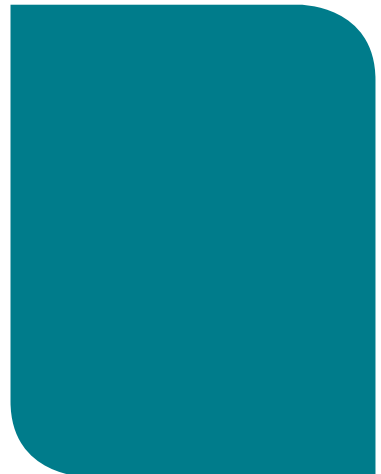


thrive™



Cargill Aqua  
Nutrition  
Sustainability  
Report  
2017





## ABOUT US

**Cargill Aqua Nutrition is a world leader in aquaculture feed and nutrition. To deliver on our promise of healthy seafood for future generations, we commit to support the sustainable growth of the global aquaculture industry by creating better operations in a better workplace with better supply chains.**



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### INTERACTIVE PDF NAVIGATION



This interactive PDF allows you to easily access the information that you want. The contents page is clickable and takes you to the required page or section. Links are otherwise recognizable by an underline.

The menu icon above takes you back to the contents page.

Throughout the report there are links to web addresses for additional information.



## 2017 in Brief

Some key figures from our 2017 production of nearly 1.5 million tonnes of aquaculture feed.



70

Across our 33 feed mills and offices, 70% of our sites were **incident free**.



30

Over **30 species** were fed 1,490,000 tonnes of feed from our facilities.

68

Manufacturing the feed produced an average of **68kg CO<sub>2</sub>eq/tonne** (Scope 1&2).



0.15

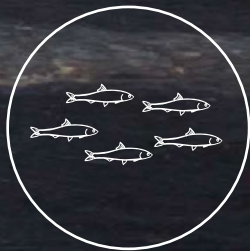
Our **serious incident frequency rate** was 0.15 per 200,000 hours worked.

700

In 2017, all of our more than **700 suppliers** signed our **Supplier Code of Conduct** or provided evidence that they adhere to the same principles.

29

29 of the 120 **fisheries** we source from have Marine Stewardship Council (MSC) certification. An additional 24 are working towards this.



30%

Nearly 30% of the tonnage of raw materials we used to make feeds was by-products from agricultural, industry or fishery processes making food for direct human consumption.



## PRESIDENT'S LETTER

# Healthy seafood for future generations

We deliver on our commitment to widen our reporting and build transparency and trust across our value chain.

Since Cargill acquired EWOS in 2015, we have worked purposefully to broaden the scope of our sustainability reporting. I am proud to look back at 2017 and be able to say that we now report on all 17 of Cargill Aqua Nutrition's dedicated feed mill facilities across 12 countries. This covers about 80% of Cargill's aquafeed production footprint – the remainder coming from multi-purpose mills. After more than a decade of reporting on the sustainability of our salmon feed, we now address feed for shrimp, tilapia and over 30 other species, supporting our customers with sustainability insights and addressing impacts across the value chain.

In 2017 we reached an important milestone in our sourcing policy as nearly all of our 700 raw material suppliers signed the Cargill Aqua Nutrition Supplier Code of Conduct. The Code lays out our expectations of suppliers with respect to key aspects of environmental and social impacts and responsibilities of their business. Human rights throughout our supply chain are particularly important and we engage with our suppliers to ensure they share our focus and perspective. In Thailand our membership in the Seafood Task Force is helping to address the specific concerns in local fisheries.

In addition to increasing efficiencies and driving sustainability through our supply chains, I will say that managing risk is a key success factor for Cargill Aqua Nutrition, and one of the most exciting elements of being part of Cargill. To help with this, we are constantly working to expand our raw material basket and add new raw materials to it. This year we are supporting HATCH, a startup accelerator program to support early stage entrepreneurs in getting their aquaculture innovations to market.

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“I am proud to say that we now report on all 17 of Cargill Aqua Nutrition's dedicated feed mill facilities”

This year's sustainability report once again follows the value chain – addressing better seafood, better workplace, better operations and better supply chain. It will set a baseline for future sustainability targets, but we can already see that our suppliers are increasing their sustainability commitments, with 29 fisheries currently holding MSC certifications and 24 more working to achieve this (45% of the fisheries we used). Our worker safety record continues to improve and our actions to ensure safety are now influencing customers, who increasingly look to us for leadership in this respect.

With our continued focus on waste within our own operations, especially plastic, I am also pleased to report that we are recycling about 70% of our waste, a number we seek to increase. Whilst our overall waste production is relatively small, we are keen to play our part. Looking downstream, our customer focus has led to an expansion of our functional feed portfolio globally. Improved salmon feeds are helping customers to meet health challenges,



and the concept of functional feeds is rapidly gaining support in shrimp farming. In 2017, 13% of our total feed sales supported fish health, enabling farmers to reduce reliance on medications, including antibiotics, and maintain the health and welfare of their stocks.

Cargill is working to nourish the world in a safe, responsible and sustainable way. Cargill Aqua Nutrition is focused on the supply of “healthy seafood for future generations”. This is an ambitious vision and we cannot achieve it alone. Only through collaborations can we understand and work to solve the global food supply challenges. We continue to partner with stakeholders throughout the value chain, such as Seafood Task Force, the Global Salmon Initiative, Seafood Business for Ocean Stewardship, WWF and others, and we are committed to working to support the global United Nations Sustainable Development Goals.

Our ambition is to lead a global transformation towards sustainable seafood production and a healthy ocean. To support this, we are making demanding commitments going forwards, which will create strong positive impacts.

**Einar Wathne**  
President  
Cargill Aqua Nutrition

## MORE sustainable growth

### MORE facilities

2017 sees the expansion of our sustainability report from our salmon feed facilities to all of our dedicated aqua feed facilities and products.

### MORE species

The 2017 report is our first comprehensive sustainability report covering salmon, shrimp, tilapia and other species.

### MORE transparency

With broader coverage comes increased supply chain transparency, underlying Cargill's commitment to lead in sustainable supply chains globally.

### MORE trust

Sustainability insights are crucial to inspire change, establish best practices and, ultimately, for the aquaculture industry to earn the trust of consumers globally.

## Clear commitments

In addition to Cargill's corporate sustainability commitments (see [cargill.com/sustainability](http://cargill.com/sustainability) for more details), Cargill Aqua Nutrition strengthened its own commitments in the following areas:



#### Climate change

By 2020, reduce relative greenhouse gas emissions (scope 1 and 2) by 20%



#### Deforestation

By 2020, source all soy products from supply chains that meet FEFAC benchmarked certifications.

By 2020, only source palm oil products audited to RSPO or equivalent



#### Marine ingredients

By 2020, source all marine ingredients from IFFO RS certified factories

By 2025, only source MSC certified marine ingredients



# Our company and offering

Cargill Aqua Nutrition (CQN) is Cargill's global leader in aquafeed and nutrition. We operate within Cargill Animal Nutrition, one of Cargill's five operating units.

**Cargill** provides food, agriculture, financial and industrial products and services to the world. Together with farmers, customers, governments and communities, we help people *thrive* by applying our insights and 150 years of experience. We have 150,000 employees in 70 countries who are committed to feeding the world in a responsible way, reducing environmental impact and improving the communities where we live and work.

**Cargill's animal nutrition business** has more than 20,000 employees at more than 275 facilities in 40 countries. Fuelled by our innovation and research, we bring a range of products and services to feed manufacturers, animal producers, and feed retailers helping put food on the plates of nearly one billion people around the world every day. On offer is a range of compound feed, premixes, feed additives, supply chain and risk management solutions, software tools and animal nutrition expertise that is unmatched in the industry.

**Cargill's aqua nutrition business** aims to support the growth potential for global seafood consumption through aquaculture and create new opportunities for customers, suppliers and employees alike. We do this through leveraging the scale and scope of Cargill's capabilities such as risk management and trading, market insights and innovation and working with sustainable supply chains.

CQN has a global reach, with 6 regional businesses operating in Chile, North Sea, North America, LATAM North, Asia North and Asia South. In total we have 40 facilities in 20 countries, but only 17 of these facilities in 12 countries are dedicated to aqua feed production, with 3 more coming in 2018. It is on the latter group that this report is focussed. CQN offers a wide portfolio of solutions for aquaculture producers through the Cargill and EWOS brands. Salmon and shrimp feeds represent the largest share of our production by volume, but feed is also supplied for other species, especially tilapia.

## FACTS

**984,638**

TONNES OF SALMONID FEED PRODUCED IN 2017

**505,739**

TONNES OF WARM WATER FEEDS PRODUCED IN 2017

**1,490,377**

TONNES OF AQUA FEED PRODUCED IN 2017

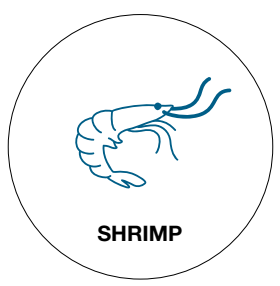
**3.7%**

OF GLOBAL AQUAFEED PRODUCTION



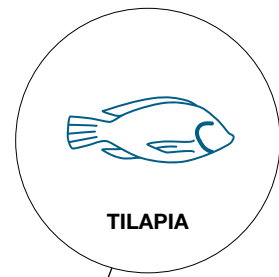
**SALMON**

Our scientifically validated feed for salmon delivers healthy fish throughout the lifecycle and productive farms.



**SHRIMP**

The quality of our shrimp feeds helps to improve healthiness and yield the highest weight gain in the shortest time.



**TILAPIA**

We go beyond feed production to offer tilapia farmers technical support, helping our customers to *thrive*.

## Products and Solutions

An increasing proportion of our sales go to market under the EWOS brand. Representing quality products and a strong focus on sustainability, EWOS is a trusted brand in aquaculture. State of the art research facilities and an effective manufacturing and distribution footprint enable our exciting technologies to be transferred between aquaculture species and markets. A great example of this is the EWOS COMPASS solution that enables salmon feed offerings to be adapted to a range of production scenarios and customers' individual needs. This approach to feed design has been successful in salmon markets and is currently being adapted for shrimp, too.

Recently, the EWOS brand was introduced in India for the distribution of extruded feeds for warm water fish species, alongside the opening of our new plant in Vijayawada. Later in 2018, the brand will be introduced in Ecuador, alongside the opening of our new, state of the art feed plant in Guayaquil.

### WHY CQN?

#### EXPERIENCE

EWOS has been in the aqua feed market for almost 80 years, and Cargill has 120 years of experience in animal nutrition

#### PARTNERSHIP

we work throughout our value chains to create mutual success, promote transparency and thus earn trust

#### PERFORMANCE

excellent biological and financial performance, documented to earn customers' trust

#### FISH HEALTH AND WELFARE

we deliver products that support the overall health and welfare of farmed seafood

#### SERVICE

we add value to feed products for our customers through extended service and support



OUR APPROACH AND IMPACT

# Better practices and satisfied stakeholders



We leverage our core capabilities

and sustainable practices

## Our five core capabilities

**REFLECT WHAT WE DO BEST:**

**Trading and Risk Management**  
Leveraging our insights to capture value for our customers

**Sustainable Supply Chains**  
Meeting the needs of both today and tomorrow to nourish a growing global population

**Digitalization and Analytics**  
Harnessing new technologies and big data to deliver powerful insights

**Market Insights and Innovation**  
Anticipating the future needs of the market and consumers and transforming our business to meet them

**Thought Leadership and Stakeholder Engagement**  
Driving the conversation on issues key to consumers in order to prompt bold actions

## Better Seafood

Our nutritionists work to optimize the diets we sell, providing the nutrients required by the fish for healthy, vigorous growth, balanced to reduce waste. We also provide a range of functional feeds to help the fish face environmental and health challenges in the farming environment.



## Better Workplace

Cargill is committed to safety. From constructing new facilities to the daily running of our business, we put safety before profits. Across our operations we run regular training and awareness programs and develop a culture of safety for everyday life, which has inspired our suppliers and our customers.



## Better Operations

Our operations affect global and local communities. We are working to better assess our raw materials and to minimize our process energy use in order to reduce greenhouse gas emissions. Other emissions and effluents from factories are controlled to reduce local impacts.



## Better Supply Chains

Raw materials count for more than 85% of our environmental footprint. We work with our suppliers to address the challenges, focusing particularly on marine ingredients, soy and oil palm. More broadly, we are developing novel raw materials and new tools that enable us to widen our raw materials basket.





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We bring innovative feed and nutrition solutions to customers in leading markets around the world. Most of our feed is for salmonids, shrimp and tilapia, but we supply feed for more than 30 species globally.

to create value around the world



### Customers and Consumers

We have improved nutrient resource efficiencies and developed functional feeds. This has reduced the impact of waste and disease on seafood producers. By controlling the nutrients fed to the fish, we support the delivery of safe, healthy and delicious seafood to consumers worldwide.



### Employees

Everyone goes home safely. That is our goal. Our safety culture has spread across our company, from the factory floor to the commute home – for both employees and contractors. Incident rates are above our ambitious targets and are we already taking actions to correct this.



### Communities

We strive to be a good neighbor, not just a compliant one. This involves minimizing any negative impacts in the proximity of our operations, while engaging with local communities to support their economic development, improve education and conserve resources.



### Suppliers

Engagement with suppliers drives our access to sustainable raw materials and our Supplier Code of Conduct lays out our expectations. Fisheries have joined improvement programs and soy processors are working with their suppliers on certification schemes. We are engaging on multiple levels to grow our feed production sustainably.

# Global challenges

## Population growth

### THE GLOBAL POPULATION IS GROWING

World population growth is forecast to continue until 2050, reaching 9-10 billion people. The strongest growth is expected in Asia and Africa, and two out of three people will live in cities globally.

## Healthy and sustainable food

### DEMAND FOR HEALTHY, SUSTAINABLE FOOD IS RISING

Food production must increase to feed the growing population and those currently under-nourished.

Food systems must at the same time use resources more efficiently to stay within planetary boundaries and meet consumer values.

## Sustainable development

### TECHNOLOGY ACCELERATES CHANGE

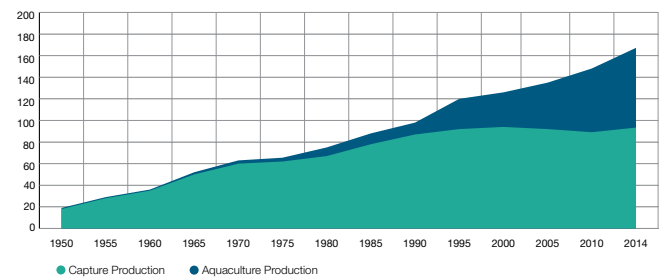
We can now capture, store and analyze more data than ever before. Along with sensor technologies and machine learning, this capability will help smarter food production, increasing resource efficiency and enabling transparency.

# Market needs

We supply feeds to customers who cater to global markets. Understanding market demands is essential to meeting our customers' needs and helping them achieve success.

### WORLD CAPTURE FISHERIES AND AQUACULTURE PRODUCTION

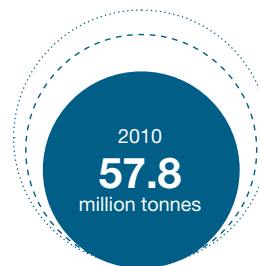
Million tonnes



Global aquaculture production has grown rapidly since the 1980's

Reference: FAO 2016 *The State of World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all. Rome. 200pp*

### WORLD BANK 2013 PROJECTIONS FOR FED AQUACULTURE GROWTH TO 2030



..... 2030: 93.6 million tonnes  
- - - 2020: 78.6 million tonnes

Reference: World Bank 2013. *Fish to 2030. Prospects for Fisheries and Aquaculture. World Bank Report number 83177-GLB. pp102*

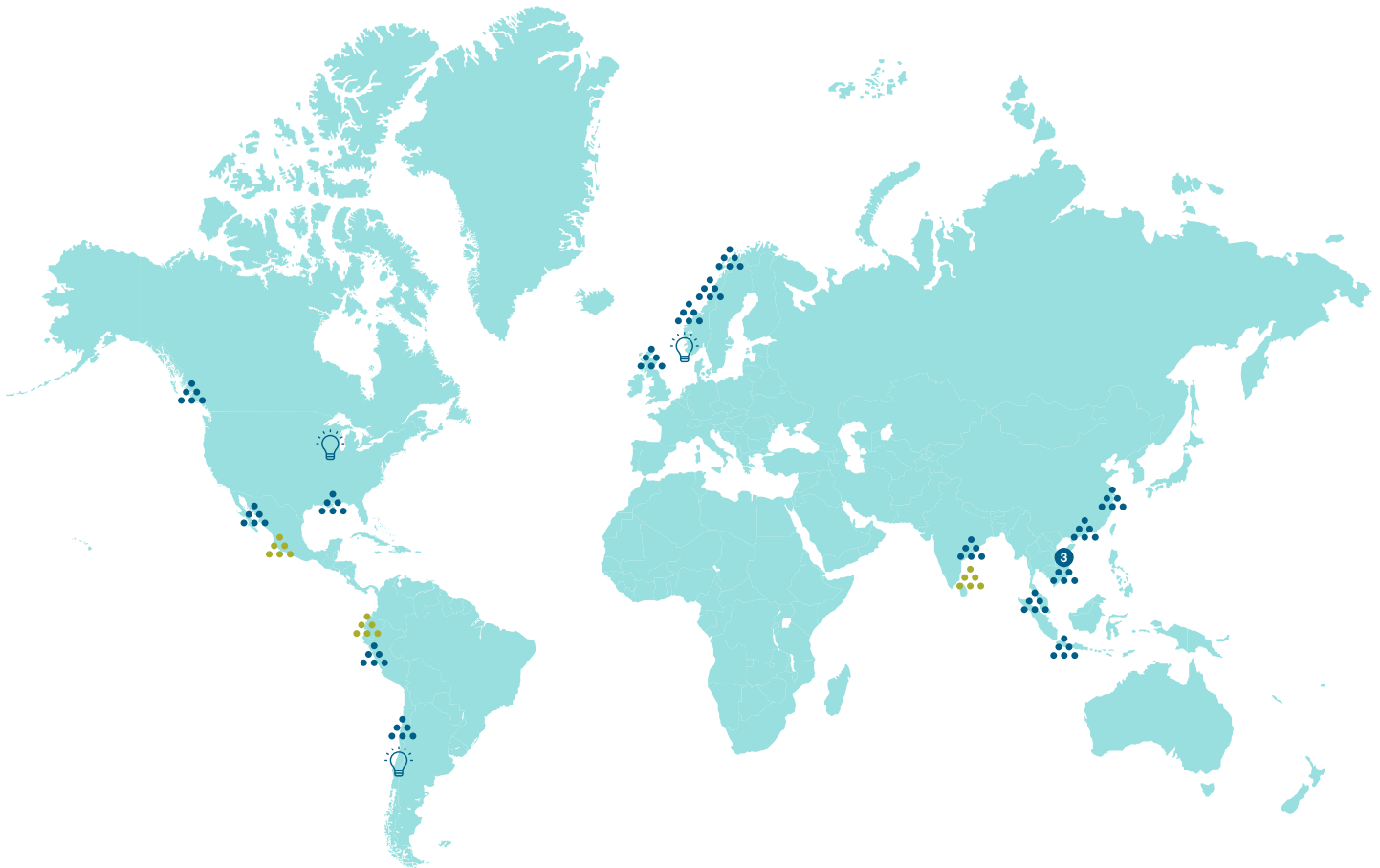


## CARGILL FEED OPERATIONS AROUND THE WORLD

  
Aqua  
Feed Mill  
(Existing)

  
Aqua  
Feed Mill  
(New)

  
Cargill Innovation  
Center (CIC)



### North America

Demand for seafood is growing rapidly, but is challenged by concerns around food safety, environmental impacts and labor conditions in seafood catching. North America is increasingly looking towards certification schemes to ensure high safety and sustainability standards.

### Europe

Europe is a major importer and producer of seafood. A generally affluent region, it drives demand as well as sustainability requirements. This includes seafood certification schemes focusing on safety, quality and sustainability. However, there is still a strong market for cheap products with few sustainability credentials.

### Asia

Asia is the largest consumer and producer of seafood and expected to see the main growth in aquaculture in the next 20 years. While various scandals have rocked the region, export markets are driving demand for certifications. The more affluent local consumers are also starting to expect sustainable seafood.

### Latin America

Latin America is a major producer and important consumer of seafood, with diverse markets. Large exports to Europe and North America are making certifications for food safety and sustainability increasingly popular among farmers. Cost is also a major focus in order to compete with local produce in export markets.

### Africa

Rapid population growth is expected in Africa, with corresponding demand for food. Seafood production is greatest in North America, but limited infrastructure restricts flow to other African regions. This leaves Africa heavily dependent on imports, where price is the main criterion.



# Expert opinions

We asked two experts for their opinions of the current state of salmon and shrimp aquaculture and how Cargill Aqua Nutrition can help improve them.



**Avrim Lazar**

Principle Consultant to the Global Salmon Initiative  
Avrim has led the GSI members to increase reporting and thus transparency as a way to accelerate change in a productive direction.



## COLD WATER

### What are the opportunities for global salmon farming around a sustainable seafood story?

Salmon farming is one of the most eco-efficient livestock farming systems on earth. Using a small amount of land and sea, we can grow large quantities of very nutritious fish, which are now feeding markets globally. The opportunity for further growth is large and GSI provides a structure for discovering and sharing more sustainable practices between our members which is essential for responsible growth.

The sustainability of the industry is benchmarked by our commitment to the ASC farming standards, which provide demonstrable proof of our good performance – independently verified but our commitment does not end there. The quest for sustainability improvement will always be part of who we are.

The development of sustainable salmon farming is also driving practices in nutrition, feed management and farm technologies which can be shared and adapted to other aquaculture species. This has helped to drive the rapid growth of global aquaculture and by implementing the best practices identified, will help to make this growth sustainable.

### What are the challenges to global salmon farming?

Large scale salmon farming operations are found in Norway, Scotland, Canada and Chile with significant production also in countries from Australia to Iceland. The single largest challenge to them all is fish health. Aquaculture, by its nature, is exposed to water borne diseases, which can also be exacerbated by environmental conditions. In the past, some farms were sited in areas which put fish at greater risk of exposure to poor conditions and diseases, but improved technology is enabling sites to move away. However, as the industry expands fish health is likely to remain the rate limiting step.

The continued production of sustainably sourced, high performance feed remains a concern. There have been many changes in feed over the years to help increase the sustainability and support growth of the industry. But increasing external pressure is being exerted on the raw materials which can be used and we need innovation so this does not limit our expansion opportunities.

### How can Cargill help salmon farmers with sustainability issues to enhance the sustainable development of salmon farming?

GSI companies understand that their future success depends on accelerating the pace of environmental progress. We look to Cargill not just for responsibly sourced feed but also for game changing innovation.

By joining global salmon production systems, Cargill brings great opportunities to source and use sustainable raw materials for feed. We are also looking for Cargill to use their nutritional knowledge and R&D resources to drive feeds which do not just provide nutrients, but can help promote health. Disease challenges in some parts of the world can only be managed currently with the use of antibiotics. Providing other nutritional solutions to this issue would bring significant benefits to our producers.



## WARM WATER

### What are the opportunities for global shrimp farming around a sustainable seafood story?

Several opportunities currently exist for developing a story around responsible shrimp farming. Much of this rests on the growing trend of close-containment shrimp farming. New technology and better feeds have allowed for a greater amount of shrimp to be raised in no-discharge systems. This has the potential to move shrimp farming away from the coastal zone.

There has been a commitment by the Ecuadorian Cámara Nacional de Acuicultura (CNA) to obtain Aquaculture Stewardship Council (ASC) certification.

Lastly, there is an opportunity for a broader story about transparency in feed ingredients for shrimp.

### What are the challenges to global shrimp farming?

The greatest challenge in front of the global shrimp aquaculture sector is traceability. The sector's elongated supply chains mask the source of the product while at the same time increasing liabilities for downstream actors. Moreover, there is no intervention that can occur to improve environmental performance at shrimp farms when the location of farms is unknown.

Another challenge that needs to be addressed is the expansion of "mangrove-shrimp". Branded as eco-friendly shrimp, these initiatives require clearing of mangroves for shrimp ponds. We don't have the coverage of mangroves that is necessary to protect ecosystems and clearing mangroves – even in a piecemeal way – destroys habitat.

Feed ingredient quality and sustainability is a key aspect of the sustainability of the sector. There needs to be a higher grade of raw material used in shrimp feeds to improve digestibility, reduce FCR and provide the nutrition to maintain shrimp health.



**Aaron McNevin**

Director, Global Aquaculture Program, WWF US

Aaron has a broad range of experience of aquaculture and now works to develop environmentally sound approaches, particularly in the developing world.

### How can Cargill help shrimp farmers with sustainability issues, to enhance the sustainable development of shrimp aquaculture?

Cargill can play a large role in the sustainability of the shrimp sector. Their feed mills can commit to ASC certification and provide transparency in the sourcing of raw materials used for feed. The need for less land and wild fish in feed also call for an increased rate of innovation in the feed space and Cargill has the influence to amplify the work towards more sustainable and novel feed ingredients.

Cargill can also play a role in support of more closed shrimp aquaculture systems by leveraging financial institutions to recognize the stability in production that can come from better systems and better shrimp health. Lastly, Cargill has a role to play in providing information and acknowledging of the overall footprint of the aquaculture industry.



# How we are responding

By living up to our vision and engaging employees, we are making sustainability part of our culture and everyday practice.

Sustainability is deeply embedded in our vision and the way we do business. Healthy seafood is needed in larger quantities to feed growing populations, and we aim to lead the transformation towards sustainable seafood production and healthy oceans.

### Anchored in management, exercised daily

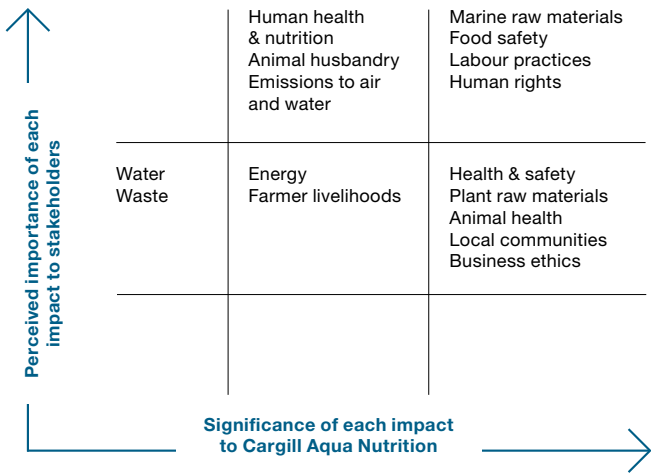
In Cargill Aqua Nutrition, responsibility for driving sustainability ultimately lies with our President, who is supported by the Group Leadership Team (GLT). This approach ensures sustainability management from top to bottom and across our functions. A dedicated group Sustainability Manager brings

leadership on sustainability issues and goals, oversees the monitoring of sustainability performance and reporting.

We believe strongly in engaging employees and promoting responsible behavior from each and every one. Our activities are steered by Cargill's Guiding Principles, which together with our GreenBook articulate our ethical standards, operating philosophies, corporate culture and expectations of employees. The precautionary approach is embedded in these guidelines, bringing sustainability into everyday business.

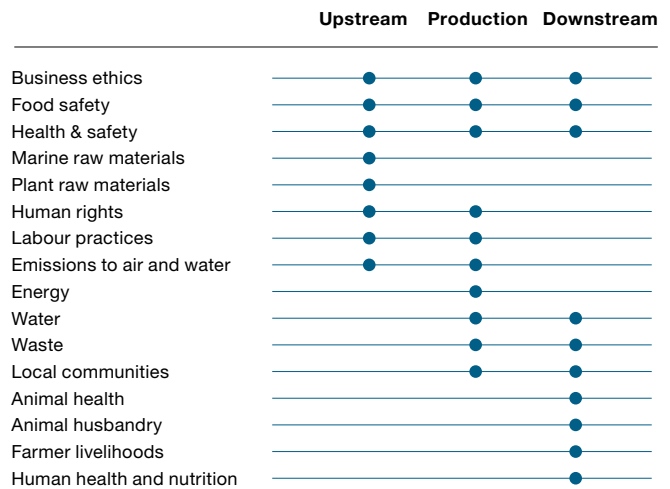
### CARGILL AQUA NUTRITION MATERIALITY MATRIX 2017

We use our materiality matrix to prioritize topics we must be managing or measuring. Currently, we direct our attention to the topics with the highest potential sustainability impacts, but our ultimate goal is to directly manage all the impacts shown across our operations. The topics arise at various points in our value chain, which can make them challenging to manage directly.



### WHERE OUR MAIN IMPACTS OCCUR

The matrix below indicates where the main impacts from our material sustainability topics occur in our value chain, from supplies of raw materials (Upstream) through our mills and operations (Production) and to end use at farming facilities (Downstream).







# We support the UN Sustainable Development Goals

The UN Sustainable Development Goals (SDGs) represent a global partnership for development. As a major feed producer and contributor to food production – with operations worldwide – we are positioned to impact positively on several of the SDGs as shown in Our Performance (p 34).

Cargill increased its open engagement in sustainability in 2017. A central sustainability hub has been established to drive key themes and enable information sharing across the vast organization. Four key themes of climate change, water, land use and farmer livelihoods are highlighted across the corporation, but the hub engages with other topics as well.

Cargill supports the ten principles of the UN Global Compact, and formally joined as a participant in August 2017. The UN Global Compact provides a universal management framework for sustainable development that will help Cargill’s long term strategy deliver global objectives.

### Materiality process offers deeper insight

The Cargill Aqua Nutrition materiality matrix is a representation of the most important sustainability topics that require our attention. An annual exercise, it provides us with deeper insights into the various impacts and opportunities present across our value chain. We review our material sustainability topics based on input from stakeholders, scientific information, management considerations and our sustainability performance. Our leadership team is involved in determining the matrix, which guides our focus and sets our priorities year by year.

Consequently, the matrix is dynamic and in 2017 we saw waste, in particular plastic waste, rise up the agenda. Still, raw material sources remain a critical area, especially marine ingredients. Human rights in our supply chain has risen in importance as more is learnt about the complexities of global trading. Other topics, such as water, were rated lower on our matrix as we have a relatively small impact relative to global concerns.



### Zero hunger

We help to produce more nutritious food around the world.



### Decent work and economic growth

We empower and protect our employees and support local communities wherever we operate.



### Industry, innovation and infrastructure

We foster innovation and bring knowledge to bear in seafood production worldwide.



### Responsible consumption and production

We work on raw materials and feed processes to make the most use from our resources to support more sustainable and even healthier seafood.



### Climate action

We continuously explore ways to reduce the footprint of our operations, our feed and the seafood we help produce.



### Life below water

We reduce our dependence on marine raw materials and increase resource efficiency to reduce the impact of aquaculture on global water systems.



### Partnerships for the goals

We partner with a range of stakeholders to drive sustainable best practices in aquaculture.

# Making progress together

Collaboration amongst stakeholders can forge new paths to sustainability and create solutions to industry challenges.

**Our commitment to UN Sustainable Development Goals**



**Primary Stakeholder Groups**

- Owners
- Employees
- Customers
- Suppliers
- Local community
- NGOs
- Food safety authorities
- Interest organisations

**Key Stakeholder Concerns**

- Transparency
- Resource efficiencies
- Raw material sources

**Learn more about our engagement with stakeholders:**

[www.cargill.com/sustainability/sustainable-aquaculture](http://www.cargill.com/sustainability/sustainable-aquaculture)

Sustainability is too big a topic to handle alone. Aquaculture faces a number of challenges that require precompetitive efforts to drive improvements. We work with a diverse range of stakeholders to develop solutions and find tools to overcome the challenges and secure future growth of seafood production.

We are strongly engaged in third party collaborations and partnerships upstream, but less so downstream, where we mainly work directly with our customers. While we demonstrate the performance of our feeds and operations to our customers, these sustainability credentials are rarely passed on to retailers or end consumers. The aquaculture industry is often portrayed negatively, but we believe that by creating a better understanding amongst consumers about all the great work happening behind seafood, we can support a more fact-based and constructive conversation.

For example, aquaculture is portrayed as using vast quantities of marine ingredients and damaging the marine environment by over-fishing. However, whilst salmon feed uses more marine ingredients than most other species, much of the marine ingredients used are from fisheries that are managed at the highest level of sustainability.

Other species, such as tilapia, carp and catfish, have very low inclusions of marine ingredients in their feed, but still get criticized by association. Similarly, some consumers believe that salmon are fed soy from areas of land which have been recently deforested – but the fact is that CQN works hard to ensure that the soy which is used is from sustainably managed sources. In reality, aquaculture is one of the most resource efficient forms of animal farming. More can be done to improve the efficiencies and this requires further collaborations.

The strongest collaborative projects engage players throughout the value chain. This builds transparency and trust amongst stakeholders to enable and recognize progress. The Seafood Task Force (p.15) is a great example of this and we are committed to active engagement in further collaborations throughout our value chain.



## Feed trade associations

We work with our suppliers and their trade organizations to drive change. By working with associations, such as FEFAC and IFIF, we are able to hear about concerns and potential solutions sooner, so we can apply that knowledge internally.

[fefac.eu](http://fefac.eu)  
[ifif.org](http://ifif.org)



## IFFO – The Marine Ingredients Organisation

We are a member of IFFO, which encourages members to engage in more sustainable fisheries and has developed a set of standards to demonstrate this. In 2017, more than 45% of the global marine ingredients supplied were certified to this scheme.

[iffo.net](http://iffo.net)



## Sustainable Fisheries Partnership (SFP)

We continue our collaboration with SFP to monitor the overall progress of fisheries for fish-meal and oil. Our participation in their Ocean Disclosure Program provides further transparency of our performance

[sustainablefish.org](http://sustainablefish.org)  
[oceandisclosureproject.org](http://oceandisclosureproject.org)



## NGOs

Cargill has a top to top level relationship with leading NGOs, such as the World Wildlife Fund and The Nature Conservancy. Through such relations, we enable greater transparency of our performance and facilitate greater prioritization of change in our value chains. This is essential in our performance against deforestation and GHG targets and we are looking for similar schemes for marine targets.

[wwf.panda.org](http://wwf.panda.org)  
[nature.org](http://nature.org)



## Seafood Task Force

We joined the Seafood Task Force in 2017. Working in Thailand, this initiative set up to focus on labor issues. Our use of marine ingredients in Thailand is very limited, but we engaged in the Task Force to assist change in this important aquaculture country and raise the sustainability agenda in our own value chain. We are actively participating in work streams on improving human rights in fishing and farming operations and on fishery management controls.

[seafoodtaskforce.global](http://seafoodtaskforce.global)



## Food Reform for Sustainability and Health (FReSH)

FReSH was established in 2017 to provide a platform for business to engage with academia and NGOs to drive the sustainability agenda in global food systems. Cargill has participated actively, showing our developments and bringing information back to our own operations. FReSH is working into 2018 to develop prototype food systems, focused on healthy and sustainable food production and we are fully engaged in this, with other leading businesses in the food industry.

[wbcasd.org/Projects/FReSH](http://wbcasd.org/Projects/FReSH)



## HATCH

HATCH is an aquaculture-specific, globally focused start-up business accelerator and investment firm. Cargill and HATCH have a common interest in supporting early-stage aquaculture nutrition start-ups that focus on innovative, scalable and sustainable products. Partnering with HATCH is an extension of our open innovation approach and a chance to develop innovative sustainable aquafeed solutions.

[hatch.blue](http://hatch.blue)



## Seafood Business for Ocean Stewardship (SeaBOS)

We engage in the SeaBOS initiative, which connects science to business, and in particular ten keystone actors in fisheries, aquaculture and feeds, from around the world, in a collaborative and CEO-led effort to enable a transition towards improved management of marine living resources and ecosystems. All partners signed a joint statement in 2016, and its intentions are now being translated into operational activities in collaboration with multiple NGOs, IGOs and government agencies. SeaBOS was initiated from the Keystone Dialogues of the Stockholm Resilience Centre and has been supported by the Crown Princess of Sweden.

[keystonedialogues.earth](http://keystonedialogues.earth)





# BETTER SEAFOOD

Our commitment to UN Sustainable Development Goals



**Aquaculture is a highly efficient method of food production. Tailoring feed and services to support healthy, vigorous growth, we work alongside our customer to help solve their challenges and meet the rising expectations for high quality, delicious seafood farmed sustainably. Balanced nutrition, fish health and welfare, resource efficiency and food safety are always priorities. We share knowledge and best practices to build greater sustainability in new and existing markets around the world.**

## **Feed Efficiency** [\(p 45\)](#)

Efficient transfer of nutrients from raw materials into fish flesh helps to reduce the overall footprint of aquaculture. Feed quality is only one driver of efficiency; other factors include farm management and fish health.

**1.23 eFCR**  
AVERAGE ECONOMIC  
FEED CONVERSION RATIO

The eFCR for salmon across the group was derived from a few customers in each country and we have observed a downward trend. It is not yet reported for warm water.

**Monitor**

## **Antibiotic Feeds** [\(p 46\)](#)

Antibiotics are only added to feed by Cargill Aqua Nutrition under veterinary prescription and this is only done in facilities for salmon.

**6.4%**  
OF FEED SALES

This is a 20% reduction in the proportion of sales since 2013. In Norway, no feeds containing antibiotics were sold and Scotland had 0.02% of sales with them added.

**Monitor**

## **Anti-parasitic Feeds** [\(p 45\)](#)

Parasites are important in salmon feeds and the proportion of sales is in response to customer demands controlled by veterinary prescription.

**1.7%**  
OF FEED SALES

This represents a significant drop from 2016 and reflects the industry's increased use of mechanical treatments against sea lice.

**Monitor**

## **Third Party Certifications** [\(p 37\)](#)

Third party certification schemes are important for customers in certain markets. We are increasing the number of facilities covered in response to customer demands.

**100%**  
OF SALMON FEED FACILITIES

All salmon feed facilities are certified to one or more third party scheme. We are working to get some warm water facilities certified in 2018.

**Maintain focus**

# Advancing nutrition

Productivity and resource efficiency gains from feed developments have driven the growth of sustainable aquaculture.

The diets of salmon have changed dramatically since 1990, reflecting our growing knowledge of the requirements of the fish. Fish have demands for nutrients and how we provide them in the right balance determines the performance and price of the feed and to some degree the health of the fish. Cargill's investment in innovation has delivered great value to farmers through more knowledge about the fish's needs and the raw materials we can use to meet them.

The main grower diet in 1990 was heavily based on marine ingredients held together by wheat. It did the job, but bears little resemblance to the 2017 diet, using a blend of perhaps 15 to 20 raw materials, mainly from plants. If we were still using the 1990 diet today, the feed would cost nearly 50 percent more than today and feed costs for fish production would be two-thirds higher, based on today's raw material costs.

And that is a modest estimate, because continued use of those few raw materials would likely have decreased their availability causing a price hike and limiting industry growth.

The nutritional knowledge we have today enables us to balance the nutrient needs and cushion the feed price against fluctuations in any particular material. We are no longer reliant on a few raw materials and can match the nutrient requirements of the fish and flex formulations to meet the needs of farmers.

Our COMPASS concept and the Cargill Nutrition System (CNS) are keys to this. Bringing together information from the



production of more than one billion fish in different conditions and locations, COMPASS can predict how individual nutrient strategies will affect farmer productivity and profitability. Coupled with CNS, which offers real-time analysis of raw materials, we can deliver precise formulations quickly. These tools have been used in Norway and Scotland since 2016 and were introduced in Chile in 2017. By meeting the needs of the fish more precisely, we ensure good nutrition, whilst minimising waste. It reduces pressure on resources and enables us to support the sustainable growth of global aquaculture.

Using this information, EWOS CLEAR was launched in 2017 to meet the trend in the salmon industry to increase the size of fish in recirculating aquaculture systems (RAS) before going to sea. EWOS CLEAR delivers optimum performance in RAS and reduces nutrient waste and in particular nitrogen loss to the water. This reduces the load on the RAS, enabling more fish to be grown under high welfare conditions to the larger size.

## NEW IN CHILE

The introduction of COMPASS in Chile resulted in a new portfolio of EWOS feeds:

- Starter diets, for a good start in fresh water
- Transfer diets, to support the transition to sea
- Grower diets, for strong fish growth
- Health diets, to support healthy, growing fish
- Design diets, to remove GMOs and fishmeal for certain markets
- Packs, for specific needs and situations



# Turning the tide on disease in shrimp

**SmartShield introduces integrated health management to help shrimp farmers battle the disease that nearly wiped out the entire industry.**

Outbreaks of Early Mortality Syndrome (EMS) started in shrimp farms in China in 2009 and swept across the globe causing devastating losses in shrimp production throughout Asia and Central America. Many strategies were tried to control the disease, but none were efficient individually. That's when Cargill brought together key players from the Mexican shrimp industry to address EMS. This collaborative effort helped us map out a new multi-layered strategy to fight the disease. Basic farm management and biosecurity had largely been neglected, so the new strategy focused on the interaction between the shrimp, the environment, farm management, and the pathogen.

### Holistic approach to health

The SmartShield program covers all these interactions and includes improved biosecurity, a specialized feeding program and customized technical services for disease prevention and management. It's not just a feed,

but a holistic approach to reducing disease outbreaks on the farm, with proven effect.

The SmartShield program is the result of two years' of research at Cargill Innovation Center in Elk River, USA. Unlike most other feed companies, we have the capabilities for this kind of research as well as the organization to offer feed management services to customers along with the feed solutions.

Field trials in Mexico have demonstrated that SmartShield can provide up to:

**59%**  
higher production yield

**20%**  
improvement in Feed Conversion Rate (FCR)

**USD 3,850**  
per hectare return on investment



### KNOWLEDGE TRANSFER

Bringing forward knowledge and best practices – across aquaculture species – is one of our most valuable contributions towards sustainable seafood production. In 2017, drawing on our expertise in salmon feeds, we designed a new generation of shrimp feeds with our emerging products SHRIMP ADAPT and SHRIMP RAPID. Furthermore, output from our Technology Application Centers (TACs) have enabled better understanding of nutrient requirements for a wide range of warm water species, supporting better diets across the group.

**SHRIMP ADAPT** is tailored to relieve the stressful effects of fluctuating salinities and is based on our understanding of how micronutrients and functional ingredients behave in salmon.

**SHRIMP RAPID** is a first-generation extruded feed, which leverages production technology that has long been the norm in the salmon industry, providing great nutrient availability, thus more efficient and healthier growth.



# Innovation targets health challenges

Supporting the launch of new health feed products is Cargill Innovation Center (CIC) in Colaco, Chile, which celebrated its first year of operation in 2017.

One of the world's largest of its kind, this advanced innovation center focuses primarily on health diets for salmon but has expanded its work by integrating a shrimp health facility. Knowledge and lessons learned are applied across all species.

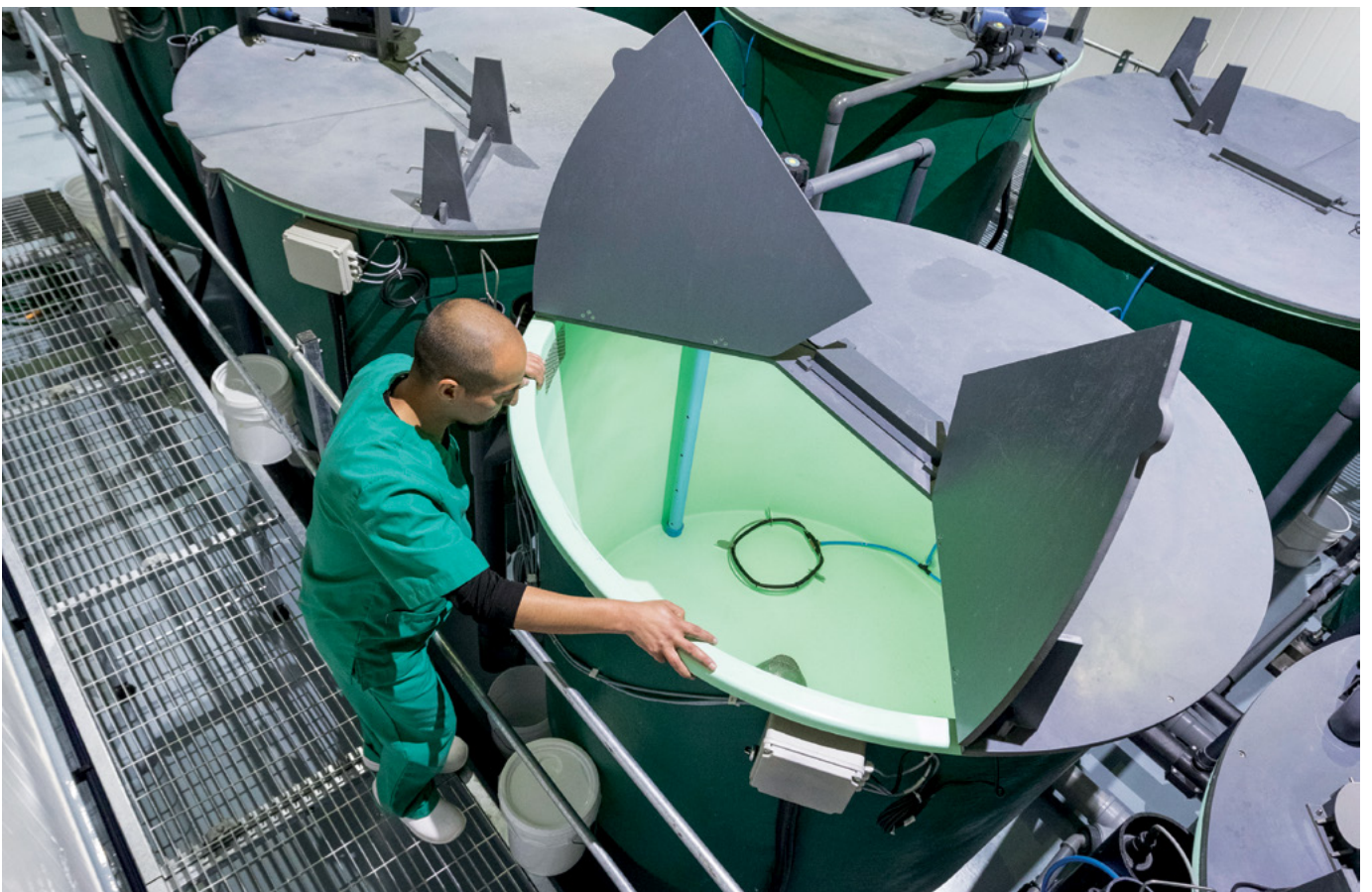
Reflecting the region's most pressing health challenges, the innovation center in Chile has put Salmonid Rickettsial Syndrome (SRS) and Amoebic Gill Disease (AGD) at the

center of attention. A key achievement in 2017 was documenting the benefits of the EWOS BACTER diet, which helps fish challenged with bacterial infections like SRS – which can help farmers to be less reliant on antibiotics to keep their fish alive. Another was creating a better understanding of the parasite causing AGD and developing models that will enable rapid screening of new feed compounds to support fish health.

## DRIVING CUSTOMER VALUE



In 2018, we introduce a program called Sales Excellence across all our businesses to develop the skills of our sales force. By providing more relevant and practical customer experiences, we aim to add value to their business and support their success. This will be supported in detail with our digital capabilities in the future.





# Advancing aquaculture – byte by byte

Cargill Digital Insights is driving sustainability by creating a more productive, transparent and resource efficient industry with happier, healthier animals.

Digitalization and Analytics is one of Cargill's core capabilities and considered to be a big business driver going forward. The aquaculture business is among the digital frontrunners.

"We focus on leveraging the power of data and analytics into meaningful insights that will enable seafood producers to improve their productivity and mitigate risk," says Neil Wendover, Aquaculture Product Line Director in Cargill Digital Insights.

### Made by farmers for farmers

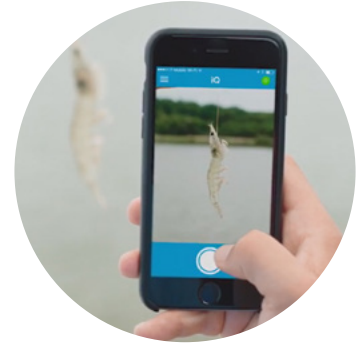
"We have the capability to help farmers capture data from a great variety of sources and turn them into greater operational clarity and deep insights," he says and highlights the

solution iQ Shrimp as an example. It has been developed in collaboration with Naturisa, Ecuador's second largest shrimp producer, and is an open, cloud-based platform, which means it can be coupled with any sensor technology from other suppliers.

"iQ Shrimp is made by farmers for farmers, and their appetite for the solution is high. However, many lack the technical infrastructure needed to make full use of it on the farm, so we are working ground up with farmers to assist them in their digital transformation," says Wendover.



## DIGITAL NEWS



We reported last year on the importance of digital technology to support our customers and drive development of our feeds. This has grown further in 2017 and farmers now have access to a wide range of data on their own production.

### iQuatic

iQuatic is Cargill's umbrella brand for digital services to the aquaculture industry. It includes the comprehensive digital platform iQ Shrimp, which is a cloud based, mobile system that uses production and environmental data along with machine learning to provide shrimp farmers with fundamental insight and customized predictive analytics.

### AquaCloud

AquaCloud is a cloud-based offering that aims to help fish health managers and researchers to improve the industry's challenges with sea lice. It was launched in April 2017 by the Seafood Innovation Cluster in Norway, with backing from Cargill Aqua Nutrition along with the largest global salmon farming companies. AquaCloud leverages artificial intelligence (AI) to give new insights on sea lice and fish health.



**PRODUCT QUALITY AND FOOD SAFETY**

**Critical to our customers, consumers and our business**

Cargill Aqua Nutrition has a functional team to share best practices and procedures for product quality and food safety across our operations globally. This brings all facilities above minimum legal requirements and ensures a consistently excellent Cargill product in all regions. We strictly monitor food safety and Cargill Aqua Nutrition had no non-compliances with food safety laws in 2017 (p 48).

Certifications are testaments to sound quality management and support transparency and trust in our value chain. BAP certification is highly valued in the USA and adds to our customers' offering in this important market. We are also participating actively in the development of the ASC feed certification standard. Building on experience from Chile and Canada, we attained Best Aquaculture Practices (BAP) certification for our facilities in USA and India in 2017 and prepared to have more facilities certified in 2018, particularly in Thailand and Vietnam.

We play our part in ensuring safe seafood by controlling what goes into the fish with the feed. Dioxins and PCBs remained at low levels in the feed throughout 2017. We also continued our work to keep concentrations of the antioxidant ethoxyquin far below legal and food safety requirements to meet expectations from farmers and retailers. We do not add ethoxyquin directly in the feed and we are working with suppliers to find replacements for its current use in certain raw materials.

# SalmoNIR brings fish quality into focus

**Cargill Aqua Nutrition has developed a break-through device that measures body fat percentage and pigment content in the fillet of Atlantic salmon – while it is alive.**

Traditionally, to track quality parameters like these, fish would be taken from each cage, sacrificed and the flesh analyzed for color visually and fat and pigment content in a laboratory. The new device, named SalmoNIR, offers huge improvement in several levels, both for the fish and the farmers. More fish can be sampled, more often, without harming the fish. This gives more accurate readings of the harvest quality of the whole population.

SalmoNIR has been developed by Cargill Innovation Center Dirdal,

Norway and was launched in August 2017. It uses a specially developed near-infrared reflectance probe to take measurements under the fish skin. Read outs are given nearly instantaneously, wasting no time and costs on lab analyses, and avoiding loss of fish. Linking the SalmoNIR database to nutrition will also allow us to make rapid feed suggestions and adjustment towards harvest to ensure the delivery of high quality, healthy and nutritious seafood to consumers.

**THE ASC OF SUSTAINABILITY**

**Moving early to support our customers with sustainable feeds**

Driven by support from prominent retailers and NGOs, Aquaculture Stewardship Council (ASC) standards are increasingly popular with our customers. The Global Salmon Initiative (GSI) has committed to have all of their members certified to ASC salmon standards by 2020.

Cargill has participated actively in the development of ASC feed standards to ensure that they promote sustainable development of aquaculture and at the same time are practical. These feed standards will apply to all ASC species certifications. The ASC hope to launch the standards in 2018 and we are getting ready to be among the first to be certified at key locations.

# BETTER WORKPLACE

Our commitment to  
UN Sustainable  
Development Goals



We are committed to respecting people by being a safe and responsible employer, strengthening local communities and helping them *thrive*. We want to secure the workplace so that everyone goes home safely. We will provide a setting to deliver sustainable employment inside the business and with local communities. Sustainable practices will become the everyday norm for all of our workforce.

## Safety First (p 46)

Our goal is that everyone goes home safely at the end of their working day.

### 70%

OF FACILITIES INCIDENT  
FREE IN 2017

Across the whole business we had 0.57 reportable injuries and 0.15 serious injuries per 200,000 hours. Although low, this was still above our goal for the year. There were no work related fatalities in Cargill Aqua Nutrition in 2017.

Increase focus

## Local Communities (p 48)

We should be a good neighbour in the local communities where we operate. There should be zero complaints raised against us.

### 7

COMPLAINTS

Odour remains the main source of complaints, relating to the strong smelling raw materials used. We continue to work to reduce the smell from our facilities.

Increase focus

## Compliance (p 45)

We are committed to complying with all local regulations across our operations.

### 2

ENVIRONMENTAL CASES,  
0 FOOD SAFETY, PRODUCT OR  
SOCIAL CASES

One environmental case was resolved quickly without a fine. The other case resulted in a fine being imposed and procedures changed in the facility. No food safety, product or social related cases were brought in 2017.

Increase focus

## Data Collection (p 34)

A lot of the data required for this section is relatively new to Cargill Aqua Nutrition. This has led to a lack of quality data from some facilities in 2017.

### 2

DISCLOSURES TO IMPROVE  
DATA REPORTING

We will work across Cargill Aqua Nutrition to build out reporting lines to improve the collection and reporting of key data for GRI disclosures at the end of 2018.

Increase focus



# Raising the bar for water safety

By launching our new Aqua Farm Safety Program, we aim to create positive ripple effects across aqua farms worldwide.

Safety at aquaculture farms is a very visible and high priority for Cargill. Work on fish farms introduced water-based activities to our employees on a scale and under conditions not previously covered by our safety program. In Chile alone we have ten sales consultants visiting more than 200 offshore customer sites per year, with a further 140 contractors involved in delivering feed to these sites year round. Our new Aqua Farm Safety Program aims to protect our employees, contractors, customers and visitors from the most prevalent risks in aqua farms; not least drowning.

The Aqua Farm Safety Program applies the same uncompromising approach to safety at aqua farms as we do in our production plants and other activities on land. It covers activities in and around our own and customer owned facilities as well as the Technology Application Centers (see also p. 29). We have developed an Aqua Farm Safety leaflet which describes the level of safety we expect at aqua farms, and we distribute the leaflet to customers ahead of visits to ensure that they know our expectations. This way, we aim to create ripple effect and raise the safety level not just for our own employees, but for everyone involved in aqua farming. We are already seeing changes in behaviors, and farmers are increasingly asking us for safety advice for their own employees.



## Our safety pledges

Cargill Aqua Nutrition is determined to have everyone return home safely to their loved ones, every day. This goes for our employees, contractors, customers, suppliers and people in the communities where we operate.

Cargill Aqua Nutrition's safety pledges:

- 1 We put safety above profits
- 2 No job is so important that it cannot be done safely
- 3 Everyone has the obligation to stop an unsafe activity





# Tripling feed deliveries, safely, in India

Cargill opened its first dedicated aqua feed plant in India in early 2018, bringing 200 new jobs to the Andhra Pradesh region, known for its large aquaculture industry.

Vijayawada, the new mill, was acquired from Mulpuri Foods & Feeds and subject to a US\$ 10 million upgrade during 2017 before opening. Instilling a strong safety culture in line with Cargill's expectations has been another main focus.

The new mill triples fish feed capacity for farmers. Cargill has sold about 30,000 tonnes of fish and shrimp feed a year in this region but expect sales to boost with the new plant having a capacity of 90,000 tonnes of high-quality feed per year.



## WOMEN IN AQUACULTURE

### Committed to gender parity

Cargill has committed to reach gender parity in all management positions within 2030. Based on a belief that diverse and inclusive teams deliver more value, Cargill's Chairman and CEO Dave MacLennan in 2016 joined the Paradigm for Parity movement, a coalition of business leaders dedicated to addressing the corporate leadership gender gap. We are working on our roadmap to gender parity and will initially launch training to tackle unconscious bias, implement a sponsorship program

for female talents and launch an initiative to equip our managers to cultivate an inclusive environment. We have work to do to reach gender parity, particularly in our factories (see also p 35).

In 2017, women accounted for:

**16%**  
of all employees

**30%**  
of management and administration positions

## COMMUNITY ENGAGEMENT



Cargill Aqua Nutrition is participating in a partnership between Cargill, the World Food Programme (WFP) USA and WFP to build capacity for school meals in Indonesia. These school meals don't just nourish hungry children but are also homegrown, which means small-holder farmers in Indonesia are providing fresh, locally produced crops to source these meals, creating a sustainable supply chain and a reliable market. In the last year, more than 600 students in four rural schools in Banten, East Java and East Nusa Tenggara benefit from our support.

## GREEN DAY

### Back to our roots

Green Day is Cargill Animal Nutrition's day for employees to recognize accomplishments, celebrate our culture and live the values. On June 21, our teams around the world volunteered to make a positive impact in local communities – guided by the theme Rooted in Nutrition.

- In Canada, the team planted trees, learned about improving sustainability efforts and reviewed safety protocols.
- In Norway, the team showed their passion for aquaculture by spending the day cleaning the coastline of plastics.
- In India, the team distributed snacks at a local school and held an open house for feedback and ideas.
- In Scotland, the team volunteered at a local community farm which gives work opportunities to at-risk youth.



**PROTECTING PEOPLE ACROSS OUR GLOBAL SUPPLY CHAINS**

It takes a concerted effort to identify and address slavery and human rights breaches in supply chains. We are applying new mechanisms and a collaborative approach to get on top of the issue.

For seafood there is a particular risk of modern day slavery in fishing. Many vessels come to shore only infrequently, leaving little opportunity to monitor working conditions for the people on board. Cargill joined the Seafood Task Force in 2017 to address this specific issue and is engaged in two key work streams and participating in supply chain audits to better understand our own risks.



## Ecuador mill nears completion without reportable incidents

Nearly two years into the construction of a brand-new shrimp feed mill in Ecuador, the local team is living up to its commitment of completing the project with zero reportable incidents. The project marks Cargill's first asset

in Ecuador and is a joint venture with a large shrimp farmer. It is set to start up mid-2018 and will begin to offer shrimp feed to the local Ecuadorian market by the end of the year.

The UK Modern Day Slavery Act of 2015 demands that all businesses over a certain size work in their supply chains to reduce the chance of slavery. Cargill UK has been reporting on their work since the regulation came into force. We are applying their risk-based approach across the whole of Cargill Aqua Nutrition, engaging closely with any high-risk suppliers to minimize the chances of slavery or child labor. Abolishing slavery is a complicated and steep task, but we are determined to make an impact by engaging and collaborating with our suppliers and expert stakeholders.

“We made the commitment to execute all activities while protecting and caring for the environment, health and safety for our team members, contractors, customers and communities, and I’m proud to say we accomplished that to date.”





**Hernan Cavalieri**  
site build project manager

# BETTER OPERATIONS

Our commitment to UN Sustainable Development Goals



Working on the choice of raw materials, feed formulations and our production processes, we continuously find ways to reduce the footprint of our operations. Seeing our operations through a sustainability lens helps to optimise our processes and products, while reducing resource use and emissions.

Energy <span style="float: right;">(p 42)</span>	Greenhouse Gas (GHG) Emissions <span style="float: right;">(p 43)</span>	Water <span style="float: right;">(p 43)</span>	Waste <span style="float: right;">(p 44)</span>
<p>Our goal is to reduce energy per tonne of feed produced year on year through efficiencies in production and investments in equipment.</p>	<p>Our goal is to reduce scope 1 and 2 GHG emissions from our facilities, sharing best practices across the group.</p>	<p>Managing the amount of water used per tonne of feed reduces water stress and saves energy.</p>	<p>Waste from the factories is mainly related to raw material packaging. It is hard to reuse, but it can be recycled.</p>
<p><b>1.04GJ</b> PER TONNE FEED PRODUCED</p> <p>This is the first time energy use across the whole group was reported, so setting a reference point for the future. In salmon feed we reduced energy per tonne by 2.8% compared to 2013.</p>	<p><b>68kgCO<sub>2</sub>e</b> TONNE FEED PRODUCED</p> <p>This is the first time this was reported across the group and will provide a future reference point. Emissions per tonne of salmon feed were down 6.6% compared to 2013.</p>	<p><b>473 litres</b> PER TONNE FEED PRODUCED</p> <p>Initiatives to reduce water use in some facilities will be started in 2018 to bring our footprint down.</p>	<p><b>70.7%</b> OF WASTE RECYCLED</p> <p>Some incineration was also carried out, which was not included in this value. Less than 20% went to landfill, but we will work to reduce this further.</p>
<p> <b>Increase focus with energy efficiency program</b></p>	<p> <b>Increase focus</b></p>	<p> <b>Increase focus</b></p>	<p> <b>Increase focus on recycling</b></p>



# Driving improvements and breakthroughs

Sustainability is a cornerstone in our promise to deliver healthy seafood for future generations. Our operational teams can testify that it's not just a lofty vision.

“We have to ask ourselves: What can we contribute to future generations?” says Eric Kamp, Cargill Aqua Nutrition Operations director. He replies to the question himself: “The answer is to drive hard at achieving higher efficiencies at our factories and using our resources to the max. And we need to make all these continuous improvements while keeping an eye on possible breakthroughs: the leapfrogs that will bring new levels of productivity and sustainability to aquaculture.”

Saving the leapfrogs for later, Kamp highlights a number of initiatives to explain how operators in Cargill Aqua Nutrition's feed mills are working to reduce the environmental footprint of the operations. They are closing down energy losses and air leaks and working hard to turn out high quality products with the least possible water usage and loss of raw materials. Focusing on energy, several mills have made structural changes to introduce biofuels and capture excess energy from one process and feeding it back into another, saving fuel and electricity.



## Sharing tweaks and tricks

“We have an international team and network in place to compare tweaks and tricks between factories and share best practices,” says Kamp, stressing the importance of engaging people in improving processes and sustainability performance. “One project that really speaks to the role of our employees, is Good Startup. A good startup of the mill on Monday morning most often means a good, productive week. The reason is simply that everyone needs to get into working mode again. And a good startup begins with a good shut-down on Friday, so we have engaged our employees in adding new standards to help at both ends of the week,” he explains.

Back to the leapfrogs, does the Operations director see any game changers on the horizon? “With the sustainability momentum, the globalization of aquaculture, digital developments and new production concepts being tested, particularly for salmon, we certainly expect change. Being a part of Cargill, I am confident that we will take part and drive that change. For now, however, our biggest contribution to sustainability is to make sure our operations run smoothly and efficiently,” Kamp concludes.





# Win-win with energy

Energy efficiency is a good investment that simply makes business sense. When viewed through a sustainability lens, the benefits are even greater.

Leonel Preza, Assistant Plant Manager at Cargill Aqua Nutrition Canada, is leading a cross-group working party to share information on energy efficiency. Throughout 2017 this group has implemented small changes with large energy savings across most of our facilities. Renewing insulation on steam pipes and changing to LED bulbs are small costs that save significant amounts of energy. New procedures to save energy also pay off rapidly and are being shared across the company.

Preza's work with the team is linked to the operations group's sustainability focus and our overall goal of reducing the carbon footprint of our operations. As of early 2017, the team has entered their energy and waste data each month to calculate total GHG emissions as well as emissions per tonne of feed made. While its impact may be hard to trace this early, this initiative has certainly put sustainability and GHG emissions high on the operations group's agenda. The whole business is keen for them to hit their energy and sustainability goals.



## WASTE

### More recycling (p 44)

In 2017 we gave increased attention to waste recycling. Overall, we recycled 70% of the waste associated with the feed production. Most of this is metals and plastics.

Plastic waste, especially in the oceans, has received great attention in recent years. With our business centred on farmers who operate in water bodies, we too are concerned about this pollution. Our total plastic use is modest, but we are working to ensure that we can recycle as much as possible in all of our operations.

# 70%

RECYCLED PRODUCTION WASTE,  
MOSTLY METALS AND PLASTICS

### Leonel Preza

Assistant Plant Manager in Canada is leading the group's project on sharing energy efficiency initiatives to reduce energy and GHG emissions.



**Valuable input**

Trials at our TACs have yielded important information on how different raw materials can be used in feeds for a variety of warm water fish. This knowledge sets the boundaries in our formulations and can help formulate high performance feeds more flexibly.

# Putting theory into practice

Our Technology Application Centers bring global research into effect in local markets and diverse conditions.

A feed can perform quite differently in a model than at a farm. This has motivated Cargill Aqua Nutrition to establish Technology Application Centers (TACs) across several important markets. Here, we can test feeds before they go to market and invite customers to demonstrations and training sessions. Each TAC draws on our global expertise in innovation and feed formulation to improve the standards of local fish and shrimp farming through better diets and farming practices.

We opened the latest TAC in India in February 2018, much to the

enthusiasm of Chad Gauger, Managing Director of Cargill's aquaculture nutrition business in South Asia: "This center will enable Cargill to speed up the pace of product development and increase our support for India's aquaculture industry."

Jose Vecino, who is heading the global development of TACs across Cargill Aqua Nutrition, projects new centers across many more countries and sites. "The output of the TACs is so important we have decided to expand their footprint, with strategic additions in Asia, Americas and Europe", he says.



## TECHNOLOGY APPLICATION CENTERS (TACS)

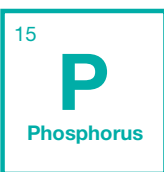
**What:** Facilities for developing, testing and demonstrating feeds

**Why:** To apply and adjust global research to local conditions and challenges

**How:** By tailoring diets and farming practices to the needs of local farmers

**Where:** Chile, China, India, Vietnam, Indonesia, Thailand and Norway

## PHOSPHORUS



### Striking a balance for phosphorus

Phosphorus is a critical nutrient in this sense. It's an increasingly expensive, finite resource that can add to eutrophication in water systems if it is wasted. To further complicate the issue, not all forms of phosphorus can be absorbed by the fish. Cargill Innovation Center

is leading a program to better understand the phosphorus requirements of fish, make the nutrient more available and ensure we use raw materials which support this. Ultimately, we aim to deliver the phosphorus the fish need for healthy, vigorous growth, without creating environmental eutrophication at the farm.

# BETTER SUPPLY CHAIN

Our commitment to UN Sustainable Development Goals



Expanding our raw material basket is key to securing future growth for our customers and to help the global aquaculture industry to continue to *thrive*. We are at the crux of sustainable seafood production, connecting raw material suppliers with seafood producers and consumers through our feeds. We are mindful that our sourcing decisions can affect not only our customers' success, but the sustainability of the value chain.

## Marine Index (p 40)

Marine index is a key focus for salmon feeds, but less so in warm water feeds. Our aim is to manage it, within customer requirements.

**30.7%**  
OF SALMON FEED WAS MARINE INGREDIENTS

This compares with 11.2% for all warm water feeds and also includes the use of trimmings. We continue to research new raw materials to reduce dependence on marine ingredients.

**Innovate**

## Trimmings (p 40)

Our goal is to reduce dependency on forage fish partly through use of co-products from fisheries. We work with suppliers to develop quality ingredients.

**33.6%**  
OF FISHMEAL AND FISH OIL FROM TRIMMINGS

This was for salmon feed and slightly down from 2016. Over 100,000 tonnes of trimmings meal and oil was used in 2017 for salmon, but is not reported for warm water feeds yet.

**Innovate**

## Soy (p 41)

Soy is often associated with deforestation in the minds of consumers. We will source all soy products from responsible supply chains audited to standards successfully benchmarked by FEFAQ.

**89%**  
OF SOY IN SALMON FEED CERTIFIED

The main certification was ProTerra, with some RTRS. The data is not reported for warm water yet.

**Expand reporting**

## Supplier Code of Conduct (p 32)

Our suppliers are critical to our sustainability credentials. We use our Supplier Code of Conduct to communicate our expectations to our suppliers.

**100%**  
OF SUPPLIERS COMMITTED

Over 700 suppliers to Cargill Aqua Nutrition received and acknowledged our Supplier Code of Conduct in 2017. This develops security in our expectations

**Continue with new suppliers**



# Mind the gap

Unless the seafood industry commits to fully support new raw materials, we will be limited in feed raw material supply and place future growth of aquaculture in peril.

“Fish and shrimp need nutrients, not raw materials,” says Ian Carr, Strategic Marketing Director in Cargill Aqua Nutrition, wishing more seafood farmers would be eager to mind the emerging gap between supply and demand for raw materials for fish feed.

So far, Cargill Aqua Nutrition has managed to keep the gap closed by avoiding dependency on any specific raw material, particularly marine ingredients. Active engagement with various suppliers has brought new and more sustainable raw materials into the feed: more seafood trimmings; certified soy and palm oil products; soy protein concentrate (SPC); maize gluten; guar meal, and by-products from cereal processing and oil seeds.

The list is long, but growing too slowly, according to Carr. “On one hand, downstream players are focussed on minimising production cost. On the other we have feed suppliers like ourselves seeking to develop novel raw materials to support further growth in aquaculture. It’s in everyone’s interest that we secure future supplies of healthy and sustainable feed, but new ingredients come at a cost. We cannot carry that cost alone,” he says.

## Preparing for the future

Besides securing supplies of fish nutrients, most novel



ingredient sources also bring compelling sustainability credentials. By-products, insect meals, single cell proteins and algae products have a smaller environmental footprint than most of their alternatives, due to less land use, lower emissions, and higher resource efficiency during production.

“Who’s willing to pay for that?” asks Carr and draws comparisons to entrepreneurship. “New and innovative raw materials face the same economic challenges as any start-up. It takes time and investment before they can compete with established raw materials like fishmeal, fish oil and soy.”

So, what will it take for novel ingredients to become a true factor in nutrient supplies for fish feed? The Marketing Director thinks along the lines of a value-chain partnership where each player is willing to commit, compromise and share the costs of preparing for the future. As the industry is coming off a sustained period of relatively calm commodity markets, he also sees opportunity in volatility. “Perhaps an interruption in the supply chains for established raw materials, like we’re seeing now in fish oil can be the point of entry for novel raw materials and a first step towards bridging the gap,” Carr concludes.



# Making our expectations known

The rollout of our Supplier Code of Conduct created new levels of engagement and insights.

In 2017, Cargill Aqua Nutrition rolled out its Supplier Code of Conduct across all suppliers. To ensure that suppliers are aligned with our principles, they either have to sign our code or provide evidence that their own code of conduct meet our expectations with respect to managing environmental and social impacts and conducting their business responsibly. By year-end, nearly all of 700 raw materials suppliers had signed our code. Cargill has since launched a corporate Supplier Code of Conduct, which we will be applying to our supply base from now on.

The rollout of our Supplier Code of Conduct created a platform for engaging with our suppliers on sustainability topics and learning more about what they are doing to improve their sustainability performance. The Supplier Code is aligned with Cargill's Guiding Principles and includes labor and environmental issues in the supply chain. We will continue to use this platform to drive improvements in our supply chain, working with suppliers to solve challenges and bring innovative solutions into mainstream feeding solutions.

## What's new in micro nutrition?

Micro nutrition technologies have long been a feature of our aquaculture feeds.

For example, we rely on vitamin and mineral premixes, pigments and microbials to support the physiology and maintain the quality of the fish and shrimp we feed. But through 2017, Cargill has strengthened its presence in micro nutrition and made two very exciting moves. First, we took our first steps in the field of phyto-genics through a strategic partnership with Delacon. Second, Cargill and Diamond V joined forces to create a leading natural animal health & nutrition business.

These moves enable Cargill to better serve customers who are increasingly turning to unique natural technologies to unlock the potential in feed to promote healthier animals, improve performance and to help them produce safer more wholesome food. Natural immune support products are increasingly being used to improve immunity and digestive health in animals and to counter antimicrobial resistance, one of the greatest challenges we face in animal health.

### SOCIAL INNOVATION BENEFITS ALL

Cargill welcomes small and medium-sized lupin farmers into the salmon value chain to access valuable proteins and help local communities thrive.

In 2017, Cargill signed an agreement with a technology-based company in Chile, incubated by the Center for Agromomic Nutritional Genomics (CGNA) to work with five Mapuche communities to grow yellow lupins for our fish feed. The agreement covers 76 farmers, ensuring that small scale family farming can benefit from an estimated US\$ 8 million of business by 2020. It creates a virtuous circle that gives Cargill access to a valuable protein source and at the same time creates steady and new income opportunities for the local small and medium-sized farmers and their local communities. If the model is successful, Cargill will seek to expand the project.



## Lupins

*Lupins (lat. Lupinus), a genus of flowering plants in the pea family, Fabaceae, increasingly grown for their seeds, which are used as a protein source in salmon feeds.*



# What's new in raw materials?

Our search for sustainable raw materials follows three main avenues. One is to find or participate in the development of sustainably managed marine raw materials. The second is to source responsibly produced raw materials from plants. Lastly, we explore several exciting novel raw materials.



## Marine raw materials

During 2017, we were able to purchase much of our marine ingredients with IFFO RS certifications, thanks to huge steps towards demonstrably sustainable management in the fishing sector. Nearly half of the fisheries we sourced from in 2017 have – or are working towards – MSC certification. The Fishery Improvement Program (FIP) in Peru, led by the Peruvian National Fisheries Society (SNP), aims to bring the world's largest commercial fishery up to the highest management standards. Work remains, but the desire to make it happen is strong. We strongly support this program and encourage FIPs in other fisheries.



## Raw materials from plants

Soy and palm supply chains continue to receive criticism for producers' impact on deforestation in Brazil and Asia, and European retailers are particularly concerned about this. By engaging with our suppliers, we were in 2017 able to demonstrate that while we buy a portion of soy from the Cerrado region in Brazil, we did not purchase from recently deforested land. This was verified through the ProTerra Foundation certification scheme. In 2017 Cargill also signed an agreement for supply of lupin, often used as a replacement for soy (see separate story p. 31). As for palm oil products, we only source raw materials from responsible supply chains audited to standards such as RSPO or equivalent.



## Novel raw materials

Novel raw materials offer an exciting opportunity to bring the fatty omega-3 acids EPA and DHA into our feed, without relying solely on fish oil. Cargill has worked closely with a supplier to develop a source of algal oils which we have included in the diets of two key customers since early 2018. The algal oil will supply 20% of the EPA and DHA in the feed, saving 330t of fish oil. This has increased the EPA and DHA in the final fillet, boosting the benefits of eating farmed salmon.

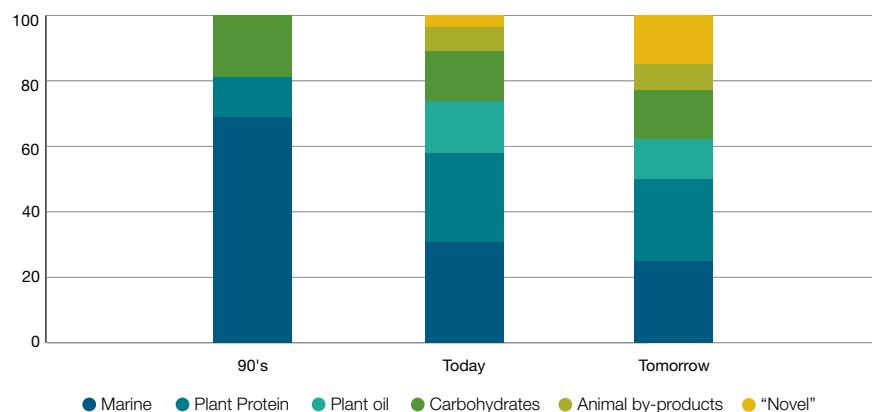
Cargill is also continuing its research of canola, genetically modified to produce EPA and DHA. This is a sustainability game changer. Trials in Chile on Atlantic salmon show that the fish store EPA and DHA from these oils as they would from fish oil. Further tests are planned before the commercial licenses for this material are expected in 2020.

We are also continuing our exploration of Calysta's FeedKind protein material, a sustainable ingredient made from fermentation of methane gas. It has been tested in a variety of feeds under different conditions but is not yet available commercially.

However, small volumes of insect meal are becoming available and permitted to use after changes in EU and Canadian laws. We plan to carry out some customer trials in 2018 and in the meantime encourage collaboration through the value chain to make this novel raw material viable.

### WHAT WILL SALMONID FEED BE MADE OF IN THE FUTURE?

Per cent



# OUR PERFORMANCE

This report has been prepared in accordance with the GRI Standards: Core option. The following pages show a summary of the GRI Standards and customised disclosures for topics that we have identified as material to our operations.



## Scope of the report

### Reporting Entities

Cargill Aqua Nutrition operations are carried out across 40 facilities in 20 countries, however, only 20 of these facilities are dedicated to aquafeed production: the remainder are primarily livestock feed or premix production sites, which make some aqua feed to serve local customers. As the resources for the latter sites are mixed, it is not possible to separate out the required reporting for the aquafeed. Therefore, this report is focused on the dedicated facilities. Of the 20, a further 3 were either being built or refurbished during 2017, so no production data is shown for them, but they are mentioned in the report. This meant that full production data for 17 factories is presented for the calendar year of 2017.

This is the first annual report across all of Cargill Aqua Nutrition, so historical data is shown only for salmon, which comes from the legacy EWOS reports published previously (the last report was June 2017 for the year 2016). Last year's report gave a comprehensive cover of the historical EWOS data. This year, historical data for the salmon facilities are shown only for 2013 and 2016, classed as the reference years for those facilities. No historical data is available for the remainder of the group, so 2017 will be the reference year for the whole group going forwards. Not all facilities were able to report on all the data for 2017, as the new reporting procedures were implemented. Whilst this will be improved in 2018, this means that the reporting on some disclosures is limited to the salmon feed facilities. These data are highlighted with the salmon logo.

### Reporting facilities in each country after their classifications

Classification	Country	Facility
 Salmon	Canada	Surrey
	Chile	Coronel
	Norway	Bergneset
		Florø
		Halsa
	Scotland	Westfield
 Warm water	China	Yangjiang Zhengjiang
	Ecuador	Guayaquil*
	Indonesia	Serang
	India	Rajahmundry
		Vijayawada*
	Mexico	Guadalajara* Obregón
	Peru	Chiclayo
	Thailand	Phetchaburi
	USA	Franklinton
	Vietnam	Dong Thap
		Long An Tien Giang

\* Denotes facility which did not produce feed for aqua in 2017 and so no data is reported for that facility.

# How we manage sustainability

Sustainability is deeply embedded in our vision and the way we manage our operations.

## Sustainability Management

Responsibility for driving sustainability practices throughout the global Cargill Aqua Nutrition group ultimately lies with our President, who is supported by the Group Leadership Team (GLT). This team comprises Group Directors; Finance Director; Risk Management and Sourcing Director; Strategic Marketing Director; Operations Director; IT and HR Directors. This approach ensures sustainability management from top to bottom and across our functions. A dedicated group Sustainability Manager brings leadership on sustainability issues and goals, oversees the monitoring of sustainability performance and reports to the GLT through the Strategic Marketing Director.

We also believe strongly in engaging employees and promoting responsible behaviour from each and every one. Cargill's Guiding Principles bring sustainability into everyday business.

## Management Approach

The structure of Cargill Aqua Nutrition enables local and global management of topics and impacts. Local management drives the individual businesses, whilst cross-functional teams provide co-ordination and knowledge sharing across the group. These teams operate in areas such as raw material sourcing; factory operations; formulation; human resources; sales and marketing; and technology implementation. This structure allows global and local goals to be set where appropriate, as well as monitoring performance for the broader set of topics. More details on how individual topics are managed and where topic boundaries are set are provided in the report.

Regular reporting procedures are being set up to enable tracking of performance against our material topics. This enables the leadership to ensure the direction and progress. Deviations from the plan are highlighted in these reports, so corrective actions can be taken.

## Monitoring and Reporting

Sustainability reporting against our material topics is currently carried out on a monthly, quarterly or annual basis, depending on the topic and data, across all our operational facilities. In 2018, a further three facilities which have been built or refurbished will be added. Our Sustainability Manager and Sustainability Analyst oversee and interpret the data and communicate developments to the GLT.

## External Assurance

Cargill Aqua Nutrition has chosen not to seek external assurance for the Sustainability Report 2017.



# Our performance on material topics

## Key to topic flags:

General disclosures

Economic disclosures

Environmental disclosures

Social disclosures

Codes relate to GRI Standard numbers and our customized indicators.

## GENERAL DISCLOSURES

### SIZE OF THE OPERATION

Cargill Aqua Nutrition operations are carried out across 40 facilities in 20 countries, with 1,748,500 tonnes of feed sold in 2017. However, only 17 of these facilities were dedicated to aquafeed production and functional in 2017 as explained in Reporting Entities (page 34).

#### Size of the operation

		CQN Total	Salmon Total	Warm Water Total
Feed produced (t)	2013	-	1,113,579	-
	2016	-	930,774	-
	2017	1,490,377	984,638	505,739
Feed sold (t)	2013	-	1,096,356	-
	2016	-	911,104	-
	2017	1,621,894	968,210	653,684

In warm water, we will bring three new mills on-line in 2018, so look for significant growth in this sector.

### WORKFORCE

We are working to improve the data collection for this disclosure to GRI Standards requirements for all facilities. Comparing to 2016, we have seen a significant reduction in head count in salmon, mainly resulting from centralization of roles as a result of the acquisition of EWOS.

	CQN Total	Salmon Total	Warm Water Total
Total employees	1,105	541	564
Female employees	182	111	71
Male employees	923	430	493
Employees – female proportion (%)	16.5	20.5	12.6

Cargill Aqua Nutrition uses contractors for various routine operations in our facilities. These are not reported here as the data quality was not certain for 2017.

GRI 102-7

GRI 102-8

	CQN Total	Salmon Total	Warm Water Total
<b>Employee Category:</b>			
Total number of management and administration female employees	88	66	22
Total number of management and administration male employees	207	161	46
Management and admin employees – proportion female (%)	29.8	29.0	32.3
<b>Senior Management Teams*:</b>			
Senior management	79	25	54
Number of female senior management hires	10	3	7
Senior managers – proportion of females (%)	13	12	13
Senior managers – proportion of males (%)	87	88	87
<b>Global Leadership Team**:</b>			
Membership	7	-	-
Number of females	1	-	-
Proportion of females	14	-	-

The proportion of male to female employees and contractors is heavily weighted in favour of males across the whole company. This reflects the predominance of factory based work. However, moving into the management and administration sector, 29.8% of employees were female. This has been stable for the salmon facilities and Cargill Aqua Nutrition is working to encourage greater diversity across all employment sectors and especially in senior management.

## COLLECTIVE BARGAINING

Collective bargaining agreements have been made in 5 of the 12 countries, covering 37.5% of the workforce. Agreements vary between countries. The right to collective bargaining is available in all countries, but has not been taken up everywhere.

### Employees covered by collective bargaining agreement

% of employees	2013	2016	2017
Canada	73	69	65
Chile	57	54	87
Norway	51	46	54
Peru*	-	-	5
Vietnam	100	100	37

## MANAGEMENT STANDARDS

All factories using the EWOS brand adhere to the Cargill Aqua Nutrition integrated management system (IMS), which covers ISO 9001, 14,001, 22,000 and OHSAS 18001. In addition our facilities in USA, Canada, Chile and India are BAP certified; Canada, Norway, Chile and Vietnam are Global Gap certified and Scotland has equivalence through UFAS. Meantime many locations are in the process to introduce to IMS, GlobalGAP or BAP, according to market requirements. We are also expecting ASC to launch its feed standards for aquaculture in 2018 and aim to be amongst the first to be certified in some of our operations.

## SUPPLY CHAIN AUDITING

Our control of our supply chain relies on our Responsible Raw Material Sourcing Policy, cascading through our Supplier Code of Conduct and verified by supplier audits. 2017 saw updates of the Sourcing Policy and Code of Conduct, integrating the legacy EWOS system with the Cargill one. This resulted in a delay in our supplier audits against targets.

\* Senior management teams are the teams directly responsible for each country.

\*\* Global leadership team is the central team responsible for the management of Cargill Aqua Nutrition as a group.

GRI 102-41

\* No data for Peru in previous years

CQN 1-80

CQN 1-81

	CQN Total	Salmon Total	Warm Water Total
Planned	47	27	20
Performed	32	19	13
Performance (% of planned)	68	70	65

## ECONOMIC DISCLOSURES

### PRODUCTION AND SALES DATA

As a part of a private company, Cargill Aqua Nutrition is not able to disclose financial details on production and sales beyond Cargill's annual report. Tonnages produced and sold are disclosed in GRI 102-7.

### ECONOMIC VALUE

Community projects are particularly important to Cargill and all operations are encouraged to donate to relevant projects. In 2017 a total of US\$450,510 was given to local community projects by Cargill Aqua Nutrition operations. This does not include voluntary activities by employees to these and other projects.

### FINANCIAL ASSISTANCE RECEIVED FROM GOVERNMENT

Financial assistance from governments was received in Chile, China, Scotland and Thailand. This came in the form of tax relief and credits, subsidies and financial incentives, total \$2,415,043. The financial incentives were related to the use of renewable heat sources.

### MINIMUM WAGES

The average entry level wage for all employees was reported at or above national minimum wage requirements for all reporting countries. In some countries the entry level was exactly at the national minimum, but other countries were significantly above this minimum. China, India and Vietnam did not report on this indicator in 2017.

#### Minimum legal wage and entry level wages in Cargill Aqua Nutrition 2017

	Minimum Legal (USD)	Female (USD)	Male (USD)
Canada*	8.75	14.48	14.48
Chile*	2.31	3.97	2.93
Indonesia*	1.66	1.66	1.66
Mexico**	141.64	1 389.3	1 923.64
Norway*	20.77	21.98	21.98
Peru**	288.55	1 122.12	1 282.43
Scotland*	8.37	8.59	8.6
Thailand*	1.24	1.24	1.24
United States of America*	7.75	-	16.03

\* Hourly wages

\*\* Monthly wages

### PROPORTION OF LOCAL HIRES

Cargill Aqua Nutrition aims to use local management expertise where possible, but also encourages the movement of employees within the group to build experience and exchange knowledge. The majority of managers come from the country where the factories are located.

	CQN Total	Salmon Total	Warm Water Total
Total size of senior management group	47	27	20
Number of local hires for the senior management group	32	19	13
Percent of senior management hired from local community	68	70	65

### ANTI-CORRUPTION TRAINING

Centralised training on anti-corruption and other issues was carried out across Cargill Aqua Nutrition using our web based training platform. This revolved around Cargill's Guiding Principles document for employees, which has specific information around the issues of anti-corruption. In 2017, a total of 514 workers were trained, representing 30% of the total workforce. A strategic focus was made on management and administration, starting from the global leadership team down, but it was also available at all levels throughout the group.

GRI 201-1

GRI 201-4

GRI 202-1

GRI 202-2

GRI 205-2

	<b>CQN Total</b>	<b>Global Leadership Team</b>	<b>Salmon Total</b>	<b>Warm Water Total</b>
Workforce Trained (total)	514	7	330	177
Workforce Trained (per cent of total)	30	100	40	20

## ENVIRONMENTAL DISCLOSURES

### MATERIALS USED

The source and quantity of marine ingredients used in our feeds is of great interest to stakeholders, so some extra information is given below. Countries supplying less than 2% of the total were not included in the list, except for soy and palm producers which are listed in parentheses if they were less than 2% of the total. The data for this indicator are managed between the RMS and formulation teams.

### GENERAL INGREDIENTS – SALMON

Relatively little change was seen between 2016 and 2017, although there was a slight increase in fishmeal use and a reduction in the use of soy proteins.

<b>Ingredient Category*</b>	<b>Group Average (% of total)</b>	<b>Countries of Origin</b>
Fishmeal	20.1%	see below
<i>of which Trimmings Meals</i>	6.8%	
Fish oil	10.6%	see below
<i>of which Trimmings Oils</i>	3.3%	
Vegetable Proteins	27.2%	Argentina, Bolivia, Brazil, Canada, Chile, China, India, Lithuania, Netherlands, Russia, Ukraine, UK, USA
<i>of which Soy Proteins</i>	12.9%	Brazil (Argentina, Bolivia, China)
Vegetable Oils	15.8%	Canada, Germany, UK, USA, others
<i>of which Soy Oil</i>	1.0%	(Argentina, Brazil)
<i>of which Palm Oil</i>	0.0%	(Indonesia, Malaysia )
Animal by-Products	7.2%	Argentina, Brazil, Canada, Chile, France, Germany, Spain, UK, USA
Carbohydrates and Binders	15.5%	Canada, Chile, UK, USA, others
Vitamins, minerals and additives	3.6%	Multiple sources

### GENERAL INGREDIENTS – WARM WATER

Country of origin data were not available for a significant proportion of the warm water raw materials. This has led to a major project in the warm water group of facilities to map the source of raw materials in more detail, which should be completed by the end of 2018. There was also a gap in the data record available of raw ingredients purchased, with only 373,657t of raw materials recorded for 653,684t feed sold (57.2%).

This table highlights the great difference between salmon and warm water diets, which use much lower protein and oil concentrations and have much greater use of carbohydrates and binders. Vitamins, minerals and additives were not reported.

	<b>Warm water Use (% of total)</b>
Fishmeal	10.1%
Fish oil	1.1%
Vegetable Proteins	54.3%
<i>of which Soy Proteins</i>	34.8%
Vegetable Oils	0.6%
<i>of which Soy Oil</i>	0.5%
<i>of which Palm Oil</i>	0.0%
Animal by-Products	8.7%
Carbohydrates and Binders	25.1%

GRI 301-1







## FORAGE FISH MEALS AND OILS – SALMON

Whole fish caught for the purpose of making fishmeal and oil, forage fisheries were the main source of marine ingredients. This table shows the main species in alphabetical order, with the countries of landing and the percent composition of the total provided by each species. Species providing less than 2% of the total were compiled together in the Miscellaneous Species category, together with mixed catches where the percent of species was not known. This data was not available for all warm water feeds in 2017.

Species	Country of Origin	% of Forage
Blue whiting	Denmark, Faroe Islands, Iceland, Norway	44.7
Anchovy	Chile, Peru	21.2
Sand eel	Denmark, Norway	10.3
Sardine	Chile	8.7
Capelin	Iceland, Norway	3.1
Norway pout	Denmark, Norway	3.0
Misc. species	N/A	9.1



## TRIMMINGS MEALS AND OILS – SALMON

Waste material from fish caught for direct human consumption is an excellent use of natural resources and has comprised an increasing percent inclusion in salmon diets. However, there are limitations on how much can be included. As with forage fish, the table below shows the countries of landing the fish and species representing less than 2% of the total are combined into the Miscellaneous Species category. This data was not available for all warm water feeds in 2017.

Species	Country of Origin	% of trimmings
Herring trimmings	Denmark, Iceland, Norway	55.8
White fish offal	Denmark, Iceland, Norway, UK	19.5
Atlantic mackerel trimmings	Denmark, Iceland, Norway, UK	7.8
Capelin	Iceland	3.7
Yellow fin tuna (Tuna species)	Mexico	2.8
Misc. species	N/A	10.4



## CERTIFICATION OF MARINE INGREDIENTS – SALMON

Cargill Aqua Nutrition has a focus on purchasing certified fishmeal and oil, specifying IFFO RS and MSC certifications as the two of interest. We also support fisheries in the improvers' program or transitioning to these certifications. This disclosure shows the quantity of marine ingredients for salmon feed that were purchased from IFFO RS certified factories. This data is not yet available for warm water feeds.



### The proportion of marine ingredients for salmon feeds sourced from IFFO RS certified factories in 2017

	Fishmeal	Fish Oil	Fishmeal and Oil
Forage fish	94.3%	84.4%	89.9%
Trimmings	95.3%	78.9%	90.8%
Total	94.6%	82.7%	90.5%

## MARINE INDEX – SALMON

The marine index, or the proportion of the diet sourced from marine ingredients, has been a key point of interest for stakeholders in salmon aquaculture. The data for this indicator are managed between the RMS and formulation teams.

In 2017, the global use of marine ingredients by Cargill Aqua Nutrition was 30.7% as a percentage of feed sold (up slightly from 30.1% in 2016\*). This is completely different to the warm water index of 11.2% in 2017, but although the index in salmon has been relatively constant since 2011, it is a long way below the 55% marine ingredient use in 2005.

Insufficient data was available in 2017 to make the same calculation for the warm water feeds with a reasonable accuracy. Accurate data was only available for Vietnam, indicating that 1.3% fish oil was used (of which 0.5% was from trimmings) and 8.7% fishmeal was used (of which 4.7% was from trimmings). Local trash fish and a small proportion of Peruvian anchovy provided the balance of marine ingredients for Vietnam.

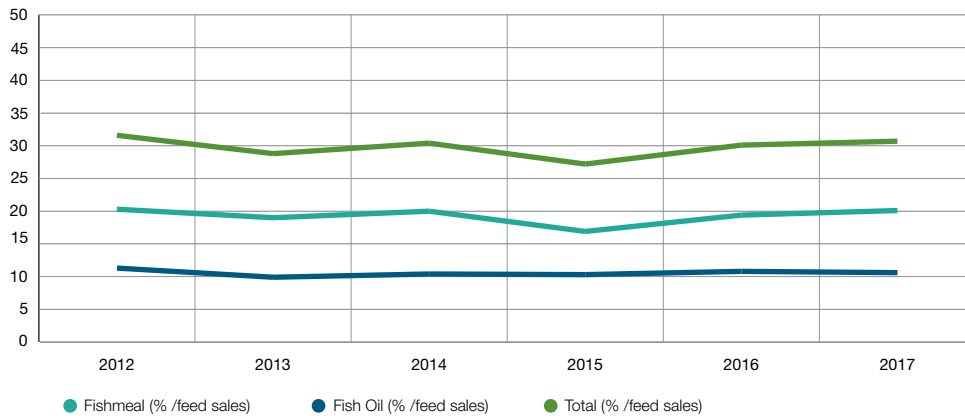
### CQN 3-80

\* Please note a slight correction from the published 2016 data which reported the marine index as 31.4%, when it was actually 30.1%



### Marine Index in Salmon feeds

Percent (marine ingredients/ feed sales)



### MARINE NUTRIENT RATIOS – SALMON

This calculation focussed solely on salmon feeds, which are regularly reviewed by stakeholders. Marine protein and oil dependency ratios were developed by Crampton et al (2010) and demonstrate how much of the nutrient value from marine ingredients is transformed into farmed salmon.



$$\text{MPDR} = \text{fishmeal\%} * 68\% * \text{average eFCR} / 17.5\%$$

$$\text{MODR} = (\text{fishoil\%} + (\text{fishmeal\%} * 8\%)) * \text{average eFCR} / 17.5\%$$

	2015	2016	2017
Global eFCR	1.24	1.27	1.23
Marine Protein Dependency Ratio (MPDR)	0.82	0.96	0.96
Marine Oil Dependency Ratio (MODR)	0.73	0.79	0.76

The ASC calculates the marine nutrient ratios according to only the forage fish sourced meal and oil in the feeds, providing a different calculation, which also takes into account the source of the oil. The current demands of the ASC are for FFDRm < 1.35 and FFDRo < 2.95 (ASC Salmon Standards 2012 which are currently under review). This is similar to the BAP fish in fish out (FIFO) calculations, but giving another set of values. BAP also use the forage fish derived meal and oil only, but sum them together, rather than considering them separately to generate their Feed Fish Inclusion Factor (FFIF), which can be used to calculate the Fish In Fish Out (FIFO) ratio by using the eFCR on farm.

$$\text{FFDRm} = (\text{forage fishmeal in feed \%} * \text{eFCR}) / 24\%$$

$$\text{FFDRo} = (\text{forage fish oil in feed \%} * \text{eFCR}) / 5\%$$

$$\text{FFIF} = (\text{forage fishmeal\%} + \text{forage fish oil\%}) * (\text{yield of fishmeal} + \text{yield of fish oil})$$

$$\text{FIFO} = (\text{forage fishmeal\%} + \text{forage fish oil\%}) * \text{eFCR} / (\text{yield of fishmeal} + \text{yield of fish oil})$$

	2015	2016	2017
Global eFCR	1.24	1.27	1.23
Forage Fish Dependency Ratio protein (FFDRp)	0.60	0.69	0.68
Forage Fish Dependency Ratio oil (FFDRo)	1.83	1.83	1.79
Feed Fish Inclusion Factor (FFIF)	0.69	0.73	0.75
Fish In Fish Out ratio (FIFO)	0.86	0.93	0.92

### PLANT INDEX – SALMON

Continuing from 2016, the salmon feed facilities report on use, origin and certification of soy and oil palm products. Total use of soy products in salmon feed was down slightly on 2016, but Chile has greatly increased its sourcing of certified soy according to EWOS requirements (from 8.7% certified in 2016). Palm oil is only used in Scotland and the total used was just over half of that in 2016. All of the palm oil was RSPO certified.

CQN 3-90



The data for this indicator are managed between the RMS and formulation teams.

		Canada	Chile	Norway	Scotland	Salmon total
Soy products	Total (t)	0	43,423	78,780	13,071	135,274
	Certifications	n/a	Cargill Triple S, ProTerra, RTRS	ProTerra	ProTerra, Organic	
	% certified	n/a	65.4%	100%	100%	88.9%
	Origins	n/a	Argentina, Bolivia, Brazil	Brazil	Brazil, China, India, West Africa	
Palm oil	Total (t)	0	0	0	368	368
	Certifications	n/a	n/a	n/a	RSPO	
	% certified	n/a	n/a	n/a	100%	100%
	Origins	n/a	n/a	n/a	Indonesia, Papua New Guinea	

### RECLAIMING AND RECYCLING PRODUCTS – SALMON

The data in this indicator refer to the packaging used for both inbound raw materials and outbound finished feeds and whether it was recycled, reclaimed or reused. This indicator is managed by the Operations team and has only been reported by the salmon feed businesses in 2017. The data previously reported in 2016 was incorrect and the total amount of packaging used is now correct here. However, there are clear discrepancies in the data reported for recycling, reclaiming and reuse as they occasionally add up to more than 100%. There were big differences between the countries in terms of recycling, with Scotland having the lowest rate.

	2013	2014	2015	2016	2017
Total packaging (t)	19,878	13,654	13,370	10,443	12,099
Total reclaimed (t)	4,526	3,382	6,099	5,043	3,633
Total reused (t)	4,131	4,052	3,750	2,669	308
Total recycled (t)	4,937	4,088	6,793	3,756	3,031
Recycled/total used	25%	30%	51%	36%	25%
Reclaimed + Reused + Recycled/total used	68%	84%	124%	110%	58%

### ENERGY USE

Data for energy use is under the control of the Operations team and has only been reported across the whole of Cargill Aqua Nutrition for 2017. However, information on the salmon feed facilities is available since 2013 and is shown separately.

Energy is used to drive the factories making the feed. Direct energy sources used on site include renewables (rice husk and wood chip based biofuels) and non-renewables (crude oil, diesel, fuel oil, LPG, natural gas and propane). Electricity was the only indirect energy source, taken from the local grid in all reporting facilities.

#### Energy use broken down by source for 2017 across Cargill Aqua Nutrition

	Direct Renewables (GJ)	Direct Non-renewables (GJ)	Indirect Electricity (GJ)	Total Energy (GJ)	Energy per tonne feed produced (GJ/t)
Cargill Aqua Nutrition	211,077	802,670	538,466	1,552,213	1.04
Salmon Total	36,620	578,620	364,783	980,023	0.99
Warm water Total	174,457	224,052	173,683	572,192	1.15

### ENERGY USE – SALMON

The total amount of energy used to produce salmon feeds has slowly reduced over time since 2013, with some fluctuations. Only Scotland is using renewable direct energy, which is being reduced through factory efficiencies. Further efficiencies across the group are also driving reduction of electricity use.

GRI 302-1/302-3



### Energy use by source for salmon feed production facilities

Energy Type	Energy Source	2013	2014	2015	2016	2017
Direct Energy (GJ)	Renewable	0	41,510	59,914	49,374	36,620
Direct Energy (GJ)	Non-renewable	709,491	622,020	575,777	495,212	578,620
Indirect Energy (GJ)	Electricity	430,282	482,211	447,668	412,874	364,783
Total Energy Use (GJ)		1,139,773	1,145,741	1,083,359	957,460	980,023
<i>Change relative to 2013 (%)</i>		-	0.5	-4.9	-16.0	-14.0
Energy per tonne feed (GJ/t)		1.02	1.02	0.99	1.03	0.99
<i>Change relative to 2013 (%)</i>		-	-0.6	-3.3	0.5	-2.8

### REDUCTION OF ENERGY CONSUMPTION

The variety of technologies and ages of the equipment used at the reporting facilities mean that it is difficult to apply the same solutions to reducing energy consumption across the whole group. However, a working team across Cargill Aqua Nutrition has been set up and in 2017 started to share best practises on simple energy savings. Work so far has focussed on replacing insulation of piping, installing steam traps where required and fixing compressed air leaks. Several facilities have also switched lighting to LEDs. A major initiative is still ongoing to develop best practises for start-up and shut-down of the facilities to further drive down energy use. Into the future, capital expenditure projects can be considered to replace old and inefficient equipment. By sharing knowledge across the group, the Operations team are able to determine the best solutions for the facilities which they operate in. However, no quantification of the results per se have been determined so far.

### WATER USAGE

Water is used in the production of feed as part of the cooking process in extrusion and steam pelleting. It is also used in the production of steam, for cooling and for treating some emissions. Monitoring of water use across the group only started in 2017 and has only been recorded in salmon since 2015.

The water used in the facilities can come from mains, by tanker or from abstraction from wells or rivers. This depends on the resources available at the facility. The source and the use is controlled by the Operations team at each facility. Across the group in 2017, groundwater provided 36.1% of total water use and the remainder came from municipal supplies.

### Water use across the group

		CQN Total	Salmon Total	Warm Water Total
Water use in fish feed production (litres)	2015	-	502,832,345	-
	2016	-	471,247,096	-
	2017	672,093,915	493,850,277	178,243,638
Water per tonne feed produced (litres/tonne)	2015	-	460	-
	2016	-	506	-
	2017	473	503	405

### IMPACT ON BIODIVERSITY AT THE FACILITY

None of the facilities are sited within sites of particular biodiversity importance and there are relatively few changes to the environment around the sites due to the activities of Cargill Aqua Nutrition. The impact of raw materials on biodiversity remains material to our activities and is reported within GRI 301-01 and in Better Supply Chain section, p. 30.

### GHG EMISSIONS (SCOPE 1 AND 2)

The GHG emissions from the facilities were calculated from the energy data (GRI 302-01) using the relevant conversion factors from the IEA. These take into account annual changes in fuel use for electricity generating in each country, together with the global conversion factors for each direct fuel.

As before, only the salmon facilities have historic data, which shows that relevant to the reference year of 2013, absolute scope 1&2 GHG emissions have decreased by 17.0% and emissions per tonne of feed produced by 6.6%. The data for the warm water feed facilities only started to be recorded in 2017, but Cargill Aqua Nutrition has a goal to reduce them by 20% by 2020, ahead of the Cargill corporate goal for these emissions.

GRI 302-4

GRI 303-1

GRI 304-2

GRI 305-1/305-2/305-4



### Absolute and average per tonne of feed produced scope 1&2 GHG emissions

	2013	2014	2015	2016	2017
Group Absolute Scope 1&2 GHG emissions (tCO <sub>2</sub> e)	-	-	-	-	97,148
Group Average Scope 1&2 GHG intensity (tCO <sub>2</sub> e/t feed produced)	-	-	-	-	0.068
Salmon Absolute Scope 1&2 GHG emissions (tCO <sub>2</sub> e)	67,453	61,259	57,946	50,942	55,969
<i>Salmon Absolute scope 1&amp;2 GHG change relative to 2013 (%)</i>	0.0%	-9.2%	-14.1%	-24.5%	-17.0%
Salmon Average Scope 1&2 GHG intensity (tCO <sub>2</sub> e/t feed produced)	0.061	0.054	0.053	0.055	0.057
<i>Salmon Average Scope 1&amp;2 GHG change relative to 2013 (%)</i>	0.0%	-11.5%	-13.1%	-9.8%	-6.6%
Warm Water Absolute Scope 1&2 GHG emissions (tCO <sub>2</sub> e)	-	-	-	-	41,179
Warm Water Average Scope 1&2 GHG intensity (tCO <sub>2</sub> e/t feed produced)	-	-	-	-	0.094

### ECOLOGICAL FOOTPRINT AND CARBON FOOTPRINT – SALMON

Ecological and carbon footprint models for salmon feeds have been used in EWOS since 2005. The models, however, have not been updated since 2015 as there are plans for a full revision within 2018 and 2019. This meant that in 2017, various proxies for data were used on raw materials and sources which were not in the available databases. The disclosure still provides an interesting overview of the total environmental impact of the raw material basket used for EWOS salmon feeds and shows good reductions in carbon footprint due to raw materials since 2013.

#### Ecological and Carbon footprints of salmon feeds from 2013

	2013	2014	2015	2016	2017
Total Feed Ecological Footprint (ha)	6,560,000	11,980,000	9,800,000	13,480,000	14,100,000
Average Feed Ecological Footprint (ha/t)	5.89	10.64	8.96	14.48	14.34
Total Feed Scope 3 GHG (tCO <sub>2</sub> e)	1,870,000	1,930,000	1,750,000	1,510,000	1,546,365
Average Feed Scope 3 GHG (tCO <sub>2</sub> e/t)	1.68	1.71	1.60	1.62	1.57
Total Feed Scope 1,2&3 GHG (tCO <sub>2</sub> e)	1,940,000	1,990,000	1,810,000	1,560,000	1,580,000
<i>Change compared to 2013 (%)</i>	-	2.6%	-6.7%	-19.6%	-18.6%
Average Feed Scope 1,2&3 GHG (tCO <sub>2</sub> e/t)	1.74	1.77	1.65	1.68	1.60
<i>Change compared to 2013 (%)</i>	-	1.7%	-5.2%	-3.4%	-8.0%

### WASTE BY TYPE

This disclosure covers the total waste from each facility, whereas GRI 301-03 covers just packaging from the salmon feed facilities. The fate of the waste is reported by the Operations team. Hazardous waste refers to chemicals from the onsite laboratories for analysing raw materials and feed. Recycled includes reused, composted and recovered waste streams – for all practical purposes, recycling was the majority of this category.

This was the first year that this full disclosure has been reported. As the feed bags are not included in this calculation, the total quantity of material is much lower than that in GRI 301-03. Whilst it is good to report that just under 71% of waste was recycled in 2017, more needs to be done to address this issue, especially with plastic waste.

#### Fate of waste from facilities in 2017 (tonnes)

	CQN Total	Salmon Total	Warm Water Total
Recycled	5,851	4,273	1,577
Incinerated	1,251	923	328
Landfill	1,133	553	580
Hazardous	40	21	18
Total	8,274	5,770	2,504
Percent recycled (%)	70.7	74.1	63.0

CQN 3-83



GRI 306-2

## MITIGATION OF ENVIRONMENTAL IMPACTS

Various projects were carried out at facilities to reduce energy use (and hence GHG emissions), water requirements and waste. These are detailed in the main body of the report in the Better Operations section (p 26).

## FINES FOR NON-COMPLIANCE WITH ENVIRONMENTAL SAFETY LAWS

Two breaches of regulations were identified at Cargill Aqua Nutrition businesses during 2017. A spill of fish oil from a storage facility into the sea in Norway was resolved without a fine. However, in Vietnam, a fine of US\$1,400 was imposed on one facility for failing to meet its Environmental Impact Assessment (EIA), particularly with reference to controls of phenol and ammonia which were not met. The whole group works to operate within all local legislative limits.

### Summary of sanctions and fines imposed for non-compliance with environmental safety laws in 2017 across the whole of Cargill Aqua Nutrition

	Issue	Fine (USD)
Vietnam	Failure to control emissions in line with Environmental Impact Assessment	1,400
Norway	Spill of fish oil from facility into the sea	No fine imposed

## FEED EFFICIENCIES – SALMON

The efficiency that fish can convert the nutrients in the feed into flesh is an important indicator of how well the diet meets the needs of the fish and the farmers. The data is collected from a variety of customers in each country and gives an indication of how well the feeds are performing in the market place. The data is only available for the salmon feed facilities and is relatively similar to that shown in 2016.

### Examples of feed efficiencies from 2017

		Salmon Total	Canada	Chile	Norway	Scotland
bEFI	2017	99	99	102	93	96
bFCR	2017	1.16	1.23	1.24	1.14	1.18
eEFI	2017	102	105	108	99	104
eFCR	2017	1.23	1.30	1.31	1.20	1.28

## HEALTH FEED SALES (PROPORTION OF SALES)

Functional feeds providing health or health and performance benefits to the fish are important parts of Cargill Aqua Nutrition's offerings to customers. Originally developed in salmon, the concepts have been applied to warm water feeds and are starting to gain ground. They help to improve the health and welfare of the animals and can be used as part of an integrated health management approach, thus reducing the need to resort to antibiotic treatments.

### Per cent sales of health or health and performance functional feeds across Cargill Aqua Nutrition

	CQN Total	Salmon Total	Warm Water Total
2013	-	16.5%	-
2014	-	20.6%	-
2015	-	18.8%	-
2016	-	28.5%	-
2017	20.6%	24.2%	8.7%

## ANTI-PARASITIC FEED SALES – SALMON

Previously reported as medicated feeds, this disclosure relates to the proportion of feeds made with medicines to remove parasites, particularly sealice. These feeds are only made to order on receipt of a veterinary prescription for the medicines, which specifies the dose, quantity and feeding duration. The disclosure only shows the proportion of total sales volume which contained such medication and only relates to salmon feeds.

CQN 3-85

GRI 307-1

CQN 3-86



CQN 3-87

CQN 3-88



### Proportion of feed sold with anti-parasite medication

	Salmon Total	Canada	Chile	Norway	Scotland
2013	2.1%	1.51%	2.47%	3.56%	1.64%
2014	2.2%	1.22%	0.89%	3.44%	2.91%
2015	2.7%	1.75%	0.61%	3.26%	3.96%
2016	2.8%	0.99%	0.59%	1.71%	4.59%
2017	1.7%	1.87%	0.67%	3.41%	2.03%

### ANTIBIOTIC FEED SALES – SALMON

As with the anti-parasite medicines, antibiotics are only added to Cargill Aqua Nutrition feeds on receipt of a veterinary prescription, detailing the product, dose and quantity of feed required. Antibiotics are used in salmon to treat diseases which would otherwise cause severe health and welfare issues, potentially killing many fish. Their use is an indicator of the disease challenges faced by the industry and the options that the farmers have to keep their fish healthy. Many countries do not allow feed companies to add antibiotics to feed by law – instead dosing is carried out at the farm. But all of Cargill Aqua Nutrition’s salmon feed facilities reported on this indicator.

CQN 3-89



### Proportion of feed sold containing antibiotics

	Salmon Total	Canada	Chile	Norway	Scotland
2013	8.06%	2.08%	11.13%	0%	0.00%
2014	7.47%	1.89%	10.83%	0%	0.02%
2015	9.49%	2.66%	14.13%	0%	0.06%
2016	5.35%	1.56%	8.61%	0%	0.02%
2017	6.41%	2.11%	9.53%	0%	0.02%

## SOCIAL DISCLOSURES

### OCCUPATIONAL HEALTH AND SAFETY

Occupational health and safety is managed within the Environmental Health and Safety part of the operations team. Our methods for measuring injury and occupational disease rates are laid out in the Cargill Injury and Illness Metric Criteria and Definitions and are reported here within the GRI reporting framework.

GRI 403-2

#### Injuries and Occupational Diseases – Employees and Contractors

This data is reported across all of the Cargill Aqua Nutrition facilities – factories and offices. Due to centralised reporting, it is now no longer possible to separate employees from contractors and male from female.

Cargill has a strong focus on safety and many safety initiatives have been run during 2017. The reportable injury frequency rate (RIFR) is now lower than it was for EWOS and about half of that for the group in 2016. Also it is good to see that 70% of our factories and offices were accident free in 2017. In 2018 we will continue with our drive towards a Zero Harm Culture. Focus will be on further improving employee engagement, enhancing the Environmental Health and Safety (EH&S) organisation structure, creating innovative EH&S solutions and establishing standard processes and systems that are deployed globally.

#### Summary of injury rates for Cargill Aqua Nutrition factories and offices in 2017

	Reported Injuries	Days Lost	Fatalities	RIFR	SIFR	Lost Day Rate	Accident Free Sites
Cargill Aqua Nutrition	23	106	0	0.569	0.149	2.62	70%

RIFR – Reportable Injury Frequency Rate per 200,000hrs worked

SIFR – Serious Injury Frequency Rate per 200,000hrs worked

## TRAINING

Training is essential to employee development at all levels. Cargill provides a lot of opportunities for training its employees, but the changes in the HR department across Cargill Aqua Nutrition did mean that a lot of training records were not maintained in 2017. This resulted in very low apparent rates for some countries, where it was known that more training was carried out. We are continuing to work to improve data collection for this disclosure in 2018.

The salmon feed facilities continued with their previous rate of training, with female employees having slightly more training than males. Management and admin teams received more training than other employees – perhaps reflecting the continued integration process.

### Average hours training per employee category

		2013	2014	2015	2016	2017
Total employee training	CQN	-	-	-	-	13.1
	Salmon	38.7	36.8	38.2	35.3	42.7
	Warm	-	-	-	-	1.8
Total female training	CQN	-	-	-	-	20.5
	Salmon	60.6	49.6	43.6	43.7	47.2
	Warm	-	-	-	-	7.2
Total male training	CQN	-	-	-	-	11.6
	Salmon	34.8	34.6	37.2	33.4	41.5
	Warm	-	-	-	-	0.8
Management and admin training	CQN	-	-	-	-	30.4
	Salmon	49.1	36.5	57.0	53.4	46.2
	Warm	-	-	-	-	10.7
Other employee training	CQN	-	-	-	-	16.3
	Salmon	40.2	41.2	37.0	32.5	21.4
	Warm	-	-	-	-	2.7
Permanent employee training	CQN	-	-	-	-	10.9
	Salmon	39.0	36.7	38.6	35.3	28.5
	Warm	-	-	-	-	0.9
Temporary or part-time employee training	CQN	-	-	-	-	27.1
	Salmon	21.7	23.5	17.2	23.9	31.1
	Warm	-	-	-	-	16.3

## CHILD LABOUR

Across Cargill Aqua Nutrition there were no incidences or risks of child labour reported in 2017 in our own facilities. All facilities have a zero tolerance to child labour and obey the local national regulations on this topic. All employees have their identity cards checked to confirm their age on joining.

Raw material supply chains remain a potential risk for child labour. In 2017, all suppliers signed the Supplier Code of Conduct, or provided their own similar code of conduct, which specifically addresses the issue of child labour. In the future, more investigation will be carried out as to the risk of child labour in our supply chains and where necessary audits will be undertaken to ensure that no child labour is used.

GRI 404-1

GRI 408-1





**VIOLATIONS OF INDIGENOUS PEOPLES' RIGHTS**

As for previous years, there are no violations to report. This disclosure is now found not to be material to Cargill Aqua Nutrition's activities and will not be reported on in the future.

**NON-COMPLIANCE WITH FOOD SAFETY**

There were no incidents of non-compliance with food safety across Cargill Aqua Nutrition in 2017.

**WHISTLE BLOWING**

There was one issue of whistle blowing across Cargill Aqua Nutrition in 2017. This was done anonymously and the issue has been successfully resolved.

**LOCAL COMMUNITY COMPLAINTS**

It is very important to be a good neighbour within the local communities where we operate. We aim for zero complaints over the year, but this is often difficult to achieve. This disclosure shows our performance. The biggest cause of complaints was around smell – fishmeal and fish oil have a pungent odour.

**Overview of causes of local community complaints in 2017**

	<b>CQN</b>	<b>Salmon</b>	<b>Warm Water</b>
Environmental	1	1	0
Noise	1	0	1
Smell	5	3	2
Traffic	0	0	0
Other	0	0	0
Total	7	4	3

**FINES FOR NON-COMPLIANCE WITH SOCIAL AND ECONOMIC LAWS AND REGULATIONS**

There were no cases of non-compliances with social or economic laws or regulations across Cargill Aqua Nutrition in 2017.

GRI 411-1

GRI 416-2

CQN 4-80

GRI 4-81

GRI 419-1



# GRI CONTENT INDEX

The following pages provide an index to GRI disclosures and other topics and impacts that we have identified as material in our operations.



## GENERAL DISCLOSURES

GRI Standard Number	GRI Standard Title	Disclosure Number	Disclosure Title ( <i>'a'</i> , <i>'b'</i> , <i>'c'</i> , etc.) are not listed here	Individual disclosure items	Core Options	Page	UNGC Principle (#)
GRI 102	General Disclosures	102-01	Name of the organization		Core	<u>2</u>	
GRI 102	General Disclosures	102-02	Activities, brands, products, and services		Core	<u>4-5</u>	
GRI 102	General Disclosures	102-03	Location of headquarters		Core	<u>Cover</u>	
GRI 102	General Disclosures	102-04	Location of operations		Core	<u>9, 34</u>	
GRI 102	General Disclosures	102-05	Ownership and legal form		Core	<u>4</u>	
GRI 102	General Disclosures	102-06	Markets served		Core	<u>4, 9</u>	
GRI 102	General Disclosures	102-07	Scale of the organization		Core	<u>4, 36, 38</u>	
GRI 102	General Disclosures	102-08	Information on employees and other workers		Core	<u>36</u>	<u>6</u>
GRI 102	General Disclosures	102-09	Supply chain		Core	<u>6-7, 39-42</u>	
GRI 102	General Disclosures	102-10	Significant changes to the organization and its supply chain		Core	<u>2, 34</u>	
GRI 102	General Disclosures	102-11	Precautionary Principle or approach		Core	<u>12</u>	<u>7</u>
GRI 102	General Disclosures	102-12	External initiatives		Core	<u>13-15</u>	<u>1-10</u>
GRI 102	General Disclosures	102-13	Membership of associations		Core	<u>14-15</u>	
GRI 102	General Disclosures	102-14	Statement from senior decision-maker		Core	<u>2-3</u>	
GRI 102	General Disclosures	102-16	Values, principles, standards, and norms of behavior		Core	<u>12</u>	<u>1-10</u>
GRI 102	General Disclosures	102-18	Governance structure		Core	<u>35</u>	
GRI 102	General Disclosures	102-40	List of stakeholder groups		Core	<u>14</u>	
GRI 102	General Disclosures	102-41	Collective bargaining agreements		Core	<u>37</u>	<u>3</u>
GRI 102	General Disclosures	102-42	Identifying and selecting stakeholders		Core	<u>14</u>	
GRI 102	General Disclosures	102-43	Approach to stakeholder engagement		Core	<u>14</u>	
GRI 102	General Disclosures	102-44	Key topics and concerns raised		Core	<u>14</u>	
GRI 102	General Disclosures	102-45	Entities included in the consolidated financial statements		Core	<u>34*</u>	
GRI 102	General Disclosures	102-46	Defining report content and topic Boundaries		Core	<u>12-13</u>	
GRI 102	General Disclosures	102-47	List of material topics		Core	<u>12-13</u>	
GRI 102	General Disclosures	102-48	Restatements of information		Core	<u>34</u>	
GRI 102	General Disclosures	102-49	Changes in reporting		Core	<u>34</u>	
GRI 102	General Disclosures	102-50	Reporting period		Core	<u>34</u>	
GRI 102	General Disclosures	102-51	Date of most recent report		Core	<u>34</u>	
GRI 102	General Disclosures	102-52	Reporting cycle		Core	<u>34</u>	
GRI 102	General Disclosures	102-53	Contact point for questions regarding the report		Core	<u>53</u>	
GRI 102	General Disclosures	102-54	Claims of reporting in accordance with the GRI Standards		Core	<u>34</u>	
GRI 102	General Disclosures	102-55	GRI content index		Core	<u>50</u>	
GRI 102	General Disclosures	102-56	External assurance		Core	<u>35</u>	
GRI 103	Management Approach	103-1	Explanation of the material topic and its Boundary		Core	<u>12-13</u>	
GRI 103	Management Approach	103-2	The management approach and its components		Core	<u>12-13, 35</u>	
GRI 103	Management Approach	103-3	Evaluation of the management approach		Core	<u>35</u>	

\* As a privately owned company, Cargill does not openly disclose details to the level of Cargill Aqua Nutrition.



## ECONOMIC, ENVIRONMENTAL AND SOCIAL STANDARD DISCLOSURES

GRI Standard Number	GRI Standard Title	Disclosure Number	Disclosure Title Individual disclosure items ('a', 'b', 'c', etc.) are not listed here	Topic Boundary	Page	UNGC Principle
GRI 201	Economic Performance	201-1	Direct economic value generated and distributed	Local community	<u>38</u>	
GRI 201	Economic Performance	201-4	Financial assistance received from government	Internal	<u>38</u>	
GRI 202	Market Presence	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	Local community	<u>38</u>	<u>6</u>
GRI 202	Market Presence	202-2	Proportion of senior management hired from the local community	Local community	<u>38</u>	<u>6</u>
GRI 205	Anti-Corruption	205-2	Communication and training about anti-corruption policies and procedures	Internal	<u>38</u>	<u>10</u>
GRI 301	Materials	301-1	Materials used by weight or volume	Upstream	<u>39</u>	<u>7</u>
GRI 301	Materials	301-3	Reclaimed products and their packaging materials	Upstream	<u>42</u>	<u>8</u>
GRI 302	Energy	302-1	Energy consumption within the organization	Internal	<u>42</u>	<u>7</u>
GRI 302	Energy	302-3	Energy intensity	Internal	<u>42</u>	<u>8</u>
GRI 302	Energy	302-4	Reduction of energy consumption	Internal	<u>43</u>	<u>9</u>
GRI 303	Water	303-1	Water withdrawal by source	Internal	<u>43</u>	<u>7</u>
GRI 304	Biodiversity	304-2	Significant impacts of activities, products, and services on biodiversity	Internal	<u>43</u>	<u>8</u>
GRI 305	Emissions	305-1	Direct (scope 1) GHG emissions	Internal	<u>43</u>	<u>7</u>
GRI 305	Emissions	305-2	Energy indirect (scope 2) GHG emissions	Upstream	<u>43</u>	<u>7</u>
GRI 305	Emissions	305-4	GHG emissions intensity	Internal	<u>43</u>	<u>8</u>
GRI 306	Effluents and waste	306-2	Waste by type and disposal method	Internal	<u>44</u>	<u>7</u>
GRI 307	Environmental Compliance	307-1	Non-compliance with environmental laws and regulations	Internal	<u>45</u>	<u>8</u>
GRI 403	Occupational Health and Safety	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Internal	<u>46</u>	
GRI 404	Training and Education	404-1	Average hours of training per year per employee	Internal	<u>47</u>	<u>6</u>
GRI 408	Child Labor	408-1	Operations and suppliers at significant risk for incidents of child labor	Internal	<u>47</u>	<u>5</u>
GRI 411	Rights of Indigenous Peoples	411-1	Incidents of violations involving rights of indigenous peoples	Internal	<u>48</u>	<u>1</u>
GRI 416	Customer Health and Safety	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Internal	<u>48</u>	
GRI 419-1	Socioeconomic Compliance	419-1	Non-compliance with laws and regulations in the social and economic area	Internal	<u>48</u>	<u>1</u>

## CUSTOMIZED DISCLOSURES

Customized	CQN 1-80	Management standards	Internal	<u>37</u>	<u>7</u>
Customized	CQN 1-81	Supply chain auditing	Internal	<u>37</u>	<u>2</u>
Customized	CQN 3-80	Marine index	Upstream	<u>40</u>	<u>7</u>
Customized	CQN 3-83	Ex-work ecological footprint	Internal	<u>44</u>	<u>8</u>
Customized	CQN 3-85	Mitigation of environmental impacts	Internal	<u>45</u>	<u>8</u>
Customized	CQN 3-86	Feed efficiencies	Downstream	<u>45</u>	<u>9</u>
Customized	CQN 3-87	Health feed sales	Downstream	<u>45</u>	<u>9</u>
Customized	CQN 3-88	Anti-parasitic feed sales	Downstream	<u>45</u>	<u>9</u>
Customized	CQN 3-89	Antibiotic feed sales	Downstream	<u>46</u>	<u>9</u>
Customized	CQN 3-90	Plant index	Upstream	<u>41</u>	<u>7</u>
Customized	CQN 4-80	Whistle blowing incidents	Internal	<u>48</u>	<u>1-10</u>
Customized	CQN 4-81	Local community complaints	Local Community	<u>48</u>	<u>1</u>



# Abbreviations

## A

**AGD**  
amoebic gill disease

**ASC**  
Aquaculture  
Stewardship Council

## B

**BAP**  
Best Aquaculture  
Practices

**bEFI**  
biological EWOS  
Feed Index

**bFCR**  
biological feed  
conversion rate

## C

**CIC**  
Cargill Innovation Center

**CNS**  
Cargill Nutrition System

**CQN**  
Cargill Aqua Nutrition

## D

**DHA**  
docosahexaenoic acid

## E

**eEFI**  
economic EWOS  
Feed Index

**EF**  
Ecological footprint

**eFCR**  
economic feed  
conversion ratio

## EFI

EWOS Feed Index

**EH&S**  
environmental health  
and safety

**EGI**  
EWOS Growth Index

**EPA**  
eicosapentaenoic acid

**EU**  
European Union

## F

**FAO**  
Food and Agriculture  
Organization of the  
United Nations

**FCR**  
feed conversion ratio

**FEFAC**  
European Feed  
Manufacturers' Federation

**FFDR<sub>m</sub>**  
forage fish dependency  
ratio meal

**FFDR<sub>o</sub>**  
forage fish dependency  
ratio oil

**FIP**  
Fishery Improvement  
Program

**FReSH**  
Food Reform for  
Sustainability and Health

**FSQR**  
Food Safety, Quality  
and Regulatory

## G

**GHG**  
greenhouse gas

**GlobalG.A.P**  
Good Agricultural  
Practice

**GMO**  
genetically modified  
organism

**GRI**  
Global Reporting  
Initiative

**GSI**  
Global Salmon Initiative

## I

**IFFO RS**  
The Marine Ingredients  
Organization Global  
Standard for Responsi-  
ble Supply

**ILO**  
International Labour  
Organization

**IMS**  
integrated management  
system

**IUU**  
illegal, unreported,  
unregulated

## L

**LCA**  
life cycle assessment

## M

**MODR**  
marine oil dependency  
ratios

**MPDR**  
marine protein  
dependency ratio

**MSC**  
Marine Stewardship  
Council

## N

**NGO**  
non-governmental  
organization (eNGO:  
environmental NGO)

## P

**PCB**  
polychlorinated biphenyl

**PEF**  
Product Environmental  
Footprints PEF

## R

**RIFR**  
reportable injury  
frequency rate

**RSPO**  
Roundtable on  
Sustainable Palm Oil

**RTRS**  
Round Table  
Responsible Soy

## S

**SDG**  
Sustainable  
Development Goal

**SeaBOS**  
Seafood Business for  
Ocean Stewardship

**SFP**  
Sustainable Fisheries  
Partnership

**SIFR**  
serious injury frequency  
rate

**SNP**  
Sociedad Nacional  
de Pesquería  
(Peruvian National  
Fisheries Society)

**SRS**  
salmonid rickettsial  
septicaemia

## T

**TAC**  
technology application  
center

## U

**UKAS**  
United Kingdom  
Accreditation Service

**UN**  
United Nations

**UNGC**  
United Nations  
Global Compact

**USD**  
United States Dollar



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