with 30.1% of their exports going to Denmark, followed by Belgium (20.2%), Chile (12.7%), China (9.5%), and Norway (8.6%).

	CFG-COPEINCA	EXALMAR	DIAMANTE	TASA	HAYDUK	AUSTRAL	TOTAL
BioMar	-	-	-	1,697	-	-	1,697
EWOS/Cargill	684	4,389	1,411	1,064	256	215	8,019
Skretting	640	-	1,001	6,386	-	-	8,026
Olvea	1,287	683	-	-	-	-	1,971
Trio S.A.	1,733	-	-	1,833	-	47	3,613
MOWI	556	300	-	-	-	-	856
KMP	6,346	5,383	5,341	15,224	900	1138	34,331
Norsildmel/Triple9	-	-	-	4,141	-	-	4,141
TOTAL selected companies	11,246	10,755	7,752	30,344	1,156	1,400	62,653

Table 1.6. Company fish oil exports to European customers, 2012–June 2020 (declared amounts, in tonnes)

Source: *Veritrade. Shows amounts where export clients have been declared. Actual export figures to these companies may be higher, as, in some cases, information on the end customer is not provided to SUNAT.*

It is important to note the role of intermediary companies in fishmeal and fish oil supply chains. A large proportion of FMFO from Peru is exported to companies such as ED&F Man, an agricultural commodities merchant based in 50 countries globally.[77] SUNAT data shows that in 2019, ED&F Man imported 157,800 MT of fish oil from Peruvian companies; in turn, Danwatch research shows that ED&F Man supplies fish oil to companies including Mowi, BioMar and EWOS/Cargill.[78] Therefore, companies which appear to import only a small amount of FMFO from Peru are in actual fact likely to be sourcing much larger quantities via intermediaries. This also explains the discrepancy between SUNAT export data, and some companies' own reporting on sourcing from Peru.

COMPANY	2017		2018		2019	
	FISHMEAL	FISH OIL	FISHMEAL	FISH OIL	FISHMEAL	FISH OIL
MOWI	-	9,993t 29.1% of total volume	-	**Fish oil Peru/Chile:** 2,971t 8.2% of total volume **Fish oil, refining by-product:** 1,004t 2.8% of total volume	-	17,874t 40.2% of total volume
BioMar	20,482t 9.7% of total	18,437t 17.7% of total	15,365t 9% share of total	10,257t 11% share of total	49,954t 22.6% of total volume*	20,034t 18.9% of total volume*
Cargill Aqua Nutrition	21.2% of forage fish total*		20.8% of forage fish total*		17.1% of forage fish total* Peruvian anchovy = 32.5% of warmwater feeds	
Skretting	No information provided		No information provided		No information provided	
FF Skagen	No information provided		No information provided		No information provided	
Austevoll	No information provided		No information provided		-	26.4%
Lerøy	1.28%	Information illegible	1.5%	Information illegible	-	26.4%

Table 1.7. FMFO from anchoveta: Volumes and percentages reported by European aquafeed/aquaculture companies

*Catch region Peru/Chile. At country level, Peru accounts for the higher share of both fishmeal and fish oil produced. For example, according to industry data, between 2012-15, Chile produced on average 115,000 MT of fish oil per year while Peru produced 140,000 MT. During the same period, Chile produced on average 381,000 MT of fishmeal per year, while Peru produced 835,000 MT.79 In 2019, Peru produced 796,384 MT of fishmeal.80

Sources: *Aquafeed company reports 2017, 2018, 2019*

©Rodrigo Abd

2. Debunking the sustainability myth

IFFO, the global FMFO trade body, sees Peru as the '*global leader of responsibly sourced marine ingredients*'.[81] Peru is in the process of completing a Fisheries Improvement Project (FIP), with the support of Skretting and Cargill Aqua Nutrition, and is reportedly on track to achieve Marine Stewardship Council (MSC) certification by 2021 (for more information on Peru's FIP, see Box 2.2).[82]

The industry highlights that it has more FMFO plants certified with the IFFO RS Global Standard for Responsible Supply (rebranded as MarinTrust in April 2020) than anywhere else in the world. The first Peruvian fishmeal plant was certified in 2010;[83] since then, 45 plants across the country, belonging to 12 different companies, have achieved this certification.[84] The companies certified by MarinTrust are:

- Tecnológica de Alimentos (TASA) (9 plants)
- Austral Group (4)
- CFG Investment (5)
- Compañía Pesquera del Pacífico Centro (2)
- Corporación Pesquera Inca (4)
- Pesquera Cantabria (1)
- Pesquera Capricornio (1)
- Pesquera Centinela S.A.C. (3)
- Pesquera Diamante (5)
- Pesquera Exalmar (5)
- Pesquera Hayduk (4)
- Procesadora del Campo (1)

Some Peruvian FMFO producers have also developed initiatives to reduce the environmental impact of their activities. For instance, CFG-Copeinca has teamed up with the World Wildlife Fund (WWF) to reduce harm to animals like sea lions and sea birds,[85] and, in March 2020, TASA launched a mobile application called Cuidamar, which allows its vessels to report real-time data on catches and marine-animal sightings during the fishing season.[86]

BOX 2.1: **Peru's anchoveta fishery: knowledge gaps and ecological concerns**

Numerous studies have determined the key role of the Peruvian anchovy as a prey species in the Humboldt Current System,[87] one of the most productive marine ecosystems on earth.[88] In 2009, based on an ecological risk-assessment methodology, scientists identified the critical role of the Peruvian anchovy in the trophic web for birds, mammals, turtles, and jack and chub mackerel[89] as high risk; however, little progress has been made to reduce this risk due to the continuing effects of the industrial anchovy fishery on the ecosystem. In recent years, it has been reported that endangered, threatened or protected species have been directly affected by the fishery, and interactions seem to be more frequent with seabirds, dolphins and sea lions.[90] Assessing the status of the anchovy population under a precautionary approach would require careful consideration of the impacts on fish, bird and marine-mammal populations. It would also require deeper understanding of the impacts of climate change, which may affect anchovy populations '*through ocean warming, acidification, habitat compression, nutrient supply, phenology, and changes in the food web and demand for aquaculture*'.[91]

Peru has acknowledged the increasing number of large boats fishing for anchovy is destroying the coastal ecosystem, as well as fish

© Florence Goupil/Danwatch

species that are important for human consumption and underpin many Peruvians' livelihoods and food security.[92] Numerous studies have also reported the linkages between the decline of anchovy biomass off Peru and local species, such as guano-producing seabirds[93] and Humboldt penguins,[94] as a result of competition for prey with large fishing fleets. Since the launch of the industrial anchovy fishery, driven by the fishmeal industry, there has been a 95% drop in bird numbers in a little over half a century.[95]

As described on the following page, Peru's anchovy fishery for indirect human consumption is currently in an FIP, with a view to certification under the MSC. However, according to the public pre-evaluation reports[96] and external progress audit,[97] one of the main obstacles to compliance with the standard is that ecosystem impacts are not given adequate consideration when *anchoveta* quotas are set.

The FIP audit on the capture strategy, which was carried out in 2019, confirms this by pointing out that '*the needs of the ecosystem have not yet been included in the decision table on anchovy quotas*'.[98]

In other words, there is no precautionary capture strategy in place that considers the key role of the Peruvian anchovy in the ecosystem.[99] Likewise, the harvest-control rules are unlikely to ensure that anchovy stocks are sufficient to meet the needs of the ecosystem because it has not been defined what those needs are.[100]

Underreporting catches undermines fisheries-management measures

The systematic underreporting of anchovy catches, described in section 2, is also a factor of uncertainty in the implementation of fisheries-management measures. Such underreporting happens for various reasons; in recent years, discards due to excess capture and discards due to the presence of juveniles in Peruvian anchovy catches have increased.[101] An analysis of the period 2005–2014 estimated the Peruvian anchovy fishery discarded an average of 121,312 tonnes of excess fish,[F] corresponding to 2.6% of landings. This could have a significant effect on the Peruvian anchovy population, as well as on other species in the ecosystem.[102]

The capture of juvenile anchovies by Peru's industrial fishing fleet is highly problematic, as it can compromise the stock's capacity to renew itself. It also has ecosystem impacts (since juveniles are key in the structure and functioning of the ecosystem) and economic impacts (since individuals do not reach their optimal size).[103]

Peruvian fishing vessels are permitted to catch 10% of juveniles, on condition they notify the authorities of these captures.[104] Prior to 2016, an economic penalty was applied if this percentage was exceeded; however, this incentivised vessels to discard large volumes without reporting them, to avoid economic sanctions.[105] This financial penalty is no longer in force; however, recent analysis of reports, from the introduction of the regulation until July 2019, revealed that the majority of fishing vessels operated by seven major FMFO companies systematically flouted this rule and caught juvenile anchovy above the permitted limit[106] (see more details later in this chapter). The latest report on the situation of the north-central stock of the Peruvian anchovy concludes that, during the summer of 2020, the percentage of juveniles in the biomass was 75%, which aggravates the risk of 'growth overfishing'.[G,107]

Dwindling trust in the regulator

In recent years, the Peruvian Marine Research Institute (IMARPE) has attracted strong criticism over its stock-assessment processes and technical recommendations regarding the opening of the fishing seasons and the value of the 'total allowable catch' (TAC) of anchovy. A key case took place in 2015, when IMARPE supported the opening of the anchovy season based on two indirect evaluation methodologies, discarding the results of an initial hydroacoustic evaluation that had projected a biomass below the reference limits, and would have therefore prevented setting a fishing quota.[108] This reflected strong pressure from the industry to adopt recommendations based on less reliable methods, and contravened the precautionary approach – all the more so as 2015-2016 saw a large El Niño event, which posed a significant additional risk to reproduction of the anchovy population. Another more recent case occurred at the beginning of 2020, where the Ministry of Production (PRODUCE) filed criminal charges against IMARPE officials, accusing them of altering the data to justify an increase in the TAC, for the benefit of the industry.[109]

As a result of such incidents, public confidence in IMARPE's evaluation process has declined. This calls into question IMARPE's centralised structure, which restricts the participation of national or international third parties able to challenge IMARPE's evaluation of biomass with independent scientific studies, and which is characterised by a lack of transparency.

F Proportion of the catch that is thrown into the sea when more than the vessel's hold capacity has been caught.

G A type of overfishing in which individuals are caught at a smaller than optimal size (thus reducing the potential biomass that will result from body growth) and before they reach sexual maturity (thus reducing the potential spawning biomass that will result from the incorporation of these individuals to the parental stock).

BOX 2.2: **Peru's Fisheries Improvement Project (FIP)**

FIPs are a form of private governance that aim to reduce the environmental impacts of fisheries around the world, via policy or practice change, using the leverage of seafood supply chains. This model of governance first emerged in 2007, and has proliferated in recent years.[H]

The basic elements of a FIP are the creation of a stakeholder group to drive the process, preparation of a gap analysis to identify the issues, preparation of an action plan to address these issues and creation of a mechanism for reporting on progress. The goal of a FIP is often, but does not have to be, MSC certification; FIPs can also be created with the aim of achieving, for example, MarinTrust certification (formerly known as IFFO RS). At the outset, FIPs were commonly overseen by NGOs (with WWF and Sustainable Fisheries Partnership being the most prominent); however, over the years there has been a transfer of power from NGOs to the private sector in relation to overseeing and reporting on FIPs.[110]

The Peruvian industrial anchovy FIP (for 'indirect human consumption'; that is, for use as FMFO) was established in January 2017. It was initiated by Skretting and Cargill Aqua Nutrition, and its participants are Sociedad Nacional De Pesquería (SNP), PRODUCE, IMARPE and NGO Centro Desarrollo y Pesca Sustenable (CeDePesca). Both Skretting and Cargill are on the FIP's steering committee. One objective of Peru's FIP is to achieve certifiable status; for example, by the MSC. However, given that the entire catch of the fishery is commoditised for export to the global market as FMFO and used for animal feed (or 'indirect human consumption') rather than feeding people directly, certifying the fishery is in contradiction with the FAO Code of Conduct for Responsible Fisheries, which says that states should encourage the use of fish for human consumption.[111]

There are also a number of criticisms relating to FIPs generally, one of which is the pace of progress. The MSC guidelines for a FIP require '*a pre-determined limit to the amount of time spent as a FIP, which should generally be no longer than five years*'.[112] However, '*this period can be extended if "significant progress is being made" and agreed by project partners*'.[113]

The industrial Peruvian *anchoveta* FIP has been graded as '*advanced progress*', yet at the time of writing, it was several months past its original completion date with just 20% of planned action points completed so far. A number of factors have delayed proceedings including the spread of the Covid-19 pandemic and the IMARPE scandal (see section 3.1.2),[114] which casts doubt over whether it will be completed. However, Ernesto Godelman, executive director of CeDePesca (the organisation leading the FIP), has rejected the allegations regarding collusion between IMARPE and FMFO companies and said the process is progressing quickly.[115]

Given that a key driver of FIPs is market advantage, the risk of greenwash is a legitimate concern, particularly where companies' communications conflate certification with involvement in a FIP. For example, Mowi, the vertically integrated aquaculture company, states in its 2019 annual report that '*96% of [its] marine raw materials were either MSC, IFFO RS certified or part of fisheries improvement projects aimed at achieving the IFFO RS certification*'.[116] This grouping together of certified fisheries and FIPs gives an impression of almost 100% 'sustainable sourcing', but a large proportion of this 96% could actually be in FIPs, and may not ever achieve certified status. Similarly, many supermarket sourcing policies stipulate their farmed fish must be fed using 'sustainable FMFO' – and involvement in an FIP appears to be used as an indicator of sustainability. For example, the UK supermarket Co-op has said its '*preferred standard for marine ingredients is IFFO RS or MSC. In all our aquaculture supply chains, marine feed ingredients are either certified to these standards or* working towards reaching these.'[117]

H In 2019 there were 135 active FIPs listed on the FisheryProgress website www.fisheryprogress.org. Crona, B., Kall, S.K. and Van Holt, T. (2019) Fishery Improvement Projects as a governance tool for fisheries sustainability: A global comparative analysis. *PLoSONE* 14(10): e0223054. [ONLINE] Available at: https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0223054&type=printable

However, although Peru's FMFO industry claims to be operating sustainably, serious irregularities plague the sector – from companies illegally catching juvenile anchovy to the subsequent cover-up of collusion between companies and government-agency officials, widespread underreporting of anchovy catches, and the illegal production of fishmeal by groups with links to criminal gangs. This chapter provides an overview of these worrying practices, which involve major exporting companies with links to European aquafeed giants (as seen in the previous chapter).

2.1. Juvenile fishing scandal

The fishing of juvenile fish is highly problematic because it could make it impossible for fish populations to replenish themselves from one fishing season to the next. When the species fished are from the lower end of the marine food web, it carries the risk of precipitating the collapse of an entire marine ecosystem. Pelagic fish populations – precisely those targeted for FMFO production – are already unpredictable and particularly vulnerable to overfishing, with knock-on effects on wider ocean food webs.[118]

2.1.1. *Juvenile anchovy overfishing*

Recent investigations provide evidence that the Peruvian FMFO industry has indiscriminately caught juvenile fish for many years. Reporting by Mongabay Latam in 2019 showed that Pesquera Diamante, which owns the country's second-largest fishing fleet, recorded landings made up of more than 90% juvenile anchovies – well above the 10% legal limit.[119]

In 2020, Peruvian investigative news outlet *OjoPúblico* revealed that seven major Peruvian FMFO companies – TASA, Austral Group, Diamante, CFG Investment-Copeinca, Exalmar and Hayduk – have also broken the law by overfishing juvenile anchovies since 2016.[120]

In November 2016, the Peruvian government decreed it would not sanction companies that had captured more than the 10% authorised limit of juvenile fish, as long as they reported this to the Ministry of Production (PRODUCE) so they could stop further fishing in the identified area.[121]

However, *OjoPúblico* found that fishing vessels from the seven major FMFO companies systematically flouted this rule and continued operating in zones where they had identified the presence of excess juvenile fish. In total, 85% of the 948 operating vessels caught juvenile fish between November 2016 (when the new decree came into effect) and July 2019, but were not fined by the government.

In addition, almost a quarter of the vessels' catches – quantified in nets cast – contained excess juvenile fish (above the authorised limit) during that period. In the case of Austral Group, for instance, 32.99% of its catch exceeded the juvenile fish limit. This was followed by Diamante (27.38%), Exalmar (23.80%), CFG Investment (23.06%), TASA (22.05%), Hayduk (21.26%) and Copeinca (21.10%) (see Table 2.1).

COMPANY	NUMBER OF VESSELS	TOTAL REPORTED CATCHES	JUVENILE CATCHES UNDER LIMIT	JUVENILE CATCHES OVER LIMIT	PERCENTAGE OF CATCHES ABOVE ALLOWED JUVENILE FISH LIMIT
TASA	49	26,984	21,034	5,950	22.05%
PESQUERA DIAMANTE S.A.	28	13,727	9,969	3,758	27.38%
CORPORACIÓN PESQUERA INCA S.A.C.	27	15,055	11,879	3,176	21.10%
PESQUERA EXALMAR S.A.A.	25	15,308	11,665	3,643	23.80%
CFG INVESTMENT S.A.C.	20	11,478	8,831	2,647	23.06%
AUSTRAL GROUP S.A.A	20	11,244	7,535	3,709	32.99%
PESQUERA HAYDUK S.A.	19	11,906	9,375	2,531	21.26%
TOTAL	188	105,702	80,288	25,414	24.04%

Table 2.1. FMFO companies that reported highest number of catches (nets cast) containing juvenile fish above the legal limit

Source: *OjoPúblico*

As shown in Table 2.2, six of the top ten vessels with excess juvenile catches over this same period belonged to Austral Group. Over half of all catches for one Austral vessel, the *Don Luis*, contained more juvenile fish than legally allowed. Of the remaining vessels, two belonged to Exalmar, one to Diamante and one to Pesquera Capricornio.

VESSEL NAME	REGISTRATION	OWNER	JUVENILE CATCHES OVER LIMIT	JUVENILE CATCHES UNDER LIMIT	TOTAL CATCHES	PERCENTAGE OF CATCHES ABOVE ALLOWED JUVENILE FISH LIMIT
Don Luis	CO-12186-PM	Austral Group S.A.A.	275	255	530	51.89%
Don Victor	CO-13270-PM	Pesquera Exalmar S.A.A.	269	521	790	34.05%
Casaca	CO-12234-PM	Austral Group S.A.A.	259	400	659	39.30%
Don Ole	CO-50608-PM	Austral Group S.A.A.	257	443	700	36.71%
Kiana	CO-18812-PM	Austral Group S.A.A.	249	455	704	35.37%
Maria Pia	CO-15652-PM	Austral Group S.A.A.	248	526	774	32.04%
Nueva Resbalosa	CO-13012-PM	Austral Group S.A.A.	242	320	562	43.06%
Don Roberth	CE-2770-PM	Pesquera Capricornio S.A.	242	511	753	32.14%
Don Alfredo	CO-29856-PM	Pesquera Exalmar S.A.A.	238	478	716	33.24%
Natalia	CO-9906-PM	Pesquera Diamante S.A.	227	411	638	35.58%

Table 2.2. Top ten fishing vessels that reported greatest number of catches (nets cast) containing juvenile fish above the legal limit

Source: *OjoPúblico*

What Lies Beneath: Uncovering the truth about Peru's colossal fishmeal and fish oil industry

In response to the findings, the companies said they had respected the law and warned the authorities when their vessels reported catching juvenile fish in excess of 10%. However, *OjoPúblico* analysed the landing records and found this was not the case.

Lorenzo Macedonio Vásquez, secretary-general of the Chimbote Fishermen's Union (*Sindicato de Pescadores de Chimbote y Anexos*), told Changing Markets the fishing fleets have continued to catch juvenile fish above the 10% permitted allowance, including during the most recent anchovy season, which started on 13 May 2020:

> *"After the previous season failure, the companies and fishermen have been desperate to fulfil their fishing quotas as soon as possible. There hasn't been any real control, that's largely why the companies completed the last fishery season which ended in July 2020 in almost record time.[122] We detected overfishing of juvenile fish in several areas, especially in the south zone, but the government turned a blind eye".*[123]

Romulo Loayza, from the National University of Santa in Nuevo Chimbote, told Changing Markets these practices could lead to the collapse of Peru's anchovy fishery:

> *"There's no doubt that the anchovy fishery will collapse as soon as a similar El Niño event as in 1972 hits us unless we change the way we're managing this resource. I just don't believe IMARPE and their studies about the sustainability of anchovy which is used to determine the fishing quota. There are no independent scientific studies analysing the biomass, and it's impossible to get information from PRODUCE either."*[124]

'A fisherman says: No to the pillaging of anchovy 2019'
© Pierángiela Zafra Saldaña

2.1.2. *Leaked recordings and cover-up*

In early 2020, Peru's FMFO sector was shaken by a scandal over alleged efforts by IMARPE officials to 'inflate' the country's anchovy biomass for the industry's benefit. This meant fishing companies received a higher quota than was legal for the season that started on 13 November 2019.[125] This was shown in audio recordings – recorded secretly between November 2019 and January 2020, and published by Peruvian national newspaper *La República* – revealing collusion between IMARPE officials and senior company executives.[126]

The transcripts of the recordings show that IMARPE inflated the anchovy biomass data and leaked this information to former IMARPE employees who now worked for major Peruvian fishmeal companies, encouraging them to continue catching as much anchovy as possible before the scientific findings came to light and the season had to be closed.[127]

On 7 November 2019, IMARPE stated there was an anchovy biomass of 8.34 million tonnes, allowing PRODUCE to announce a second-season quota of 2.79 million tonnes a few days later. However, according to reports, the actual anchovy biomass was less than 5 million tonnes.[128] As a result, just days into the new season, fishermen were reporting catches constituted of up to 90% juveniles, leading some to call for the season to be suspended.

This prompted protests: Hundreds of fishermen marched from Coishco to Chimbote in early January 2020, calling for the immediate termination of the fishing season and the resignation of the head of PRODUCE, Rocío Barrios.[129]

PRODUCE later claimed IMARPE was fully aware the biomass was heavily made up of juveniles but had altered the data it provided. An email alerted Barrios about this situation, prompting her to organise a scientific expedition from 4–12 January, which confirmed the presence of juvenile anchovy running to 97%.[130] The Ministry then decided to end the second anchovy-fishing season early, on 14 January 2020, with just 36% of the quota caught.

The senior company officials involved in the recordings were from TASA, Exalmar, Diamante and CFG Investment.[131] All four companies are members of SNP, Peru's national fisheries association, and all four operate MarinTrust-certified plants.[132]

A recording on 17 November 2019, for example, shows that TASA, Exalmar and CFG Investment already knew the second season would be closed due to lack of fish. In another recording, on 14 January 2020 (the day the second anchovy season came to a close), two IMARPE officials are heard discussing company representatives asking them for confidential information about the availability of other fish stocks, given that they could not find anchovy.

In March 2020, the Deputy Attorney-General specialising in corruption offences, Yudith Villegas Espinoza, requested the Provincial Criminal Prosecutor of Callao (who is handling this case) investigate the four companies and four senior IMARPE officials, including scientific chief Renato Guevara Carrasco.[133] At the time of writing, the investigation was still ongoing.

2.1.3. *Industry and institutional collusion*

Despite claiming it is willing to investigate these allegations,[134] the industry has made repeated attempts to discredit the findings reported in *La República*, and has blatantly ignored fishermen's warnings. In one particularly shocking case, fishermen were told they would be fired if they refused to resume fishing.[135]

SNP president, Cayetana Aljovín, said it was not uncommon for the anchovy-fishing season to be cut short and that the cause was neither linked to IMARPE nor the result of any wrongdoing, but rather due to 'climatic issues'.[136] She was referring to the arrival following the start of the fishery season of the Kelvin wave– a huge mass of warm water that would have pushed the anchovy to migrate to cooler waters, thereby displacing the adult stock from areas where its presence had been identified.

The Kelvin wave was, indeed, reported to have arrived in Peru in November 2019 after the fishing season started on the 13th of that month.[137] However, an earlier Kelvin wave was reported to have arrived in October, meaning that IMARPE must have been aware of this event and its impact from the start of the fishing season .

In addition, fishermen had warned about the huge presence of juvenile anchovy several months earlier, before the reported arrival of the Kelvin wave. For example, in September 2019, Lorenzo Macedonio Vásquez told a local newspaper there was insufficient anchovy biomass: '*Even the colleagues who went out in industrial vessels say they haven't found anything. It's worrying, hopefully things will change.*'[138]

Vásquez told Changing Markets that no one listened to their warnings and the industry pressured IMARPE to go ahead with the fishing season, rather than stopping operations.

> *"Every year they inflate the stock to benefit fishmeal companies, but there's less and less fish. The whole fishery is at risk of collapsing, things can't continue like this," he said.*

Vásquez said TASA actually ordered its fishermen to stop fishing on 14 December 2019[139] – a decision Exalmar also made in a communique sent to all fishermen working for the company.[140] However, he added that pressure from other companies linked to SNP forced them to reverse their decision and resume fishing:

> *"I was told by CFG [Investment] to head to the fishery ground even before the Ministry of Production announced the decision to open the second anchovy season. This shows the companies are in connivance with the government, not just [that] a few officials in those companies knew beforehand what was happening."*

Not only has Peru's FMFO industry failed to acknowledge any mistakes but CFG Investment also threatened to fire 80 fishermen – including Vásquez – for refusing to continue catching juvenile fish in December, despite it later being confirmed they were correct.[141] CFG Investment, together with its sister company Copeinca, are owned by China Fishery Group and have 16.9% of the Peruvian anchovy quota.[142]

As a result of this crisis, PRODUCE announced reforms to IMARPE's governance[143] that have been opposed by SNP[144] and trade unions linked to the companies.[145] A few weeks after Rocío Barrios announced these measures, the anticorruption prosecutor accused her and five other officials of embezzlement and misappropriating public funds, which she denies and claims is politically motivated.[146]

A source close to the industry, who asked to remain anonymous, told Changing Markets he is not surprised by the industry's strong opposition to the announced reforms due to the conflict of interests between IMARPE and the companies, reflecting the powerful political-industry nexus within Peru's FMFO sector.

2.2. Phantom fishmeal and underreporting of catches

The Peruvian FMFO sector regularly underreports the amount of fishmeal being produced. **Our analysis shows that, during the period 2012–2018, Peru *exported* an average of 931,954 tonnes of fishmeal every year but *produced* 885,663 tonnes per year, resulting in an annual mismatch of some 46,000 tonnes of 'phantom fishmeal' (see Table 2.3).**

This compares with a mismatch of 87,200 tonnes per year for the period 2012–2016 (mentioned in a report by the international marine conservation group, Oceana),[147] suggesting the problem remains. The industry's claims that these variations are due to companies not necessarily selling all their stock the same year they produce it would not explain the consistent gap over so many years.

	2012	2013	2014	2015	2016	2017	2018	ANNUAL AVERAGE 2012–2018
Peru fishmeal exports	1,352,592	866,331	870,146	713,708	644,455	1,041,525	1,034,924	**931,954**
Total fishmeal production	853,602	1,114,185	526,478	852,421	653,036	759,919	1,440,000	**885,663**
Phantom fishmeal	498,990	-247,854	343,668	-138,713	-8,581	281,606	-405,076	**46,291**

Table 2.3. Peru fishmeal exports and production, 2012–2018 (in tonnes)

Source: *Veritrade, PRODUCE[148] and SNP for 2018 production data.[149]*

Historically, fishing vessels supplying anchovies to Peruvian FMFO plants have underreported their catch – and a former senior director of PRODUCE, who requested anonymity, told Changing Markets that this practice is still widespread today:

> *"The scales are manipulated and the authorities turn a blind eye. Port officials receive bribes all the time. One can estimate how much fish a vessel is carrying by looking at its waterline, but what's registered at the wharf as having been unloaded is often much less than the real amount of the fish reported to have been caught", he said.*

Romulo Loayza, from the National University of Santa in Nuevo Chimbote, told Changing Markets that '*underreporting continues to be a big problem. PRODUCE has many inspectors but there's no real control and corruption is rampant. Vessels arrive at port and try to underreport their catch all the time, available statistics aren't real.*'

A fisherman from Peruvian fishing company Pesquera Cantabria, who requested anonymity, also said this practice remains widespread:

> *"When you arrive at the dock they use an electronic scales to weigh the total catch, overseen by an inspector. Our vessel has some 400 tonnes hold capacity, but the next day we arrive full but the inspectors aren't there anymore so the recorded weight is 330, 340, no more. The checks are more rigorous at the start of the fishery season, but not so much later. The company is paying the fishermen with the extra fish they don't declare to the tax authorities."*

In 2010, the International Consortium of Investigative Journalists (ICIJ) and Peruvian investigative group IDL-Reporteros published an investigation showing that, from 2009 to 2011, 630,000 tonnes of anchovy disappeared between the amount declared to inspectors at the plants' wharves and the amount weighed on the factory scales[150] – worth $200 million.[151]

According to the investigation, 52% of fish unloaded in the ports in north and central Peru, where more than 90% of caught anchovy is unloaded, showed discrepancies of over 10% between declared and weighed fish; 27% showed discrepancies of over 20%; and several cases showed differences of over 50%.

ICIJ concluded that industry leaders were among the worst offenders. Of the ten largest fishmeal companies in Peru, all of which are members of SNP, at least eight showed repeated discrepancies between fish declared and fish weighed.

Exalmar was found to be one of the worst offenders, with 88% of the company's landings having irregularities of more than 10%. TASA, Austral Group, Pesquera Cantabria, CFG Investment, Pesquera Hayduk, Pesquera Diamante, and Corporacion Pesquera Inca were also found to have underreported catches; all of these companies are members of SNP and own plants certified by IFFO/MarinTrust.

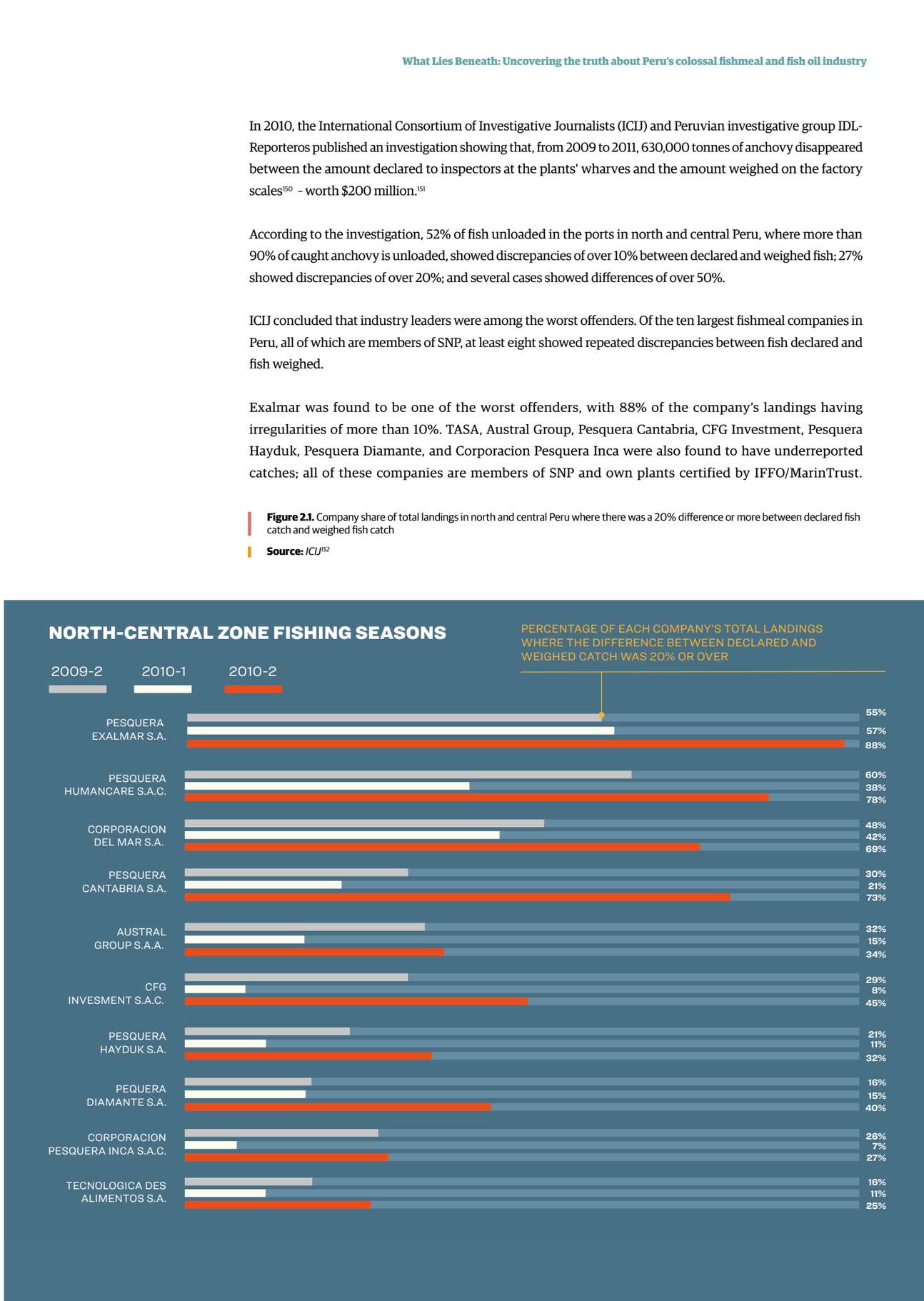


Figure 2.1. Company share of total landings in north and central Peru where there was a 20% difference or more between declared fish catch and weighed fish catch

Source: *ICIJ*[152]

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BOX 2.3: **Pollution and environmental degradation**

The rapid expansion of Peru's FMFO industry has been blamed for major air and water pollution and environmental degradation in areas such as Chimbote, a key hub for fishmeal production and one of the world's busiest fishing ports.[153] Fishmeal factories in Chimbote have been accused of dumping their untreated waste directly into the bay due to lack of water treatment and poor regulations.[154]

Ricardo Ghersi, former adviser to PRODUCE, told the University of British Columbia's Global Reporting Programme in 2019: '*Chimbote has been receiving effluent from the industry for 50 or more years. It has been said that, for the seafloor to go back to what it was, at least 60 or 70 years must pass, and that's with all the contaminant activities disappearing.*'[155]

Grassroots environmental efforts have partly improved the situation. These began in 2014, when locals noticed starving pelicans entering the city in droves. They launched a volunteer organisation, *Chimbote de Pie* (Chimbote Standing Up), to fight back against pollution and force the industry to clean up after itself. This led to important changes, including a centralised pump, which, since 2016, has pushed treated waste six miles further out to sea. However, activists complain effluent is flowing untreated into the bay from smaller factories and illegal fishmeal processors in the area.

According to Yolanda Cadenillas, director of *Chimbote de Pie*, the problems over industrial fishmeal plants' treatment and disposal of wastewater remain. She told Changing Markets that several major fishmeal plants still do not use the centralised pump, since they have to pay a private company – Aproferrol, which manages this service – to do so. She added that local studies conclude pollution of the bay has been reduced by less than 10%, and that companies also dump their waste directly into the local domestic-wastewater system while the authorities decide to ignore this problem.

In October 2020, an investigation by Danwatch, a Danish independent media and research centre, confirmed that Chimbote remains one of the most polluted places in the world. According to Danwatch analysis, data from Copernicus the EU's Earth Observation Programme, which monitors global air quality, showed that air quality in Chimbote was so poor on 212 days in 2019 that it was inadvisable for residents to be outdoors. This is due to air emissions of sulfur, just one of the gases that occur when fish decompose during fishmeal production. Local doctors say the primary health problems caused by toxic emissions from the factories are respiratory diseases – both in children and adults – and residents report that the pollution is so severe that they can even see fish scales in floor sweepings.[156]

Lorenzo Macedonio Vásquez, secretary-general of the Chimbote Fishermen's Union, told Changing Markets that companies generally violate the environmental regulations, sometimes dumping untreated wastewater at night, using the same pipes that feed anchovy into the plants. However, Romulo Loayza, from the National University of Santa in Nuevo Chimbote, told Changing Markets that, even though pollution by smaller and illegal fishmeal plants remains a problem, most large plants treat their wastewater and use Aproferrol.

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2.3. Diverting anchovy from direct human consumption

In February 2019, an Oceana investigation revealed that **150,000 tonnes of anchovy for direct human consumption (DHC) – which is consumed mainly canned but sometimes fresh, frozen or salted – are illegally diverted every year to produce 'dark fishmeal' for animal consumption**. The study identified 62 facilities in central and southern Peru that were allegedly producing fishmeal illegally, taking advantage of an opaque supply chain, lack of controls and widespread corruption among government officials.[157]

A key element identified by the report is a lack of control over landings by Peru's artisanal and small-scale fishing vessels. By law, these fleets can only supply anchovy for DHC, which is then preserved by freezing or canning, although a maximum of 10% of their catches can be used for fishmeal. On the other hand, industrial fishing vessels are only allowed to provide anchovy to be used for fishmeal.[158]

However, Oceana's investigation revealed that anchovy destined for DHC is being directed to fishmeal plants, which are only supposed to process the leftovers of the anchovy (mainly the head, tail and intestines). Experts consulted by Changing Markets agree there is little control over the small-scale artisanal fleets, which are also identified as a major source of anchovy for illegal fishmeal plants operating along the Peruvian coast, with bribes commonly paid to government officials overseeing landings to cover up this practice:

> *"The small-scale/artisanal vessel catch is intended for direct human consumption. However, despite the government's efforts, most of this catch is channelled illicitly to the more profitable fishmeal processing industry. Troubling for the long-term health of this fishery is that poorly regulated small-scale/artisanal vessels normally operate where the bulk of anchovy spawning occurs, and juveniles congregate."*[159]

The vast majority of Peruvian anchovy catches are processed for FMFO. Between 2000 and 2015, according to Oceana, an average of only 1% of total anchovy landings were used for DHC, driven by growing global demand for FMFO,[160] as well as perverse incentives which make it more lucrative for fishing vessels to land anchovy for FMFO than for landing fresh product for DHC.[161] IFFO and other industry players maintain there is little demand for anchovy for DHC, since efforts to encourage consumption have either not been carried out or have largely failed.[162]

However, the UN Food and Agriculture Organisation says there is increasing awareness in Peru about the value of anchovy as a means to alleviate malnutrition and improve diets, highlighting its importance for DHC. It adds that, '*while the industry prefers to maintain its business in fishmeal trade, small-scale fisheries could provide more fish to local markets*'.[163]

This is happening as Peru faces a food security and malnutrition crisis, the impacts of which are especially severe for young children. According to the UN World Food Programme, although chronic child malnutrition has halved since 2007, it continues to affect 13.1% of children under five, with significant differences according to area of residence. This also affects coastal areas – where most FMFO production is concentrated – such as the Ancash region, where the port of Chimbote is located and where 16.1% of children under five (above the national average) were reported to suffer from anaemia in 2017.[164] As an abundant, highly nutritious and affordable fish, anchovy could provide the nutrition many of Peru's children are lacking.[165]

2.4. Illegal FMFO production

Oceana also identified ten illegal, unmarked fishmeal factories in the coastal province of Pisco (southern Peru) with no installation or operating permits, producing 22,000 tonnes of high-protein fishmeal and 5,000 tonnes of fish oil every year, valued at $32 million.[166]

These factories were located in agricultural areas, which are difficult to access and use discarded equipment from more established plants, which have modernised their operations since 2000 in accordance with new

environmental norms. The fish is brought directly from artisanal fishing docks in the district of San Andrés and La Puntilla complex, some 11 kilometres away, and passes through a dozen different intermediaries.

According to Renato Gozzer, a fisheries engineer who co-authored Oceana's investigation:

> *"The intermediaries' world is pretty closed and dangerous. They are very territorial, dividing up the ports and acting like the mafia."*[167]

According to Oceana's report, this fishmeal is then sold internationally through two pathways: First, industrial fishmeal plants that process the catch from large fishing vessels purchase this fishmeal and sell it as their own product; and second, residual fishmeal plants export this directly through brokers who specialise in selling this fishmeal abroad.

Oceana said a lack of capacity and coordination among government institutions is hampering efforts to fight these illegal activities. This is made worse by corruption and lack of political will to act, with government officials sometimes fearing for their lives due to illegal plants' links to criminal gangs.

Oceana also criticised PRODUCE's lengthy and inefficient sanctions procedures, which generate an atmosphere of impunity among the companies behind these illegal activities. For example, the study identified an illegal fishmeal plant that was fined five times between 2012 and 2016 but continued to operate regardless.

2.5. Certification greenwash

This report's findings regarding the scale of illegal practices that plague Peru's FMFO sector call into question the industry's claims to be operating sustainably. Echoing previous research and investigations by Changing Markets, these findings again cast doubt over the rigour and independence of the main certification body for the FMFO sector, MarinTrust (known as IFFO Responsible Supply (IFFO RS) until April 2020). As noted previously in this report, MarinTrust currently certifies 12 Peruvian FMFO producers, which operate fisheries and dozens of factories along the whole length of the Peruvian coastline.

Since opening for application in October 2009, MarinTrust has certified over 150 FMFO plants in more than 20 different countries; over 50% of the world's combined production of marine ingredients is deemed to be MarinTrust compliant.[168] The organisation has its sights set on expansion, and states that its ambition is for 75% of all marine ingredients to be MarinTrust certified by 2025 (including in assessment or in its Improver Program).[169]

MarinTrust claims to be '*supported by NGOs*' and to offer a '*robust, credible and accessible tool that ensures traceability and eliminates IUU [illegal, unreported and unregulated] fishing*'.[170] However, NGOs have repeatedly raised concerns about MarinTrust certification, and its claim to eliminate IUU fishing is not backed up by the evidence. According to previous Changing Markets investigations, FMFO and aquafeed plants with links to highly unsustainable fishing practices are certified by, or members of, MarinTrust.[171]

The Peruvian FMFO industry was closely involved in the development of IFFO and of a certification framework for FMFO, now embodied by MarinTrust. The first elected president of IFFO was from Peru, and Peruvian companies have played a central role in the organisation since fishmeal exporters first came together to form an association in the 1960s.[172]

In November 2019, IFFO RS signed a new agreement with Peru's *Sociedad Nacional de Pesquería (SNP)*.[173] According to an IFFO RS press release, this agreement will result in the two organisations, which have a history of collaboration,[174] '*working more closely together*'. SNP is co-lead of the FIP covering Peru's industrial anchovy fishery; the other lead is CeDePesca.[175]

According to a press release issued at the time, '*IFFO RS want[ed] to recognise the significance of Peru as the global leader of responsibly sourced marine ingredients*'. Libby Woodhatch, executive chair of IFFO RS, is quoted as saying: '*The industry's input is essential to ensure that IFFO RS schemes are robust and up-to-date, and that the standard can grow further. We also need to work collectively to protect the reputation of the industry.*'[176]

IFFO RS certified the first Peruvian fishmeal plant in 2010.[177] Since then, 44 plants across the country, belonging to 12 different companies, have achieved this certification – more than any other place in the world.[178] The companies certified by MarinTrust are:

- TASA (9 plants)
- Austral Group (4)
- CFG Investment (5)
- Compañía Pesquera del Pacífico Centro (2)
- Corporación Pesquera Inca (4)
- Pesquera Cantabria (1)
- Pesquera Capricornio (1)
- Pesquera Centinela S.A.C. (3)
- Pesquera Diamante (5)
- Pesquera Exalmar (5)
- Pesquera Hayduk (4)
- Procesadora del Campo (1)

In terms of governance, MarinTrust is closely linked to IFFO, the trade body that represents FMFO producers. IFFO was officially formed in 2001, but its origins as a trade association representing FMFO producers go back to 1959. Since then, it has become the preeminent trade body for the FMFO sector, systematically promoting FMFO in new markets and for new uses while using its influence and lobbying power to defend the industry from years of accusations of unsustainability. Reputation management takes up a significant part of its budget and, according to IFFO, is '*likely to remain a major priority in the future*'.[179] Both IFFO and MarinTrust are industry-funded, the former through membership fees and the latter through certification fees.

Following IFFO RS's rebrand to MarinTrust in April 2020, MarinTrust executive chair Libby Woodhatch said:

> *"We will continue to work closely together with IFFO. We have an MOU and we do a lot with them, particularly around reputation. [...] It's business as usual. Apart from the name, a new single logo, and a new website, everything remains the same, with the same standards. Those don't change at all."*[180]

Both the current vice-president and former technical director of IFFO sit on the governing body committee of MarinTrust, as do Humberto Speziani (director of TASA, the world's largest fishmeal producer) and Ernesto Godelman (executive director and founder of CeDePesca, the NGO leading the Peruvian FIP process).[I]

I Humberto Speziani was president of IFFO between 2010 and 2011, and later became president of Peru's powerful National Confederation of Private Business (CONFIEP) organisation between 2011 and 2013, as well as part of TASA's management team. As well as sitting on MarinTrust's governing body, he is a member of IFFO's board of directors. IFFO (2019) Annual Report[ONLINE] Available at: https://www.iffo.com/system/files/downloads/IFFO-AnnualReport2019-FINAL.pdf; Ortiz, M. (2013) Los asiáticos insistirán en entrar a la pesca peruana. *El Comercio*, 11 March. [ONLINE] Available at: https://archivo.elcomercio.pe/economia/peru/humberto-speziani-asiaticos-insistiran-entrar-pesca-peruana-noticia-1548578; MarinTrust (2020) *Governing body, MarinTrust*. [ONLINE] Available at: https://www.marin-trust.com/governing-body-composition

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These key players in the FMFO industry sit alongside other representatives from the FMFO and aquafeed sector and salmon-farming companies.[181] Several of the firms represented are also members of IFFO. Given the presence on its governing body of so many individuals with strong vested interests in expanding FMFO certification, MarinTrust's credibility as an independent certification body, free of corporate interference, is implausible.

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3. Covid-19 cover-up

A few days after the World Health Organization declared a global pandemic on 11 March 2020 due to the spread of Covid-19, Peruvian president Martín Vizcarra declared the start of mandatory stay-at-home social isolation for 15 days, which was then extended until June.[182] Although Peru imposed one of the earliest and strictest lockdowns in Latin America to stop the spread of coronavirus, cases rose rapidly. At the time of writing (mid-October 2020), it has the highest coronavirus death rate in Latin America.[J]

Vizcarra emphasised that lockdown measures would not stop essential activities, such as fishing for human consumption, but initially did not include the FMFO sector in the definition of 'essential activities'. Nevertheless, in early May, the Ministry of Production (PRODUCE) announced it would open the first anchovy fishery season on 13 May and set a catch limit of 2.4 million tonnes.

SNP president, Cayetana Aljovín, said fishing activities would be carried out in compliance with a strict health protocol, drawn up in accordance with the guidelines issued by the Ministry of Health and PRODUCE:[183]

> *"The current fishing season will allow fishermen to generate income, it will boost the fishing areas' economy due to its multiplier effect and will contribute to generating the necessary resources so that the state can care for thousands of people who have been affected by Covid-19."*

However, as we will see from our case studies, hundreds of FMFO workers and fishermen were infected by Covid-19 during the fishing season, which ended in late July, as a result of the companies' failure to apply their own safety protocols. Evidence and testimonies gathered in this report also show that at least three companies – TASA (the largest in Peru), Austral Group and Pesquera Cantabria – violated Covid-19 safety regulations by mixing healthy

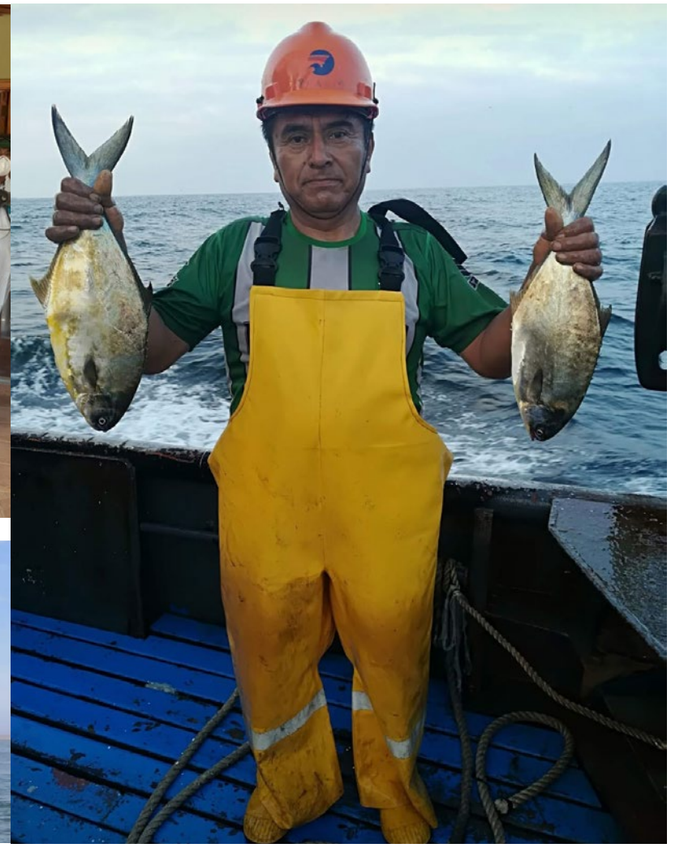
J 104.96 deaths per 100,000 people and one of the highest excess death rates in the world (approximately 860,000 cases of infection and more than 33,000 deaths. RTVE (2020) *España, séptimo país del mundo con más muertos con coronavirus por número de habitantes*, 16 October. [ONLINE] Available at: https://www.rtve.es/noticias/20201016/paises-muertos-coronavirus-poblacion/2012350.shtml; Bel, P.P. and Horton, J.(2020) Coronavirus: What's happening in Peru? *BBC News*, 9 July. [ONLINE] Available at: https://www.bbc.com/news/world-latin-america-53150808; Worldometers (2020) *Coronavirus: Peru*. [ONLINE] Available at: https://www.worldometers.info/coronavirus/country/peru/

and ill workers and not following proper procedures, leading to infections spreading among their workforce.

There is little transparency about the exact numbers of infected fishermen and FMFO-plant workers in Peru. According to the Chimbote Fishermen's Union, at least 12 fishermen died of Covid-19 and another 184 were infected between 13 May (when the anchovy season started) and mid-June 2020 (more than a month before the season ended). They worked for nine Peruvian FMFO companies, including CFG-Copeinca, Diamante, TASA and Austral Group.[184] However, testimonies from fishermen working for FMFO companies suggest these figures are much higher, partly due to a climate of fear among the crews, who were reluctant to denounce the companies and risk losing their jobs.

This chapter focuses on TASA and Austral Group, the practices of which, according to reports from workers and fishermen, led to widespread infections among fishermen and fishmeal-plant workers, many of whom later complained of being abandoned by these companies. In the case of TASA, there is also evidence that it did not report two of its workers' positive Covid-19 tests to the Ministry of Health, suggesting the company is trying to cover up the scale of infections among its workforce.

It is important to note that the findings presented here are just the tip of the iceberg, and that other companies have been accused of similar practices. For example, evidence gathered for this report shows that another Peruvian FMFO company, Pesquera Cantabria, mixed crews and later transfered fishermen from a vessel with infected crew members to another vessel instead of putting them in quarantine, leading to a spread of infections and three deaths across both vessels. We therefore recommend an independent investigation into how the industry dealt with COVID-19.



Carlos Enrique More Amaya (picture above) contracted Covid-19 onboard Austral's Piti vessel in May 2020. He died in June

3.1. Case study: Austral's failure to isolate infected crew members

Austral-employed fisherman Carlos Enrique More Amaya, 56, boarded the company's *Piti* vessel in Callao on 20 May, following a two-week quarantine with fellow crew members in Piura and Lima and a negative Covid-19 test, as per the company's safety protocol. A few days after the boat departed, however, More Amaya reported to his son, Juan Carlos More, that a new crew member – a *motorista*, in charge of running the engine room – who had not been part of the original crew had boarded the vessel. This would have been a violation of Austral's safety protocols, which banned the mixing of crew members.

More Amaya worked closely with this new crew member. On 4 June, he told his son he had started to feel unwell. By this time, the *motorista* had already disembarked due to illness, and on 6 June the crew was told he had tested positive for Covid-19. More Amaya alerted the captain that he, too, was feeling unwell, with a sore throat and a cough; but, according to his son, he was simply given '*some pills*'. He and the rest of the crew continued working, despite Austral's protocol that a vessel must return to port as soon as there was a suspected case onboard.

A later statement from Austral read: '*As soon as our colleague showed symptoms, he was disembarked and taken immediately to the Essalud Hospital in Chimbote for medical treatment.*'[185] However, it wasn't until 12 June that More Amaya was disembarked from the vessel and taken to a local public hospital. A statement from the company indicates that More Amaya was only tested prior to embarkation and not following disembarkation when he was showing symptoms of Covid-19, suggesting it violated its own safety protocol. The company did not contradict the family's claims that it had also broken its own protocol by mixing crew members.[186]

Juan Carlos said the vessel then set off to Lima instead of staying at Chimbote, which also contravened Austral's safety protocol. Our attempts to confirm the vessel's movements via data from the port authority and Peruvian navy have so far been unsuccessful, despite this information being – in theory – publicly available.

More Amaya died on 16 June. His death certificate cited the cause to be '*non-confirmed Covid*' (see Figure 3.1). Austral's failure to test him when he displayed symptoms means that his family will not receive any compensation for his death. Juan Carlos feels resentful over how Austral treated his father:

> *"The company abandoned him, we couldn't get any information from them. Out of desperation, my mother decided to travel to Chimbote and find out where he had been taken. Austral say they did everything they could, but it's not true. The death certificate also says he died of non-confirmed Covid-19 so we won't get any compensation [from the health insurance company contracted by Austral]. My father was afraid of being fired if he didn't go to work, he trusted the company's assurances that he would be safe and now he's dead."*

3.2. Case study: Rise of Covid-19 cases at TASA FMFO plants

TASA, like other Peruvian FMFO companies, is reluctant to publish Covid-19 infection rates and deaths among its workforce. However, evidence gathered by Changing Markets from two of TASA's ten fishmeal plants shows that 76% of workers represented by the company's main trade union (SINTETAS) were infected at the Vegueta plant, while 48% of all workers at the Samanco plant were infected. Both plants are MarinTrust certified.

The spread of infections at the Vegueta plant even prompted protests in the area; locals blocked the main avenue leading from TASA and Hayduk to the fishmeal plants,[187] fearing infections would spread to the community.[188]

A SINTETASA representative, who asked to remain anonymous, told Changing Markets an estimated 70–90% of all of the company's plant workers have been infected, largely due to the company violating its own safety protocols and failing to isolate cases, leading to the mixing of healthy and ill workers. He added that, during an internal meeting in early June, TASA only admitted that 376 plant workers had been infected.

According to TASA's safety protocols, plant workers who test positive for Covid-19 should be quarantined for 14 days (see Figure 3.2).[189] However, the SINTETASA representative said many are only isolated for a few days before returning to work, leading to infection spreading. Evidence gathered by Changing Markets shows one worker, who requested to remain anonymous, was asked to return to work in early July, just eight days after testing positive for Covid-19.

In addition to this, we have seen evidence of two workers whose positive Covid-19 results TASA did not report to the Ministry of Health. This suggests TASA is failing to report the true scale of infections among its workforce, which other witnesses said is also happening at other Peruvian FMFO plants.

In early June, SINTETASA and five other major trade unions – including one representing workers from CFG Investment and another representing TASA's fishmeal plant in Samanco, where a worker called Pablo Eusebio Ortega (63) died of Covid-19 in early June, a few days after falling ill[190] – signed a petition denouncing the widespread Covid-19 cases and calling for the immediate suspension of the anchovy season, which had started on 13 May. The petition stated:

> *"preventative quarantine, testing and other health protocols aren't being carried out with sufficient rigour. Our request [to tackle this issue] was ignored and instead yielded to pro-business interests and pressure from the SNP to restart the fishery season irresponsibly. We're now regretting the loss of human lives due to blind greed and a drive to make money, that doesn't respect the Covid-19 health emergency."* [191]

Similarly to Austral Group, infected TASA plant workers have also reported the company abandoning them once they tested positive, and failing to provide them with basic medical care. One of these workers, José Jhony Idrogo Blanco, complained on social media that no one from TASA answered his calls and that they ignored his requests to be tested for Covid-19, despite showing symptoms, forcing him to buy his own medicines.[192]

CERTIFICADO DE DEFUNCIÓN GENERAL

El que suscribe certifica: SOLO CONSTATAR LA DEFUNCION

1. IDENTIFICACIÓN DEL FALLECIDO

1.1 Condición de Identificación:	PERSONA IDENTIFICADA
1.2 Documento de Identidad:	DNI/LE 02769017
1.3 Prenombres:	CARLOS ENRIQUE
1.4 Primer Apellido:	MORE
1.5 Segundo Apellido:	AMAYA
1.6 Sexo:	MASCULINO 1.7 Edad: 56 AÑOS Aprox. 1.8 Nacionalidad: PERUANA

2. DATOS DEL FALLECIMIENTO

2.1 Fecha:	18/06/2020 2.2 Hora: 16:10:00 Aprox. Aprox.
2.3 Sitio de ocurrencia:	ESTABLECIMIENTO DE SALUD - HOSPITAL III CHIMBOTE - AV CIRCUNVALACION N° 119 - LADERAS DEL NORTE - AMERICA / PERU / ANCASH / SANTA / CHIMBOTE
2.4 Causa básica del fallecimiento:	COVID-19 VIRUS NO CONFIRMADO

3. DATOS DEL PERSONAL DE LA SALUD QUE CERTIFICA LA DEFUNCIÓN

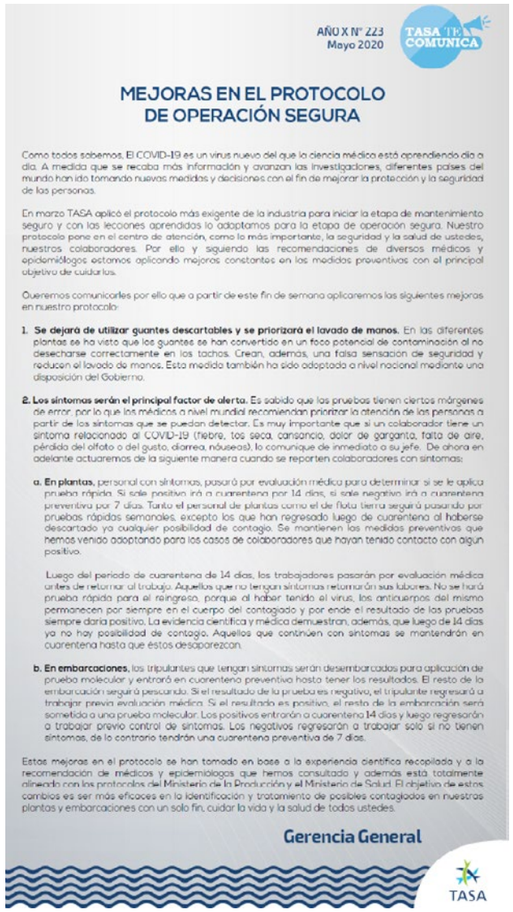
3.1 Documento de Identidad:	DNI/LE 47092765
3.2 Prenombres:	ESTEFANI ARIADNE
3.3 Primer Apellido:	VICENCIO
3.4 Segundo Apellido:	RAMIREZ
3.5 N° de registro del colegio profesional:	081497 3.6 Profesión: MEDICO
3.7 Sitio y fecha de certificación:	HOSPITAL III CHIMBOTE - 18 DE JUNIO DE 2020

Dra. Estefani A. Vicencio Ramirez
MÉDICO CIRUJANO
CMP. 081497
Sello y firma del profesional

Huella Dactilar del profesional

Figure 3.1. Death certificate of Carlos Enrique More Amaya, showing he died of 'non-confirmed Covid'

Source: *Personal correspondence with Changing Markets*



AÑO X N° 223
Mayo 2020

TASA TE COMUNICA

MEJORAS EN EL PROTOCOLO DE OPERACIÓN SEGURA

Como todos sabemos, El COVID-19 es un virus nuevo del que la ciencia médica está aprendiendo día a día. A medida que se recaba más información y avanzan las investigaciones, diferentes países del mundo han ido tomando nuevas medidas y decisiones con el fin de mejorar la protección y la seguridad de las personas.

En marzo TASA aplicó el protocolo más exigente de la industria para iniciar la etapa de mantenimiento seguro y con las lecciones aprendidas lo adaptamos para la etapa de operación segura. Nuestro protocolo pone en el centro de atención, como lo más importante, la seguridad y la salud de ustedes, nuestros colaboradores. Por ello y siguiendo las recomendaciones de diversos médicos y epidemiólogos estamos aplicando mejoras constantes en las medidas preventivas con el principal objetivo de cuidarlos.

Queremos comunicarles por ello que a partir de este fin de semana aplicaremos las siguientes mejoras en nuestro protocolo:

1. **Se dejará de utilizar guantes descartables y se priorizará el lavado de manos.** En las diferentes plantas se ha visto que los guantes se han convertido en un foco potencial de contaminación al no desecharse correctamente en los tachos. Crean, además, una falsa sensación de seguridad y reducen el lavado de manos. Esta medida también ha sido adoptada a nivel nacional mediante una disposición del Gobierno.

2. **Los síntomas serán el principal factor de alerta.** Es sabido que las pruebas tienen ciertos márgenes de error, por lo que los médicos a nivel mundial recomiendan priorizar la atención de las personas a partir de los síntomas que se puedan detectar. Es muy importante que si un colaborador tiene un síntoma relacionado al COVID-19 (fiebre, tos seca, cansancio, dolor de garganta, falta de aire, pérdida del olfato o del gusto, diarrea, náuseas), lo comunique de inmediato a su jefe. De ahora en adelante actuaremos de la siguiente manera cuando se reporten colaboradores con síntomas:

   a. **En plantas,** personal con síntomas, pasará por evaluación médica para determinar si se le aplica prueba rápida. Si sale positivo irá a cuarentena por 14 días, si sale negativo irá a cuarentena preventiva por 7 días. Tanto el personal de plantas como el de flota tierra seguirá pasando por pruebas rápidas semanales, excepto los que han regresado luego de cuarentena al haberse descartado ya cualquier posibilidad de contagio. Se mantienen las medidas preventivas que hemos venido adoptando para los casos de colaboradores que hayan tenido contacto con algún positivo.

      Luego del periodo de cuarentena de 14 días, los trabajadores pasarán por evaluación médica antes de retornar al trabajo. Aquellos que no tengan síntomas retomarán sus labores. No se hará prueba rápida para el reingreso, porque al haber tenido el virus, los anticuerpos del mismo permanecen por siempre en el cuerpo del contagiado y por ende el resultado de las pruebas siempre daría positivo. La evidencia científica y médica demuestran, además, que luego de 14 días ya no hay posibilidad de contagio. Aquellos que continúen con síntomas se mantendrán en cuarentena hasta que éstos desaparezcan.

   b. **En embarcaciones,** los tripulantes que tengan síntomas serán desembarcados para aplicación de prueba molecular y entrará en cuarentena preventiva hasta tener los resultados. El resto de la embarcación seguirá pescando. Si el resultado de la prueba es negativo, el tripulante regresará a trabajar previa evaluación médica. Si el resultado es positivo, el resto de la embarcación será sometida a una prueba molecular. Los positivos entrarán a cuarentena 14 días y luego regresarán a trabajar previo control de síntomas. Los negativos regresarán a trabajar solo si no tienen síntomas, de lo contrario tendrán una cuarentena preventiva de 7 días.

Estas mejoras en el protocolo se han tomado en base a la experiencia científica recopilada y a la recomendación de médicos y epidemiólogos que hemos consultado y además está totalmente alineado con los protocolos del Ministerio de la Producción y el Ministerio de Salud. El objetivo de estos cambios es ser más eficaces en la identificación y tratamiento de posibles contagiados en nuestras plantas y embarcaciones con un solo fin, cuidar la vida y la salud de todos ustedes.

Gerencia General

TASA

Figure 3.2. TASA safety protocol, stating that plant workers testing positive for Covid-19 are required to quarantine for 14 days

Source: *TASA*

What Lies Beneath: Uncovering the truth about Peru's colossal fishmeal and fish oil industry

Figure 3.2. TASA safety protocol, stating that plant workers testing positive for Covid-19 are required to quarantine for 14 days

Source: *TASA*

At the time of writing, SUNAFIL – Peru's national labour inspection agency, in charge of overseeing the implementation of safety protocols and protecting workers – has neither issued any fines nor investigated any Covid-19-related cases. This is despite evidence, seen by Changing Markets, of at least two official complaints from fishermen who worked in vessels where crew members were confirmed to have died of Covid-19. SUNAFIL has not replied to repeated requests for information about the Covid-19 cases.

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4. Conclusion

This report has focused on the world's biggest supplier of wild-caught fish to the global feed and farming sectors, Peru, whose FMFO sector has become one of the country's flagship industries and is often paraded by those with a commercial interest in it as a model of sustainability. Peru plays such an important role in the global supply of FMFO that some have compared its level of market influence to that of Saudi Arabia as a swing producer of crude oil.

The findings presented here are deeply concerning, and should come as a wake-up call to the Peruvian government and to international companies – aquafeed producers, fish-farming companies and retailers – that source from Peru. Despite Peru's anchovy fishery currently being the biggest fishery in the world – in 2018, the country landed an astonishing 6 million tonnes of *anchoveta*, equivalent to nearly one-tenth of global marine-capture production – ecosystem impacts are not given adequate consideration when *anchoveta* quotas are set, and there is no strategy to do so in the near future. This failing is compounded by accelerating climate change effects, which will have a major bearing on the future health of global fisheries. Experts interviewed for this report expressed deep concerns over the sustainability of the *anchoveta* fishery, and recent reports of fishing vessels returning to ports with large (illegal) catches of juvenile fish add to these concerns.

In addition to the negative impacts on the marine ecosystem of taking such huge amounts of fish out of the ocean, the commoditisation of Peruvian anchovy has incurred a significant social cost, in terms of both poorer nutrition and an industry that pays scant regard to the welfare of its workforce – as highlighted by its recent track record on the Covid-19 crisis.

The systematic overfishing, ecosystem destruction and environmental degradation documented here lay to rest any notion that this industry is sustainable. What is more, extreme El Niño events – which have already precipitated the periodic collapse of *anchoveta* stocks in the past – are expected to become more frequent, as global temperatures rise with the acceleration of climate change.[193] While the full scale of impacts is difficult to predict, major regime shifts in fisheries and an overall decrease in plankton abundance[194] in the Humboldt Current System would have disastrous effects on *anchoveta* populations. In light of these pressures and the shocking persistence of malnutrition in Peru, we conclude – along with scientists, Peruvian civil society organisations and, increasingly, fishermen themselves – that current fishing practices, specifically the industrial fishing fleet's plundering of *anchoveta* stocks, cannot be sustained.

This report has also described the supply-chain links that connect Peru's FMFO producers to customers on the global market. Focusing on European producers – among them the biggest players in the global aquafeed sector, which, in turn, supply multinational fish-farming companies and major retailers – we have uncovered the central role of Scandinavian corporate interests, specifically Norwegian-owned feed and farming companies, in fuelling demand for Peruvian FMFO.

Peruvian export data and figures reported by feed and farming companies show how reliant the industry is on FMFO from Peruvian anchovy. In 2019, Norwegian farming and feed giant Mowi, the world's largest producer of farmed Atlantic salmon, sourced 40.2% of its fish oil from *anchoveta* fished in Peruvian and Chilean waters.[195] Mowi supplies farmed salmon to some of Europe's biggest supermarket chains, as does its competitor Lerøy, which sourced over one-quarter (26.4%) of its fish oil from Peru in 2019.[196] Like its sister company, Austral, Lerøy is a subsidiary of Norwegian seafood giant Austevoll, one of the largest fishing groups in the world. BioMar, a major global supplier of aquaculture feeds based in Denmark, also imported significant quantities of FMFO from the Peru/Chile catch region in 2019.[197]

Analysis of publicly available trade data and corporate reports can only take us so far, however, and the picture we have presented here simply provides a snapshot of industry dynamics and FMFO flows. As we have shown in previous investigative reports,[198] mapping the supply chain of FMFO used in aquaculture is a highly complex undertaking. From fishery to fork, it involves multiple different stages: fishery, FMFO plant, aquafeed producer, aquaculture farm, seafood processor, distributor, retailer and, potentially, many intermediaries in between.[199] This complexity, combined with a lack of transparency and corporate accountability, makes proper external scrutiny almost impossible, and masks the full scale of social and environmental problems in aquaculture supply chains from the consumer.

Finally, this report has highlighted the failings of the main certification body for the FMFO sector: MarinTrust, formerly known as IFFO Responsible Supply (IFFO RS). It has shown that certifying Peruvian FMFO as sustainable is nothing less than corporate greenwash, given that the body has not hesitated to certify companies involved in highly unsustainable practices, ranging from overfishing juveniles and underreporting fish catches to colluding with Peruvian regulators to benefit from an inflated anchovy quota. With FMFO producers and feed companies keen to secure Marine Stewardship Council (MSC) certification to improve their corporate image and cement their access to the global market, it is time for a reality check: It makes no sense – from either an ecological or a social perspective – to certify fisheries that supply the global feed sector. Using wild-caught fish to feed farmed fish is an inefficient use of protein and a scandalous waste of precious natural resources. The MSC must explicitly rule out certifying this fishery (and any other fishery not destined for human consumption), and retailers and aquafeed companies must withdraw their support for MarinTrust, or risk enduring reputational damage.

This report sends a call to action to:

- **The Peruvian government,** which must:
  - Crack down on unsustainable practices in the industrial *anchoveta* fishery and conduct a thorough public investigation into collusion between the government regulator (IMARPE) and corporate executives in the fisheries and FMFO sector, taking meaningful action to hold corrupt officials to account.
  - Continue with its plan to reform IMARPE.
  - Introduce a precautionary and ecosystems-based approach to managing the Peruvian anchovy fishery that also takes into account the future (and highly uncertain) impacts of climate change.

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- **The Marine Stewardship Council,** to rule out certification of the Peruvian industrial anchovy fishery on the grounds that fisheries for 'indirect human consumption' are inherently unsustainable and therefore uncertifiable.
- **Aquaculture sector,** to phase out the use of FMFO, given the significant negative environmental and social impacts of the industry.

Recommendations

Eliminating the use of wild-caught fish to feed farmed fish, and the related social and environmental impacts of the FMFO industry documented in this report, will require the involvement of a range of different actors, including aquafeed producers, aquaculture companies, certification schemes, retailers, policymakers and consumers.

Aquafeed industry

- **Stop sourcing FMFO.** Commit to completely phasing out the use of FMFO sourced from wild-caught fish, including setting a date to achieve this target of no later than 2025.
- **Switch to more sustainable alternatives.** While some companies are taking action to reduce reliance on forage fish in their aquafeed, the use of FMFO needs to be phased out across the entire industry for transformational change to take place. Companies should also stop using FMFO to feed other animals, such as pigs, chickens and mink.
- **Ensure alternative feed sources do not give rise to other ecological problems.** It is critical that the industry understands and minimises negative impacts linked to other sources of feed; for example, there are huge environmental and social problems linked with expansion of soy-bean and palm-oil production, which are currently not sufficiently addressed by any existing sustainability initiatives.[K]

Aquaculture industry (fish farms)

- **Stop buying feed that contains FMFO, and actively communicate this requirement to feed companies.**
- **Prioritise cultivating species that do not require feed (e.g. molluscs), require fewer inputs (e.g. tilapia) or can be fed an entirely vegetarian diet (e.g. carp).** For species that require feed, push aquafeed producers to provide genuinely sustainable alternatives to aquafeed containing FMFO, and be willing to share the additional cost such alternatives may entail.

K We explored the problems with numerous voluntary initiatives and certification schemes (including MSC and Roundtable for Sustainable Palm Oil) in detail in our previous report: Changing Markets Foundation (2018) *The false promise of certification*. [ONLINE] Available at: http://changingmarkets.org/wp-content/uploads/2018/06/THE_FALSE_PROMISE_OF_CERTIFICATION_FINAL_WEB.pdf

Certification schemes

- **Reduction fisheries should not be certified.** Certifying reduction fisheries gives a false impression that exploiting wild-caught fish for use in FMFO can be sustainable. Wild-caught fisheries certification schemes, such as the MSC, should refrain from or stop certifying fish that is not used for direct human consumption, while aquaculture certification schemes should only certify farmed fish not reliant on the use of wild-caught fish.

Policymakers

- **Implement stricter regulations on due diligence and transparency in aquafeed supply chains.** Strengthen governance frameworks to eliminate illegal, unregulated and unreported fishing and slave labour, prevent overfishing, and enhance transparency and reporting in global fisheries supply chains.
- **Develop guidelines for sustainable feed ingredients.** Support the development of alternative feed industries, and provide incentives for a transition to more sustainable ingredients. Encourage a range of alternatives to whole wild-caught fish that do not result in the destruction of natural habitats and ecosystems, as well as other innovative and truly responsible approaches.
- **Support the phase-out of whole wild-caught fish for use in aquafeed.** This must include stopping subsidising, or otherwise supporting, aquaculture that relies on wild-caught fish.

Retailers

- **Stop sourcing farmed fish fed using FMFO, and actively communicate this requirement to feed companies.**
- **Commit to completely phasing out the use of FMFO sourced from wild-caught fish in the aquaculture supply chain, including setting a date to achieve this target of no later than 2025.** Put in place a roadmap for eliminating the use of FMFO in products stocked, and conduct regular audits to ensure this is being implemented.
- **Commit to eliminating seafood cultivated using FMFO and offering a wide range of alternative seafoods.** Such alternatives should include a greater diversity of sustainably caught wild fish, and aquaculture products produced without the use of FMFO, that can deliver the same key nutrients as mass-marketed farmed seafood, such as salmon, sea bass and prawns.
- **Adopt high standards of transparency and corporate policy on suppliers.** This should include full disclosure of suppliers – from source fisheries upwards.
- **Reduce reliance on certification as a proxy for sustainability**. This can be done by developing independent, robust and transparent standards for sustainably produced seafood, including farmed seafood.

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Consumers

- **Diversify consumption of seafood to include fewer species reliant on feed containing FMFO – especially carnivorous farmed species, such as salmon and prawns.** Through their purchasing decisions, consumers have an opportunity to send a clear message to the industry that they care about the impacts reduction fisheries have on people and the environment. They can do so by opting for species not cultivated using FMFO and reducing consumption of unsustainable farmed-seafood products.
- **Show companies they must take action by contacting retailers.**

For more information about our ongoing campaign and what action you can take, check: www.fishingthefeed.com

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