



**nuterra™**

**Our sustainability programme**

It's not just what we aspire to do,  
it's what we do

## Sustainability report

Global · 2017



## SKRETTING SUSTAINABILITY REPORT 2017

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18 million people around the world have a source of income and livelihood from the aquaculture sector



## How do we feed 9 billion people with sustainable seafood by 2050?

Aquaculture can deliver healthy, safe and delicious seafood. It is our primary option for meeting the growing demand for seafood, while maintaining wild fishery harvests at sustainable levels. By ensuring that sustainability is kept at the core of the aquaculture industry's growth, we will contribute to feeding 9 billion people with sustainable seafood by 2050.



### **GROWTH IN SEAFOOD CONSUMPTION MUST COME FROM FARMED FISH AND SHRIMP**

Most of the world's marine capture fisheries are fully fished and have no potential for increasing production according to Food and Agriculture Organization of the United Nations (FAO). The increased demand must be met by aquaculture.



### **FARMED FISH AND SHRIMP REPRESENT FOOD AND NUTRITIONAL SECURITY**

Consumption of aquaculture products represents one fifth of the global population's intake of animal protein. Even consuming small quantities of seafood can have a positive nutritional impact, particularly in less developed countries. It is also important for correcting unbalanced diets and countering obesity.



### **FARMING FISH AND SHRIMP IS AN EFFICIENT FOOD PRODUCTION METHOD WITH A LOW ENVIRONMENTAL FOOTPRINT**

Compared to terrestrial land-animals, fish and shrimp are very efficient in converting feed into protein, without a high impact on the environment.



### **SUPPORTING ECONOMIC GROWTH AND PROVIDING DECENT WORK**

Aquaculture is predominantly conducted in rural areas. It plays an important role in supporting local communities, such as creating jobs and much-needed infrastructure linking rural communities together to benefit the whole country.

# Our global sustainability effort

Skretting is focussed on doubling food production while halving our footprint. Our continued operational expansion into developing countries within Africa and Asia targeting new species is key to achieving our mission.



Companies are listed in order of oldest to newest. Smaller red dots indicate additional plants in the country.

## 1 SKRETTING GROUP

**Head Office:** Skretting Group  
**Head Office:** Skretting Aquaculture Research Centre (ARC)

## 1 SKRETTING NORWAY

**R&D:** Skretting ARC Lerang Research Station  
**Plants:** Stokmarknes, Averøy and Stavanger  
**Feed for:** Atlantic salmon, seawater trout, cod, halibut, catfish and wrasse

## 2 SKRETTING FRANCE

**Plants:** Vervins and St Hervé  
**Feed for:** Freshwater trout, sea bass, sea bream, turbot, salmon, catfish, tilapia, sturgeon, eel, carp and shrimp

## 3 SKRETTING ITALY

**R&D:** Skretting ARC Mozzecane Research Station and Skretting Validation Station Italy  
**Plant:** Mozzecane  
**Feed for:** Freshwater trout, sea bass, sea bream, sturgeon, eel, catfish and carp

## 4 SKRETTING UK

**Plants:** Invergordon and Longridge  
**Feed for:** Atlantic salmon, freshwater and seawater trout, carp, tilapia and sea bass

## 5 SKRETTING CHILE

**Plants:** Osorno, Pargua and Puerto Montt  
**Feed for:** Atlantic salmon, pacific salmon, freshwater and ocean trout, tilapia, shrimp and yellowtail amberjack

## 6 SKRETTING SPAIN

**Plant:** Cojóbar  
**Feed for:** Freshwater trout, sea bass, sea bream, turbot, sole, meagre, eel, carp, catfish, amberjack and sturgeon

## 7 SKRETTING CANADA

**Plants:** Vancouver and St. Andrews  
**Feed for:** Atlantic salmon, arctic char, pacific salmon, sable fish, sturgeon, trout, halibut and tilapia

## 8 SKRETTING JAPAN

**R&D:** Skretting ARC Kagoshima Research Station  
**Plant:** Imari  
**Feed for:** Yellowtail, red sea bream, amberjack, striped jack, sea bass, freshwater and seawater trout

## 9 SKRETTING AUSTRALIA

**R&D:** Skretting Validation Station Australia  
**Plant:** Hobart  
**Feed for:** Atlantic salmon, chinook salmon, barramundi, yellowtail kingfish, abalone, freshwater and seawater trout

## 10 SKRETTING EGYPT

**R&D:** Skretting Validation Station Egypt  
**Plant:** Belbies  
**Feed for:** Tilapia, catfish, mullet, carp and sea bass

## 11 SKRETTING USA

**Plant:** Salt Lake City  
**Feed for:** Barramundi, char, catfish, hybrid striped bass, koi, largemouth bass, pacific salmon, sturgeon, steelhead, tilapia and trout

## 12 SKRETTING TURKEY

**Plant:** Güllük  
**Feed for:** Freshwater trout, carp, sea bass and sea bream

## 13 SKRETTING BRAZIL

**Plants:** Teresina and Ceará  
**Feed for:** Shrimp, tilapia and tambaqui

## 14 SKRETTING VIETNAM

**Plants:** Ho Chi Minh City and Long An Province  
**Feed for:** Black tiger shrimp, whiteleg shrimp, giant freshwater prawn, red tilapia, snakehead, climbing perch, pangasius (fingerlings), sturgeon, Asian sea bass, groupers, cobia, clown featherback, snakeskin gourami and pompano

## 15 SKRETTING CHINA

**R&D:** Skretting ARC Hezhoubei Research Station  
**Plant:** Zhuhai  
**Feed for:** Whiteleg shrimp, black tiger shrimp, trout, sea bass, snakehead, golden pompano, catfish and sturgeon

## 16 SKRETTING NIGERIA

**Plant:** Ibadan  
**Feed for:** African catfish and tilapia

## 17 SKRETTING ECUADOR

**R&D:** Skretting Validation Station Ecuador  
**Plants:** Three in Guayaquil  
**Feed for:** Shrimp, tilapia and trout

## 18 SKRETTING ZAMBIA

**Plants:** Siavonga  
**Feed for:** Tilapia

## 19 SKRETTING HONDURAS

**Plant:** San Francisco de Yojoa  
**Feed for:** Shrimp and tilapia

# Governance and Strategy

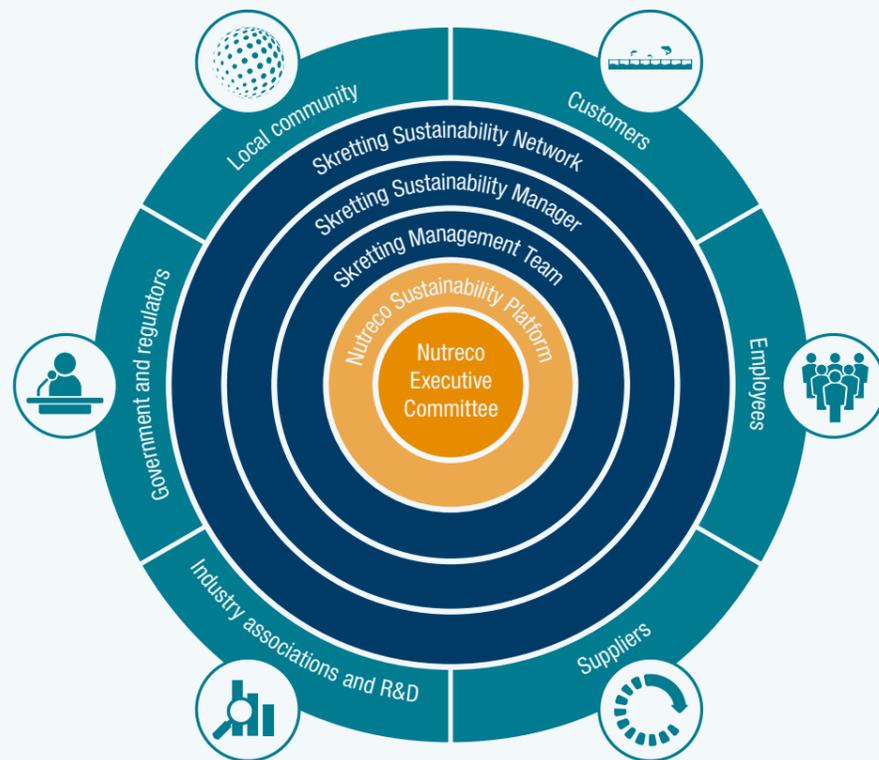
Skretting is owned by Nutreco, a global leader in animal nutrition and aqua feed. In October 2017, the Nutreco Executive Committee announced a restructuring of the company, with a shift from six Business Units to two Divisions. This means that all Operating Companies (OpCos) producing for aquaculture will be in the Skretting division and those dealing predominantly with land animals will be part of Trouw Nutrition division. In addition, Nutreco has established a third group that will be responsible for overseeing innovation and disruptive business ideas.

In November, Therese Log Bergjord was appointed Chief Executive Officer of the Skretting division. She is a member of the Nutreco Executive Committee. Since the changes to the company structure were implemented in the fourth quarter of 2017, this report will partly maintain the original reporting structure based on the six BUs.

## SKRETTING SUSTAINABILITY GOVERNANCE

The sustainability governance within Skretting has changed slightly to be in line with the aforementioned structural changes. The Nutreco Sustainability Platform (NSP) sees this as a positive change and a way to have a more focused approach to dealing with sustainability issues that are relevant to the different divisions.

The Sustainability Manager in Skretting reports to the Marketing Director. In 2017, we strengthened sustainability governance with the appointment of a Nuterra Champion in each Skretting OpCo. This programme was initiated in October with the full support of management and the NSP. Nuterra Champions will devote 20–30% of their time to executing sustainability-related tasks and providing feedback to the NSP on sustainability issues that are relevant to their OpCos.



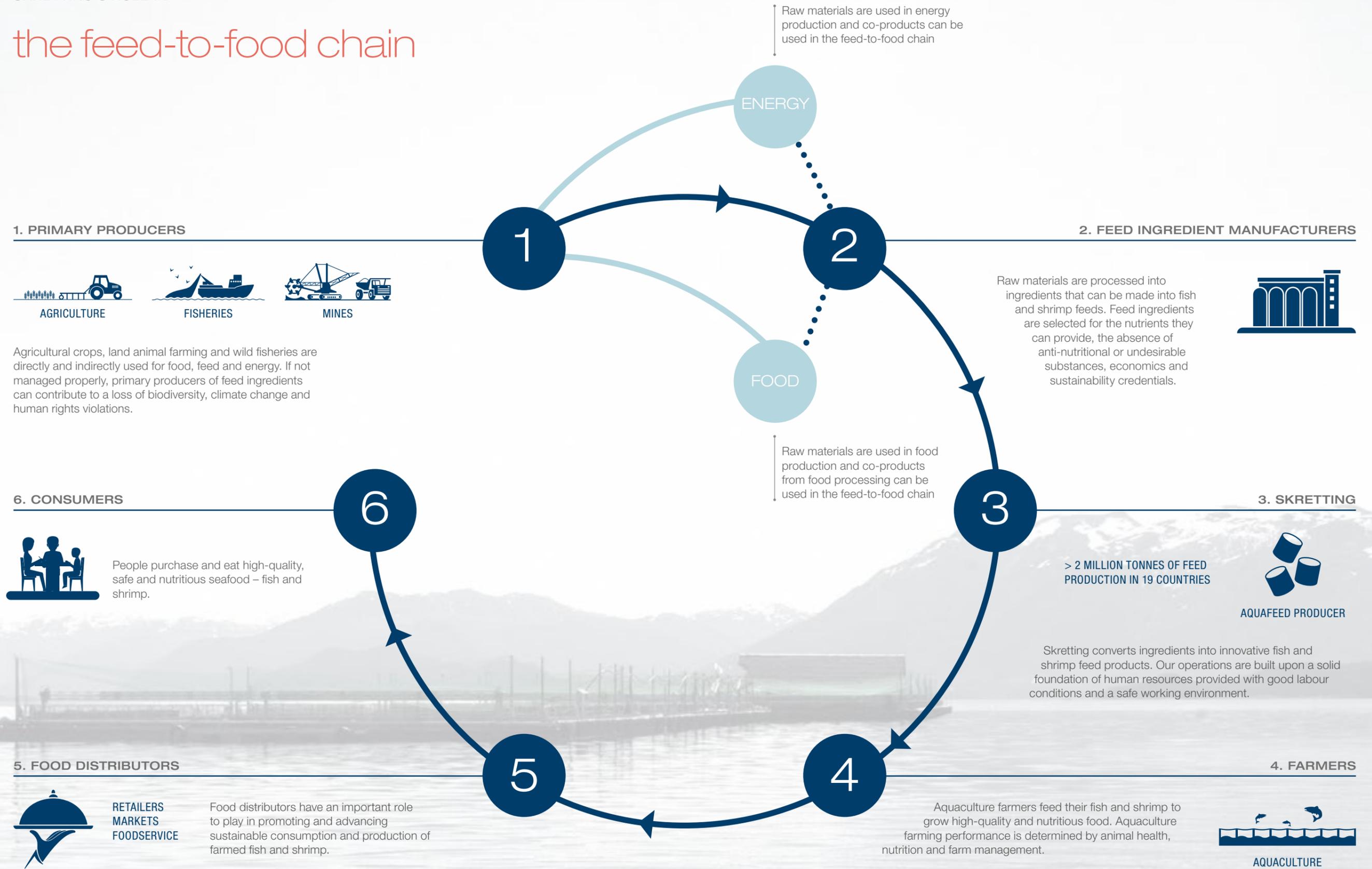
Governance structure shown after organisation changes in effect from 1 of October 2017

# Materiality – Issues of greatest concern

The content of this report is based on the findings of our materiality assessment. Nutreco and Skretting undertook a full materiality assessment in 2015 which was reviewed internally in 2016. This year another internal review was undertaken by the NSP during which it was decided that no further changes were needed for the current model. Plans are underway to conduct a full revision of our materiality assessment in 2018. This will include reaching out to stakeholders from various areas of our global value chain including suppliers, customers and Skretting employees.

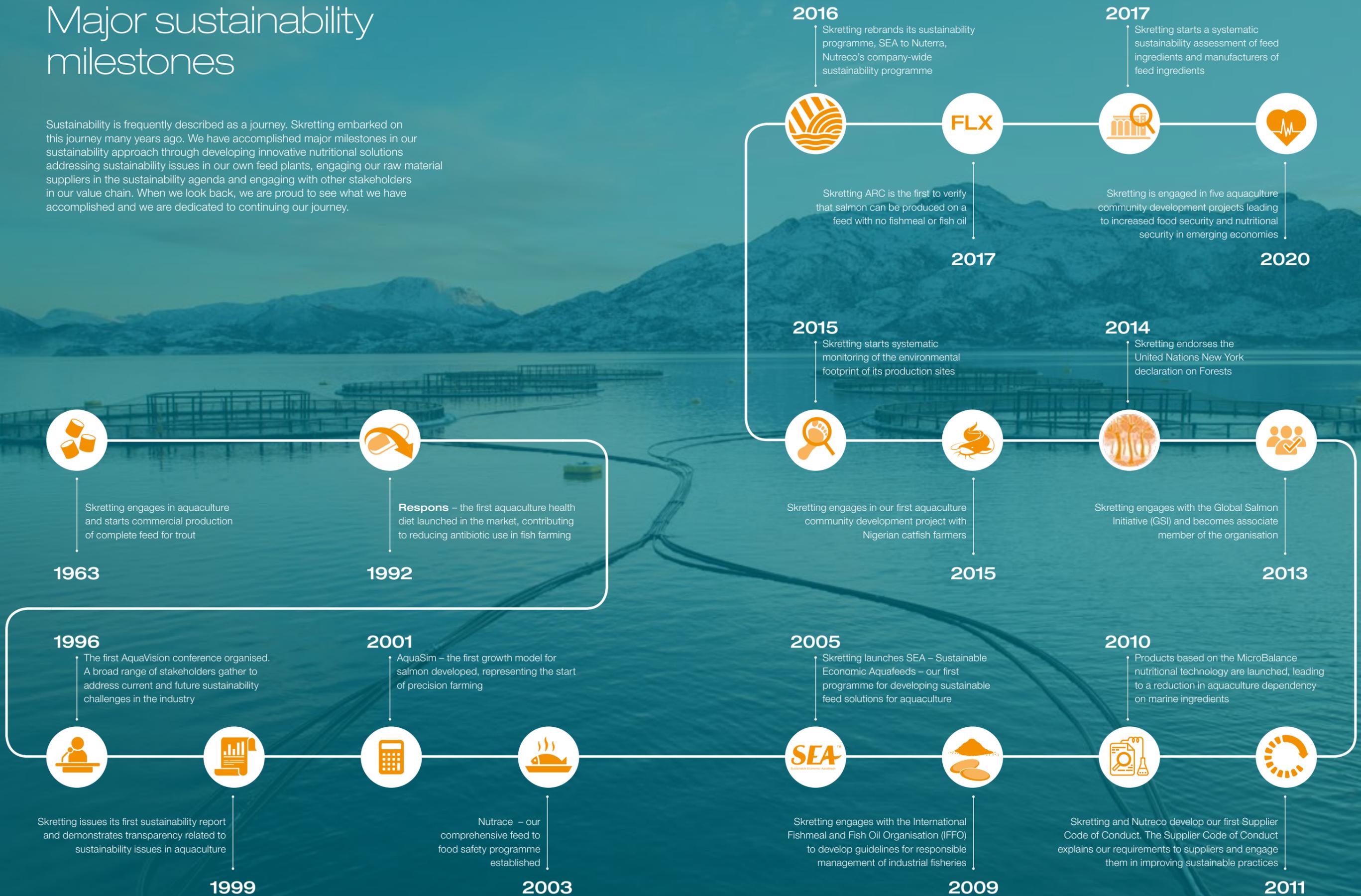
NUTERRA FOCUS AREA	OUR MOST IMPORTANT SUSTAINABILITY ISSUES
<p><b>NUTRITIONAL SOLUTIONS</b></p>  <p><b>ENABLING THE ANIMAL AND FARMER TO PERFORM BETTER</b></p>	<p><b>Animal health</b> supporting and strengthening health  <b>Antibiotics</b> helping to prevent antibiotic use  <b>Animal welfare</b> meeting nutritional demands  <b>Raw material scarcity</b> producing more with less feed  <b>Precision farming</b> tools and education for farmers  <b>Marine raw materials</b> reducing the nutritional need for marine ingredients  <b>Financial performance</b> creating innovative and high value products</p>
<p><b>INGREDIENTS</b></p>  <p><b>CREATING A SUSTAINABLE BASE FOR FEED</b></p>	<p><b>Biodiversity</b> no agricultural ingredients cultured in valuable habitat areas  <b>Deforestation</b> no agricultural ingredients cultured in illegally deforested areas  <b>Land/water shortage</b> finding alternative ingredients that use less arable land  <b>Raw material scarcity</b> increased use of co-products and support of circular economy  <b>Slavery/human rights</b> improved risk assessment of suppliers and ingredients</p>
<p><b>OPERATIONS</b></p>  <p><b>ENSURING OUR OWN HOUSE IS IN ORDER</b></p>	<p><b>Climate change</b> mapping and monitoring our carbon emissions  <b>Labour conditions</b> creating a safe working place  <b>Land/water shortage</b> reducing use of water in feed production</p>
<p><b>COMMITMENT</b></p>  <p><b>INVOLVING PEOPLE IN THE CHALLENGE OF «FEEDING THE FUTURE»</b></p>	<p><b>Deforestation</b> signing the New York Forest declaration and the Cerrado Manifesto  <b>Marine raw materials</b> participation in Fishery Improvement Project in Peru and Vietnam  <b>Slavery/human rights</b> participation in the Seafood Business for Ocean Stewardship  <b>Precision farming/efficiency</b> community development projects in Nigeria and Zambia</p>

# the feed-to-food chain



# Major sustainability milestones

Sustainability is frequently described as a journey. Skretting embarked on this journey many years ago. We have accomplished major milestones in our sustainability approach through developing innovative nutritional solutions addressing sustainability issues in our own feed plants, engaging our raw material suppliers in the sustainability agenda and engaging with other stakeholders in our value chain. When we look back, we are proud to see what we have accomplished and we are dedicated to continuing our journey.





39  
DEDICATED  
RESEARCHERS



250  
RESEARCH  
PROJECTS



15  
MILLION EURO  
IN R&D

## 7 new products worldwide

Optiline



N<sup>3</sup>



PRIME & EXPRESS

SHIELD



## Nutritional solutions

SKRETTING'S OBJECTIVE: To develop unique combinations of products, services and models that are designed to help farmers boost productivity, support animal health and minimise negative environmental impacts.

**WHAT DID WE DO IN 2017?** 250 research projects were in progress by 39 dedicated researchers at Skretting ARC. Projects were prioritised based on the best potential to deliver significant improvements or open up new areas and possibilities.

Regular meetings in the Skretting innovation team are coordinating product development, together with the global feed and modelling team. These teams are led by Product Group Managers and have representatives from all relevant Skretting companies.

We introduced seven new products into our markets worldwide for a number of aquaculture species.

We made significant progress on two product development projects where the aim is to have commercial solutions within 3–4 years.

**WHAT WAS THE IMPACT IN SOCIETY?** Improved productivity and efficiency in aquaculture through improved growth rate and feed conversion rate, which supports Sustainability Development Goals (SDG) 2 and 12.

Improved health of farmed animals, which can reduce mortality and reduce disease outbreak and consequently the need for antibiotic treatment, which supports SDG 3.

Increased flexibility in the supply of long-chain omega-3 oils, which opens up the growth potential for aquaculture without putting pressure on wild fisheries and supports SDG 14.

Development of feed for farmed tuna, which gives the possibility of growing tuna for consumption without adding pressure on wild tuna fisheries and supports SDG 14.



## NUTRITIONAL SOLUTIONS

Through our offering of products, services and models we not only aim to boost productivity and support animal health, we also try to encourage the development of environmentally friendly aquaculture practices.



### PRIME AND EXPRESS SMOLT AND GROWER FEEDS FOR SALMON

Prime and Express diets utilise the full growth potential of salmon. Prime and Express are explicitly designed to stimulate and enhance the appetite and food intake of salmon. Prime optimises growth at the first seawater phase up to 1 kilogram. Express takes over in the final grow-out phase right through to harvest.

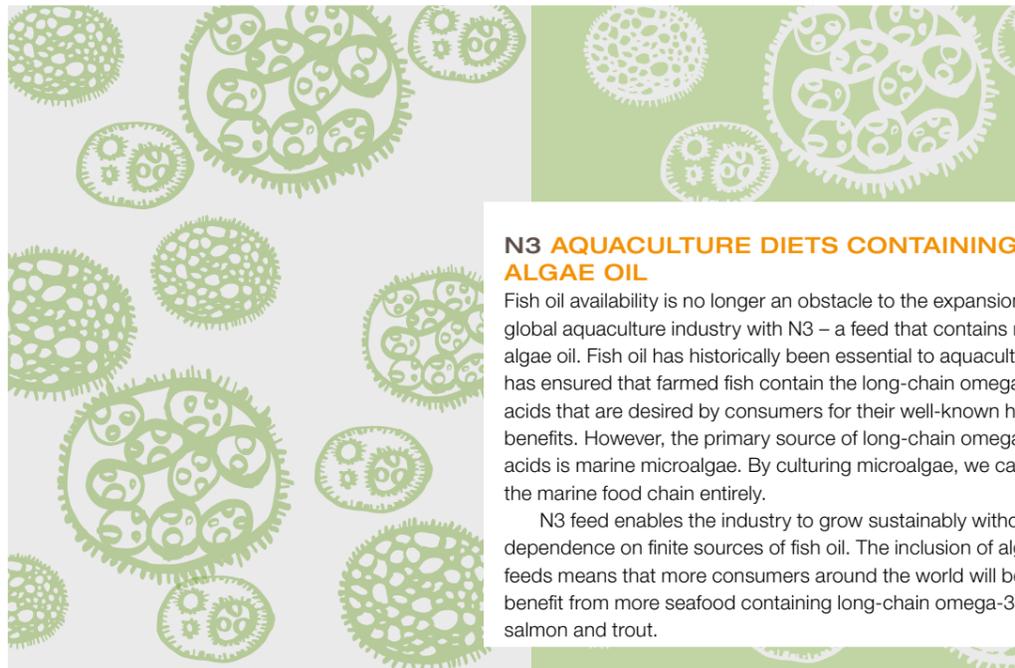
Prime and Express enable farmers to boost productivity and support animal health by allowing them to produce more from less. Salmon farmers have the potential to either significantly reduce the time fish spend in the sea, or increase harvest weight.



### SHIELD HEALTH DIET FOR SEA BREAM

Farmers of sea bream in Europe, specifically the Mediterranean have faced increased intestinal parasitic challenges. This results in economic losses due to reduced growth and lower product quality for the consumer.

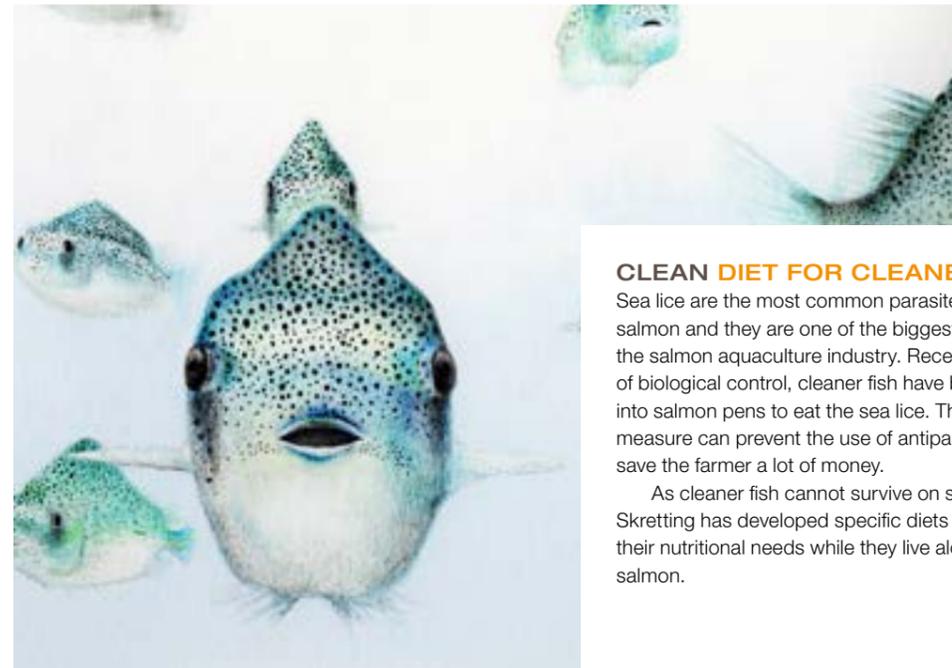
SHIELD supports the intestinal health of sea bream by maintaining a healthy organ structure. This ensures the fish can utilise all the nutrients from the feed and are not subject to secondary challenges from the environment that can impact production.



### N3 AQUACULTURE DIETS CONTAINING ALGAE OIL

Fish oil availability is no longer an obstacle to the expansion of the global aquaculture industry with N3 – a feed that contains marine algae oil. Fish oil has historically been essential to aquaculture as it has ensured that farmed fish contain the long-chain omega-3 fatty acids that are desired by consumers for their well-known health benefits. However, the primary source of long-chain omega-3 fatty acids is marine microalgae. By culturing microalgae, we can bypass the marine food chain entirely.

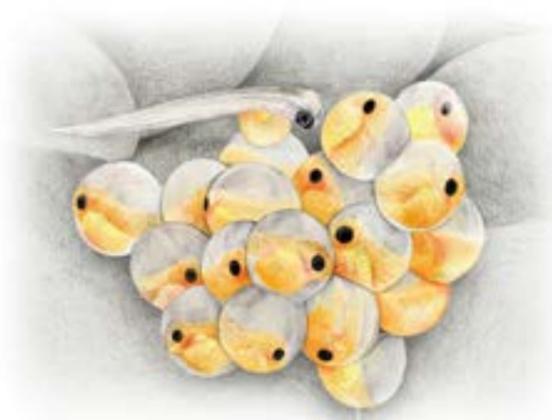
N3 feed enables the industry to grow sustainably without the dependence on finite sources of fish oil. The inclusion of algae oils in feeds means that more consumers around the world will be able to benefit from more seafood containing long-chain omega-3s, not just salmon and trout.



### CLEAN DIET FOR CLEANER FISH

Sea lice are the most common parasite found on farmed salmon and they are one of the biggest challenges for the salmon aquaculture industry. Recently, as a form of biological control, cleaner fish have been introduced into salmon pens to eat the sea lice. This natural control measure can prevent the use of antiparasitic drugs and save the farmer a lot of money.

As cleaner fish cannot survive on sea lice alone, Skretting has developed specific diets CLEAN to support their nutritional needs while they live alongside the salmon.



### NUTRA STARTER FEED RANGE FOR TILAPIA

The Nutra range developed specifically for tilapia has encompassed nutrient studies as well as characterisation of raw material properties and feed production technology.

Nutra tilapia provides the optimal early life-start nutrition for tilapia through delivering specific digestible protein requirements in relation to fish size. Tailoring the protein and energy content enables the farmer to produce the fish in a more economical way.

### IMPORTANT LONG TERM PRODUCT DEVELOPMENT PROJECTS



### TUNA FEEDS AQUACULTURE FEEDS FOR FARMED TUNA

Bluefin tuna accounts for 10% of all tuna species and its rich, fatty textures attracts sushi lovers all over the world. A growing demand for Pacific, Atlantic and Southern Bluefin tuna has placed these wild stocks at risk. Current tuna farming or fattening practices require feeding large quantities of whole wild fish.

Skretting is continuing to work to develop commercial aquaculture diets for tuna that cover the whole life cycle. The availability of a commercial diet will be a major step forward for the tuna industry, bringing significant advantages in terms of nutrition, feed management, biosecurity and sustainability.



### INFINITY FEED CONCEPT FOR SALMON WITH NO FISH MEAL OR FISH OIL

Skretting is able to provide feed for grower Atlantic salmon containing no fish meal or fish oil - meaning production of salmon with a zero fish in, fish out (FIFO) ratio. This important step means that salmon aquaculture can develop independently of the supply and production of marine ingredients from wild-capture fisheries. This will enable a higher utilisation of wild fisheries for direct human consumption if the market requires.

Infinity feed concept enables the production of a healthy and nutritious salmon for the consumer, without being dependent on finite sources of fish meal and fish oil from wild-capture fisheries.



### OPTILINE GROWER FEED RANGE FOR SHRIMP

Skretting's Optiline delivers our global nutritional grower solution for shrimp. The specific requirements of the species are met to gain optimal performance and production efficiency. This includes basic nutritional requirement evaluation of protein, fat and energy, plus detailed knowledge of key nutrients for efficient shrimp farming like phosphorus, omega-3 fatty acids, cholesterol and phospholipids.

Optiline forms a strong base for developing new shrimp diets for the market and will contribute to the future of efficient shrimp farming.



### ORI-N3 ENRICHMENT PRODUCT FOR ARTEMIA USED IN MARINE HATCHERIES

Artemia are tiny crustaceans that are widely used as a live diet in the early stages of marine aquaculture production. Artemia do not naturally contain the long-chain omega-3 fatty acids that are essential to marine fish growth and development.

ORI-N3 is the latest concept in Artemia enrichment that incorporates omega-3 fatty acids into the live feed.



### 25 YEARS SUPPORTING GLOBAL AQUACULTURE GROWTH THROUGH INNOVATIVE PRO-HEALTH SOLUTIONS

In 1992, Skretting became the first fish feed company in the world to launch a health diet for fish. 25 years on, our portfolio of health diets are making a vital contribution to the sustainability of fish and shrimp farming.

#### A selection of innovations from 25 years of health feed development:

#### 1992

**Respons** The first use of beta-glucans in fish feed to boost immune systems led to a new category of health-supporting functional feeds.

#### 2007

**Protec** and **React** functional feeds support fish health.

#### 2008-09

**Supreme** transfer diet, which becomes a market leader in Norway.

#### 2013

**New Protec** optimises the balance between fish, microbes and environment.

#### 2015

**Lorica** strengthens shrimp immune systems.

#### 2016

**Protec Gill** supports gill health and recovery during disease, environmental and treatment challenges.  
**Shield** aids salmon health against sea lice.

#### 2017

Launched **Lorica** into Ecuador and Honduras markets.



## Non-deforestation

NEW YORK DECLARATION ON FORESTS  
CERRADO MANIFESTO

## Responsible fisheries

FISHERY IMPROVEMENT PROJECTS IN PERU AND VIETNAM  
IFFO RS FISHERY IMPROVERS PROGRAMME

## Novel ingredients

OMEGA-3 ALGAE OIL  
INSECTS



# Ingredients

SKRETTING'S OBJECTIVE: To expand our knowledge of the nutritional composition of feed ingredients as well as the impacts of the supply chains.

**WHAT DID WE DO IN 2017?** Skretting engaged with stakeholders from various parts of the soy supply chain to establish partnerships. We became signatories of both the Cerrado Manifesto and the New York Declaration on Forests.

We continued our engagement in improving fishery management through our involvement in a comprehensive Fishery Improvement Project (FIP) in Peru and a basic fishery improvement project in Vietnam. The FIP in Peru was made public and also presented as a commitment at Our Oceans conference 2017.

The FIP in Vietnam is in the process of applying to become part of the IFFO RS Improvers' programme.

Skretting implemented a new system where we conduct a sustainability risk assessment and an approval of common feed ingredients and feed ingredient manufacturers. A sustainability risk assessment of the most important feed ingredients was undertaken in 2017.

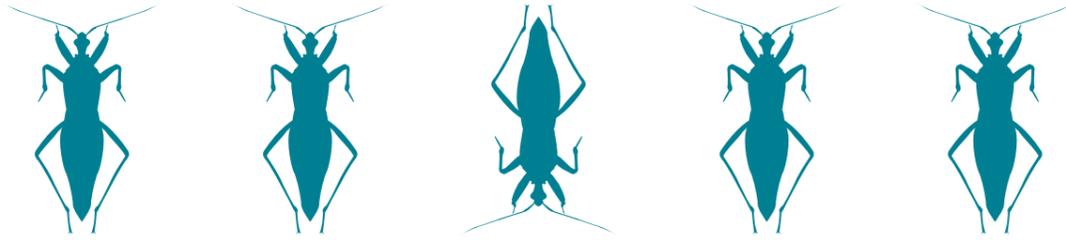
Skretting has undertaken a number of R&D activities to verify that insect meal is a potential feed ingredient for fish feed.

**WHAT WAS THE IMPACT IN SOCIETY?** Working together with other stakeholders to eliminate agriculture driven deforestation and implement sustainable land-use commitment, which supports SDG 13, 15 and 17.

Working together with other stakeholders to eliminate overfishing and establish ecosystem based fishery management, which supports SDG 14.

Looking for novel feed ingredients, which will demand less arable land and a lower environmental footprint and support SDG 12 and 13.





### FROM TRADITIONAL TO NOVEL INGREDIENTS

For decades, one of Skretting's biggest sustainability objectives has been to have full flexibility in fish feed formulations without relying on any particular ingredient.

Ingredients such as vegetable-based meals and oils, fish trimmings and processed animal products have traditionally been used to replace the finite supplies of fishmeal, and to some extent, fish oil in feeds.

There has been increasing attention and development in the production of novel ingredients for fish feed, such as microbial and insect-based protein and oil sources.

**Algae meal and oils rich in essential long-chain omega-3 fatty acids EPA and DHA\* have become a commercial reality. In 2016, Skretting partnered with Royal DSM and Evonik(Veramaris) to develop Green Ocean oil, a product containing both EPA and DHA. The product will be available in commercial volumes in 2019 and it is the first algae product to contain both EPA and DHA.**

More recently, we have seen emerging commercial production of high-quality protein based on different species of insects using waste-streams as resources to create a truly circular economy. Insect species are especially well-suited for feed in the aquaculture and animal husbandry industries.

In 2017, regulatory changes in the EU allowed the use of insect-derived proteins, such as black soldier fly larvae and mealworms, to be included into aquaculture feeds. These changes are driving the insect producers to scale up to commercial volumes in order to supply the aqua feed market as soon as possible.

As part of our innovative research and development strategy, Skretting is in full support of the development of these novel ingredients. We are proactively working towards fully understanding the complexities of these ingredients from sustainability, nutritional, quality and safety, regulatory and financial perspectives. This knowledge will help ensure that aquaculture continues to progress responsibly.

\*EPA eicosapentaenoic acid, DHA docosahexaenoic acid

### SECURING RESPONSIBLE RAW MATERIALS THROUGH THE VALUE CHAIN

Aquaculture feed can contain many different ingredients of vegetable, marine and land animal origin. The most common agricultural crops are soya, wheat and rape seed. Marine

ingredients traditionally originate from wild fisheries like sardine, anchovy and many more. There are a number of sustainability issues linked to the primary production of feed ingredients. Cultivation of agricultural crops needs to be responsible; otherwise, it can lead to detrimental impacts like deforestation, loss of valuable habitats (for example rainforests and wetlands), excess use of water and soil erosion – to mention a few. A wild-capture fishery needs to be responsibly managed so that it is not overfished and does not lead to the unwanted catch of protected or endangered species.

The primary source of the feed ingredient is processed into different forms; wheat can be processed into wheat flour and wheat gluten, soya into soybean meal, soybean concentrate and soy bean oil. A fish or by-products from fish can be processed into fish meal and fish oil. This means that the primary source of the feed ingredient is shipped to a factory and processed into the feed ingredient by manufacturer. There are a number of sustainability issues that are common for manufacturers. For instance, the manufacturing process must not lead to environmental pollution

like harmful emissions to air or effluents to water. Sustainability also encompasses social issues, including ensuring that the factory is a safe working place. In addition, manufacturers must respect basic human rights and labour rights.

In 2017, Skretting implemented a system of systematic evaluation of the sustainability risks linked to primary sources of feed ingredients and manufacturers of feed ingredients. Based on the outcome of these risk assessments the combination of primary source and manufacturer of feed ingredient must be evaluated and approved before a Skretting company can buy the feed ingredient.

### SUSTAINABILITY RISK ASSESSEMENT

Our risk assessment ensures only approved feed ingredients not originating from high risk primary production



## DEFORESTATION

Our ambition is to continue our efforts to purchase sustainable soy. In regions where there is a high risk of irresponsible soy production, we will continue to commit our efforts towards third party verified sustainable soy.

**33%**  
OF SKRETTING'S  
SOY IS  
PURCHASED  
FROM  
SUSTAINABLY  
CERTIFIED  
SOURCES

Skretting and Nutreco have been long-term supporters of multi-stakeholder initiatives that are focused on reducing the deforestation. This includes our involvement as an active member of the Roundtable for Responsible Soy (RTRS), the Roundtable for Sustainable Palm Oil (RSPO), the FEAC Sustainability Committee and the US Soy Export Council Sustainability Committee.

In 2017, we set a goal to work towards developing industry-based solutions to this issue and as such we joined new platforms targeting deforestation. Firstly, Nutreco joined a number of strategic partners that formed the Collaboration for Forests and Agriculture (CFA). This initiative was launched in 2016 by the National Wildlife Federation (NWF), The Nature Conservancy (TNC) and the Gordon and Betty Moore Foundation, with the aim to achieve

solid commitments to zero conversion by leading companies that buy, distribute and process soy and beef in the Amazon and Cerrado regions in Brazil, and in the Gran Chaco region spanning Argentina and Paraguay.

Nutreco was also part of a broad support group facilitated by the Consumer Goods Forum (CGF) formed in 2017 to address further ways of protecting the Cerrado biome in Brazil. The Cerrado biome represents 21% of Brazil's land area and is one of the richest tropical savannahs in the world. Nutreco was one of the 23 original signatories and the only business-to-business company to sign. By doing so, Nutreco commits to bringing practical proposals and solutions that will allow the Brazilian industry to increase its beef production in ways not requiring further deforestation.

In 2016, Skretting became signatories to the New York Declaration on Forests (NYDF). This agreement outlines 10 ambitious global targets to protect and restore forests and end natural forest loss by 2030 and has been endorsed by over 190 countries, sub-national governments, companies, indigenous peoples and NGOs to date.

In addition to our involvement in multi-stakeholder initiatives, Skretting has also continued to support the development of deforestation free supply chains through our direct raw material purchases. 100% of the soy purchased by Skretting in Norway, UK and Australia is Proterra certified. This means that one-third of Skretting's soy is purchased from sustainably certified sources.



## ENCOURAGING RESPONSIBLE FISHMEAL AND FISH OIL PRODUCTION

Great strides have been made by the aquaculture industry to improve its responsible practices in recent years, with substantial efforts focussed on encouraging marine ingredient suppliers to ensure that they source raw materials from well-managed, sustainable fisheries.

IFFO – The Marine Ingredients Organisation has been at the forefront of this progress, most notably with the 2009 introduction of its Global Standard for Responsible Supply (IFFO RS), an independent certification programme for marine ingredient production. Today, IFFO RS has two standards: The Global Standard for Responsible Supply and the Chain of Custody for Responsible Supply. By the end of 2017, between 45 and 50% of the world's combined production of fish meal and fish oil were IFFO RS compliant.

Dr. Andrew Jackson, Chairman of IFFO RS, explains that from the programme's outset, many of the larger fisheries supplying marine ingredients, predominantly those in Europe and the Americas, met the standard by making relatively few adjustments, while those presently going through the assessment were engaged with the programme but needed time to make the larger improvements. In addition, there are several fisheries that require a FIP and consequently have a lot further to go before they can be formally assessed. An Improvers' Programme was expressly developed to help the latter progress towards the standard.

"To be accepted on the Improvers' Programme, all applicants need to set up a credible project with their government, the fishermen, environmental NGOs and fisheries experts, along with agreed milestones and a timeframe – usually around five years – that will eventually lead them to meet the requirements of the IFFO RS standard," says Jackson.

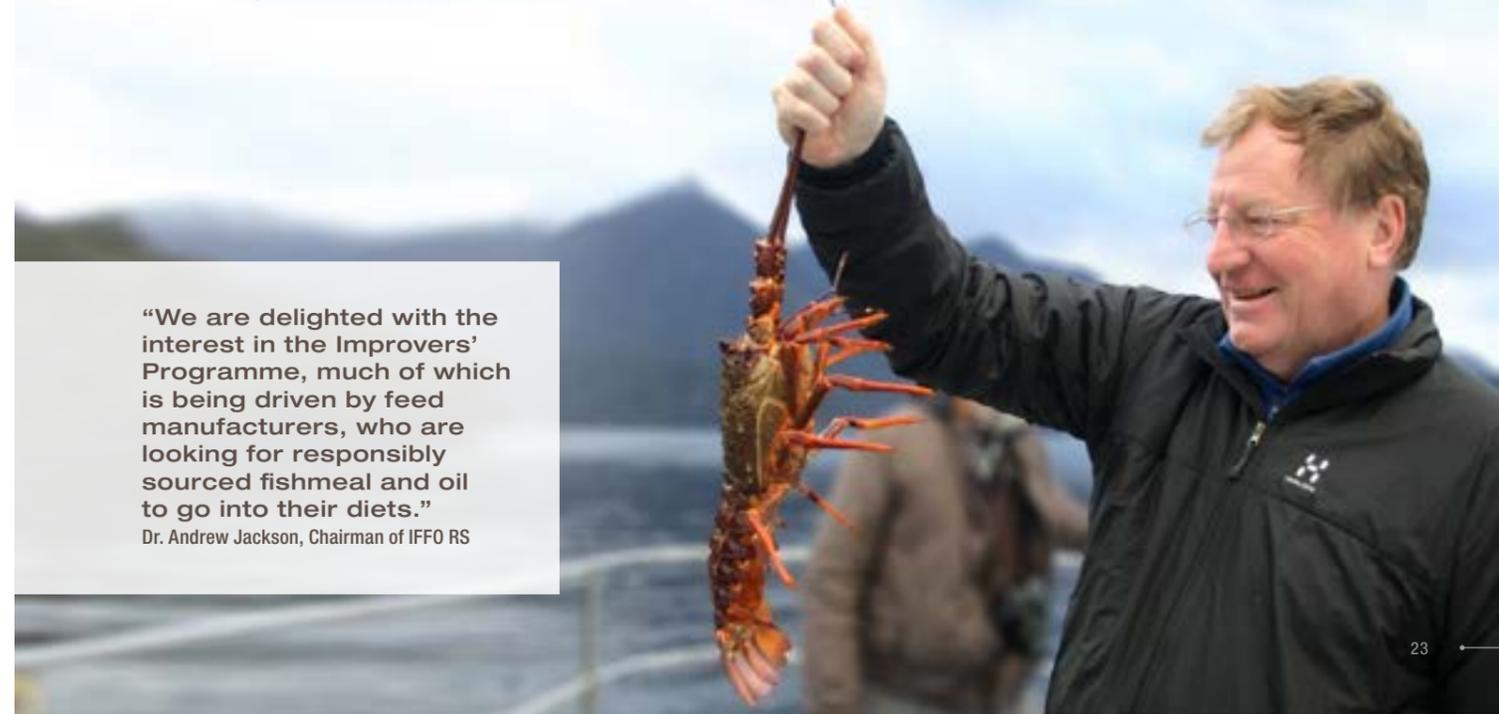
To date, a Panamanian fishery is the only one to go through this process successfully. However, talks are ongoing in a number of countries, including some in Africa and Asia. "Establishing a credible, government-supported FIP can be a lengthy process, but we are hoping that by the end of 2018 we will have more fisheries working towards our standard," says Jackson.

At the same time, IFFO RS is working with stakeholders and fisheries experts to create and pilot its first version of a mixed trawl element of the standard. While these fisheries have faced heavy criticism for their environmental and social practices, Jackson says there is strong confidence that with the right management measures in place and with great care, they can go on to supply responsible raw materials. Reflecting on his career in the feed and aquaculture sectors, soon-to-retire Jackson maintains that through scientific and nutritional advances the industry as a whole has come a long way, but that marine ingredients still have an essential part to play in its future successes.

"Marine ingredients are increasingly becoming specialist products for use in vital growth stages. And because they are being included at lower levels, suppliers need to make sure the quality is high and that includes ensuring they come from responsible sources and that full traceability and chain of custody are in place," he says.

**"We are delighted with the interest in the Improvers' Programme, much of which is being driven by feed manufacturers, who are looking for responsibly sourced fishmeal and oil to go into their diets."**

Dr. Andrew Jackson, Chairman of IFFO RS





**FISHERY IMPROVEMENT PROJECT IN PERU - THE PERUVIAN ANCHOVY**

The Peruvian fishery  
Among the coastal pelagic species of the Northern Humboldt Current System, the Peruvian anchovy (*Engraulis ringens*) is predominant and creates one of the most important single species fisheries worldwide. The Northern Humboldt Current System is an important area of one of the most productive world marine ecosystems, the Humboldt Current Large Marine Ecosystem. The Humboldt Current extends along the coast of Chile and Peru.

The National Fishing Association of Peru, Skretting and Cargill Aqua Nutrition in cooperation with CeDePesca established a comprehensive Fishery Improvement Project (FIP) for the Peruvian anchovy. Skretting is a Steering Committee member of the project and attends quarterly project progress updates. In 2017, the project made progress in a number of areas. The impacts of the industrial fleet on endangered, threatened and protected species and other ecosystem components have been determined. A database is under development, using new data gathered by the industrial fishing vessels to help support the improvement of the fishery's management system practices. The progress against the action plan is on track for 2020 completion.



**FISHERY IMPROVEMENT PROJECT IN VIETNAM'S VUNG TAU REGION**

Mixed trawl fisheries management  
In Southeast Asia, trawl fisheries that catch a large number of species are common. Part of this catch might be used to produce fish meal. The main distinction between mixed and single species in regard to fishery management is the extent to which internationally agreed guidelines are applicable. There are no agreed baselines for how to tackle multispecies fisheries and therefore difficult to rate how responsibly these fisheries are being managed. As such, the IFFO RS is working on piloting its first version of a mixed trawl fishery component to the IFFO RS standard.

Skretting in Vietnam together with fish meal producers, governmental agencies and other aqua feed producers have engaged in a basic Fishery Improvement Project (FIP) in the Vung Tau province in Southern Vietnam. The aim of this project is to improve the fishery management of the Vung Tau province mixed trawl fishery over a five year period, to a level where it can meet the requirements of the IFFO RS standard. Key improvement areas will be to provide technical support on multi-species fishery assessments and establish traceability along the whole fishery supply chain. It will also be important to focus on improving the social conditions, such as the working conditions of crew, increasing income of fishermen and improving the livelihoods in the fishers' communities.

**FEED INGREDIENTS USED IN THE PRODUCTION OF FEED FOR FARMED FISH AND SHRIMP**

Feed ingredients contribute nutrients like protein, amino acids, energy, fatty acids, vitamins and minerals to the finished feed. We source our primary feed ingredients from agricultural crops, fisheries and by-products from human food processing.

Our current global feed ingredient usage is comprised of 20% by-products. These are ingredients from the human food processing chain that would otherwise be wasted if not used in the feed industry. This represents an efficient use of natural resources and supports the development of a circular economy.

Aquaculture is part of the emerging bio economy which comprises parts of the economy that use renewable biological resources from land and sea – such as crops, forests, fish, animals and micro-organisms – to produce food. For example, Skretting is involved with research institutes to investigate the opportunities of converting wood biomass into a protein that can be used as a feed ingredient.

Skretting is searching for ingredients that will result in more innovative, low emission aquaculture feeds.

FEED INGREDIENT PRIMARY SOURCE	%	FEED INGREDIENT
 <b>AGRICULTURAL CROPS</b>	60%	<b>WHEAT, SOY, RAPESEED, CORN, FABABEAN, RICE, SUNFLOWER AND LUPIN</b> <b>Typical feed ingredients</b> <i>Protein: Wheat gluten, corn gluten, soybean meal, soy protein concentrate, rapeseed meal, sunflower meal, lupins and fababeans</i> <i>Fat: Rapeseed oil, soybean oil, camelina oil</i> <i>Carbohydrates: Wheat flour</i>
 <b>WILD-CAPTURE FISH AND CRUSTACEANS</b>	15%	<b>SMALL PELAGIC FISH AND KRILL</b> <b>Typical feed ingredients</b> <i>Protein: Fish meal, crustacean meal</i> <i>Fat: Fish oil</i>
 <b>BY-PRODUCTS FROM FARMED LAND-ANIMALS</b>	13%	<b>BY-PRODUCTS FROM LAND-ANIMALS</b> <b>Typical feed ingredients</b> <i>Protein: Poultry meal, feather meal, blood meal</i> <i>Fat: Poultry oil</i>
 <b>BY-PRODUCTS FROM WILD-CAPTURE FISH AND CRUSTACEANS</b>	5%	<b>BY-PRODUCTS FROM A WIDE RANGE OF FISH AND SHRIMP must not originate from threatened species according to IUCN redlist</b> <b>Typical feed ingredients</b> <i>Protein: Fish meal, crustacean meal</i> <i>Fat: Fish oil</i>
 <b>BY-PRODUCTS FROM FARMED FISH AND CRUSTACEANS</b>	1%	<b>BY-PRODUCTS FROM SALMON, TILAPIA AND SHRIMP</b> <b>Typical feed ingredients</b> <i>Protein: Fish meal, crustacean meal</i> <i>Fat: Fish oil, salmon oil</i>
 <b>MICRO NUTRIENTS</b>	5%	<b>VITAMINS, MINERALS, PIGMENTS</b> <b>Typical feed ingredients</b> <i>Vitamin premixes</i> <i>Mineral premixes</i> <i>Pigments: Astaxanthin</i>

100%  
monitoring of  
our environmental  
footprint



TOOLS TO REPORT  
AND REVIEW QUARTERLY  
ARE NOW INTEGRATED



## Operations

SKRETTING'S OBJECTIVE: To minimise the negative impacts of our direct operations and create valuable employment opportunities for the communities in which we operate.

### WHAT DID WE DO IN 2017?

100% of Skretting feed factories monitor their environmental footprint. We have implemented data collection, recording and analysis systems in our factories.

We have developed reports and dashboards to communicate results to operational staff and management.

Data reporting tools have been integrated into information reviewed in quarterly management meetings. The quality and accuracy of the data collected has been improved.

Training sessions were held with manufacturing staff in Ecuador and Brazil.

There is increased awareness among employees on activities that drive change in environmental performance.

Skretting Zambia was opened in 2017. There were 40 people employed through the establishment of the factory in Siavonga, Lake Kariba.

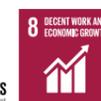
### WHAT WAS THE IMPACT IN SOCIETY?

Skretting is able to measure and report climate exposure and identify actions in order to confront climate change. This supports SDGs 12 and 13.

By providing training and employment opportunities in local communities, supports SDG 8.

## New employment

SKRETTING OPENED A FACTORY IN ZAMBIA, AFRICA



**SKRETTING ENVIRONMENTAL FOOTPRINT**

Numbers are representing Skretting Business Unit Global Salmon and Fish Feed Southern Europe



**ENERGY**  
307 KWH  
PER TONNE



**WATER**  
546 LITRES  
PER TONNE



**TOTAL WASTE**  
8 KG  
PER TONNE



**CO<sub>2</sub>**  
75 KG  
PER TONNE



**LOST TIME INJURY**  
25 INJURIES



**CASE STUDY: WATER SAVING AT SKRETTING CHILE PARGUA PLANT**

Skretting Chile has a plant located in Pargua, a village in Calbuco Comuna located on the northeast side of the Chacao Channel. A ferry connects Pargua with the village of Chacao at the northern end of Chiloé Island.

Pargua gets its water supply from groundwater. After a couple of dry years (2014–2015) there were water supply shortages. This led to the need to use water in a more sustainable way.

Skretting Chile started a project to reduce water consumption. A dedicated team was put together to analyse water consumption and waste water. Based on the internal data analysis, a target of 30% in potential savings was defined. Once the project was completed, there was a 50% reduction in water use. Water consumption per tonne of feed was reduced from 1.42 m<sup>3</sup> down to 0.74 m<sup>3</sup> when the project was completed.

A team at Skretting Chile’s plant in Pargua successfully completed a project that resulted in reducing water consumption in their feed production by 50%.



**ENSURING A SAFE WORKPLACE**

Employee safety is a fundamental responsibility for all businesses, and at Skretting, we go to great lengths

to ensure that all of our workplaces around the world are safe and healthy environments. We also acknowledge that there is always room for improvement, which is why we are continuously seeking to identify further ways in which we can make all of our Skretting facilities safer and healthier for our employees. Consequently, we can reduce the number of injuries and lost time incidents (LTIs).

Steady progress continues to be made in this regard through investments in more sophisticated plants, implementing better-organised operations and by ensuring our people are well trained and know exactly what they should be doing.

To ensure that the same robust health and safety standards are applied at all of our Skretting locations, Nutreco continued to conduct its comprehensive audit programme last year. This process identifies any health and safety shortcomings or “non-conformities” and provides an appropriate timescale to rectify them. All non-conformities are monitored through a live reporting system.

“The audit programme is the backbone of our work. In total, we inspected 46 Nutreco facilities in 2017, and it’s an ongoing cycle. Without question, health and safety and good operations go hand-in-hand: We don’t want to have waste, we don’t want accidents, we don’t want things to go wrong; instead we want optimal professional operations,” says Harm Teunissen, HSE Director at Nutreco.

All operations are subject to a rating programme, whereby their health and safety compliance is scored and reported. To assist these processes, each facility must be organised in such a way that it has an individual responsible for health and safety. There is also a Health & Safety Executive Network,

comprising representative members from across the business globally. They meet in person every year and cooperate around the year to address current priorities.

Also included in the audit programme are plants selected for acquisition by Skretting. This is part of the due diligence process, and ensures that any non-conformities are identified ahead of the transaction and that action points are known and ready for implementation once the purchase is formalised.

In 2017, Skretting progressed a study that began in September 2016 in which other companies in and outside the SHV Group were visited to discuss safety issues, including safety culture and awareness, and incident reduction. The aim of this ongoing research is to establish measures by which the health and safety agenda can be further progressed within the business.

“This work further confirmed that having a safety culture in the workplace is vital. It leads to increased safety levels and reduces the number of LTIs,” says Teunissen.

**“Safety awareness is of critical importance and must be observed across the company at all levels. This is why we started the health safety and environment first programme in 2017. This new Nutreco-wide strategy specifically focuses on ensuring all employees are aware of the importance of working safely at all times.”**

Harm Teunissen, HSE Director Nutreco

## Nutreco Global Community Day



4,000 EMPLOYEES

33 COUNTRIES

140 ACTIVITIES

## Supporting local communities

KNOWLEDGE TRANSFER TO SMALL-SCALE FARMERS IN NIGERIA AND ZAMBIA

## Fight against antibiotics

CHILEAN PINCOY PROJECT RAISING BAR ON BEST PRACTICE IN FISH HEALTH

## Protecting fisheries and people

SEAFOOD BUSINESS FOR OCEAN STEWARDSHIP



## Commitment

SKRETTING'S OBJECTIVE: A sustainable future is not viable without the involvement of motivated people. We are actively engaged with internal and external stakeholders to achieve common sustainability goals.

**WHAT DID WE DO IN 2017?** On 28 September 2017, Nutreco organised the inaugural Global Community Day. Approximately 4,000 Nutreco employees from 33 countries took part in over 140 different activities to help their local communities.

We continued capacity-building and training of farmers in Nigeria on best production practices, which included production data collection and analysis. The project has established partnerships with NGOs, governments and farmer groups. A new Community Development Project on tilapia farming in Zambia was initiated.

The Pincoy Project in Chile continued together with seven other companies in order to reduce antibiotic use in salmon farming. The project has started the work to make a collaborative best practices handbook in the area of fish health in Chile.

Nutreco CEO, Knut Nesse spoke about the SeaBOS initiative at the Ocean Conference in June in New York, representing the nine signatory companies.

## WHAT WAS THE IMPACT IN SOCIETY?

Aquaculture community development projects contribute to SDGs 2 and 8 by developing the capacity of small-scale farmers to participate in supply chains and improve their livelihoods.

The Pincoy Project in Chile contributes to SDG 3 by reducing the danger of antimicrobial resistance through the more responsible use of antibiotics.

The SeaBOS project is aimed at protecting wild fisheries and improving fishery management practices and as such contributes to SDG 14. It also focuses on eliminating illegal activities, including slave labour, which contributes to SDG 8. All projects demonstrate our support of SDG 17.





**NUTRECO COMMUNITY DAY 2017**

On September 28 2017, Nutreco employees from around the world took part in the first-ever Global Community Day. Approximately 4,000 employees from 33 countries took part in over 140 different activities to help their local communities.

Participants gave their muscles and minds to a wide variety of projects, including spending time with disabled, elderly and refugee communities, as well as renovating schools and building community gardens. We received positive feedback from both local communities and Nutreco employees and the Nutreco Global Community Day will become an annual event. We are sure it will grow bigger and better in the future.



**AQUACULTURE COMMUNITY DEVELOPMENT PROJECT IN NIGERIA**



Results of programme 2017

**SKRETTING COMMUNITY DEVELOPMENT PROJECTS**

Empowering small-scale farmers to run productive and profitable farms is vital if we are to feed the future in a sustainable way. Skretting is well placed to assist with the transfer of knowledge and expertise to these groups, which we put into practice through our Community Development Programme.

Through community development projects, Skretting wants to create shared value. Shared value is policies and practices that create economic value in a way that also creates value for society by addressing its needs and challenges. In essence, it recognises the creation of both social and economic value as a competitive advantage which can drive innovation and support the long-term prosperity of Skretting and the communities in which we operate.

It is our goal within 2020 to establish three new community development projects in emerging economies.

**NIGERIA COMMUNITY DEVELOPMENT PROJECT – CATFISH FARMING IN IBADAN AREA**

Since 2015, Skretting has been involved in improving the performance of Nigerian catfish farming by training farmers in better farm management and supplying improved feed. The 109 participant farmers have significantly improved their farming performance compared to the industry average. We have documented a doubling of harvest weight and a 45% improvement in feed conversion. Catfish survival was also improved.

**ZAMBIA COMMUNITY DEVELOPMENT PROJECT – TILAPIA FARMING IN MPULUNGU AREA**

In 2017, Skretting Zambia started to establish a community development project in the Northern part of Zambia among small-scale tilapia farmers. The aim of this two-year project is to train farmers to help them improve their production of tilapia through transfer of knowledge and supply of quality feed.



**ZAMBIA COMMUNITY DEVELOPMENT PROJECT - TILAPIA FARMING IN MPULUNGU AREA**



**SEAFOOD BUSINESS FOR OCEAN STEWARDSHIP INITIATIVE – SUSTAINABLE SEAFOOD PRODUCTION AND A HEALTHY OCEAN**

Seafood Business for Ocean Stewardship  
Seafood Business for Ocean Stewardship is an initiative that, for the first time, connects the global seafood business to science, wild capture fisheries to aquaculture, and European and North American companies to Asian companies. The ambition is to lead a global transformation towards sustainable seafood production and a healthy ocean. The initiative will actively contribute to the UN SDGs, and in particular SDG 14 – Conserve and sustainably use the oceans, seas and marine resources.

Skretting through Nutreco is one of the nine seafood companies who joined forces in 2016-2017 to form the Seafood Business for Ocean Stewardship (SeaBOS) initiative, which aims to make the international fishing and aquaculture industry more sustainable. This includes a pledge to protect the world's oceans by working to eliminate illegal activities including slave labour and preventing overfishing. These pledges are now being translated into time-bound and operational targets and actions, in close collaboration between SeaBOS members and scientists. By doing so Skretting is demonstrating its commitment to UN Global Compact Guiding Principles 1, 2, 4, 5, 7 and 8.

In June 2017 Knut Nesse travelled to the UN Headquarters in New York to attend a Stockholm Resilience Centre event on “Engaging the private sector in SDG 14”, which took place during the Ocean Conference. SeaBOS is also one of the 1,328 voluntary commitments made in connection with the Ocean Conference. Acting as interim chairman of the SeaBOS initiative, Knut Nesse also spoke at the event, representing the nine signatory companies.



Knut Nesse spoke at the Seafood Business for Ocean Stewardship event, representing the nine signatory companies.



**PINCOY PROJECT SEEKS TO HALVE THE USE OF ANTIBIOTICS ON PILOT FARMS BY THE END OF 2018**

**PINCOY PROJECT – COLLABORATIVELY REDUCING ANTIBIOTIC USE**

The Chilean salmon industry has long been challenged by the bacterial disease septicemic rickettsial syndrome (SRS). Growing governmental and consumer pressure has resulted in a stronger focus from the industry to reduce its antibiotic dependence against this disease. While a number of positive innovations have been developed, they have all been deployed in isolation; leaving the sector still waiting for its first large-scale improvement.

In 2016, to find a holistic solution to Chile's antibiotic challenge, Skretting brought together seven local and international industry partners from various stages of the salmon production chain to initiate the Pincoy Project. Skretting, AquaGen/Blue Genomics, Pharmaq, Centrovet, Cermaq, Blumar and Ventisqueros are working collaboratively on strategies aimed at minimising the risk of disease and therefore the use of antibiotics. Collectively, the project incorporates selective breeding, high-quality hatchery diets, careful smolt selection, vaccines, functional feed-based diets, best-practice protocols at both the freshwater and seawater growth stages, as well as close monitoring and reporting throughout.

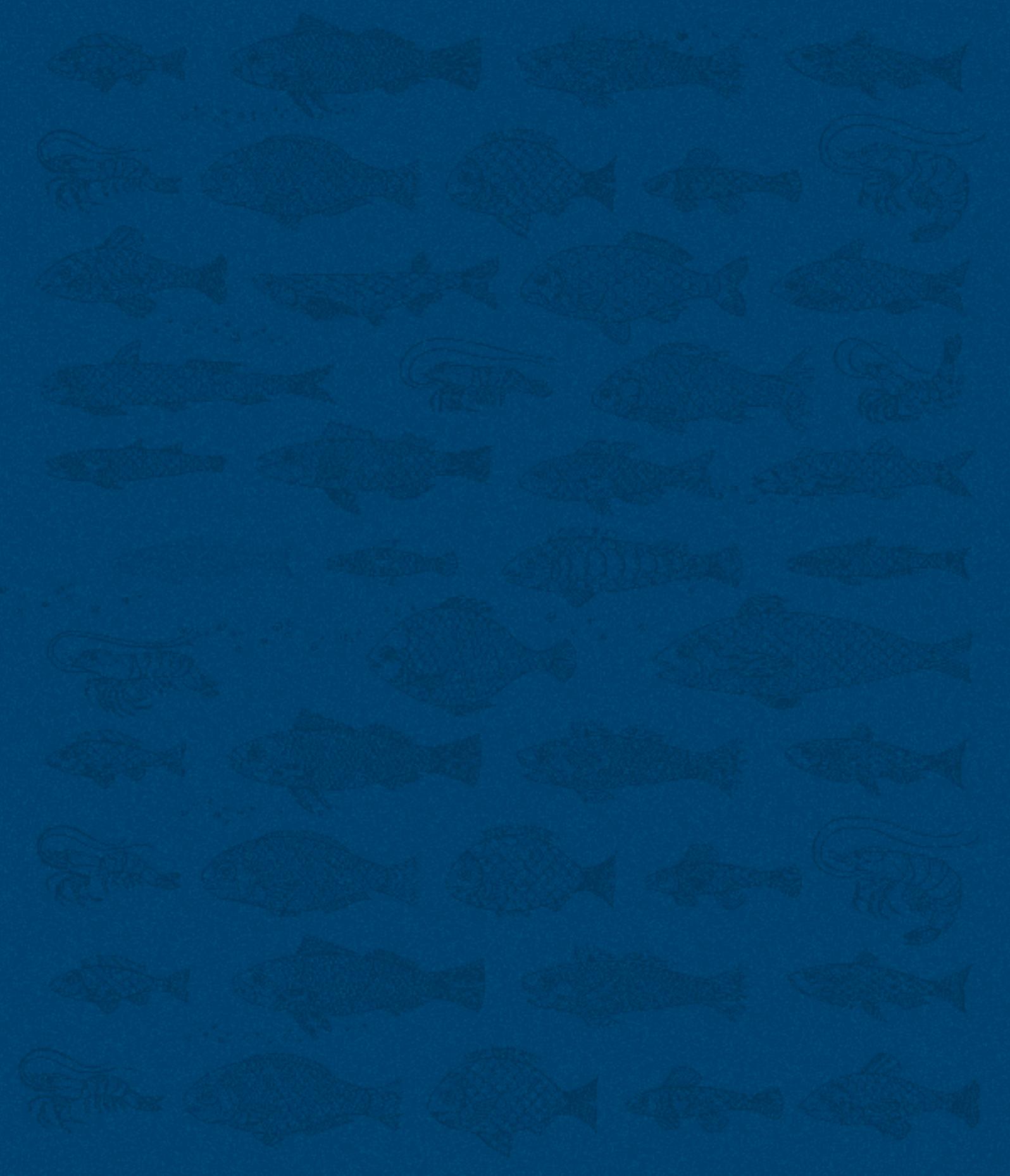
Specifically, this unique project seeks to halve the use of antibiotics on pilot farms by the end of 2018, and to use this knowledge to contribute to the sustainable growth of the industry as a whole.

As a result of the technical committees' work (Freshwater, Seawater and Health), along with the Executive Committee formed by the leaders of each company, the first-ever health project in the world to focus on fish welfare across the entire production cycle was established. In addition to this undertaking, data collection continues from the pilot farms on health parameters, and work has started on a fish health and productive best-practice handbook, which will be shared with the broader industry upon completion. Last but not least, in order to share our progress externally, Skretting presented Pincoy at FAO's 'The Use of Antimicrobials in Aquaculture in Latin America' conference (Lima, Peru, 22-24 November 2017).

# GRI index

General Standard		
Disclosures	Description	Page number
<b>ORGANISATIONAL PROFILE</b>		
102-1	Name	Skretting. Reg. tradename for aquafeeds owned by SHV Holdings
102-2	Operations	Feeds for aquaculture species
102-3	Head office	Stavanger, Norway
102-4	Locations	See map, page 4-5
102-5	Legal form	Part of Nutreco, privately-owned by SHV Holdings
102-6	Markets and customers	See map, page 4-5
102-7	Scale of operation	See map, page 4-5
102-8	Workforce	See map, page 4-5
102-9	Supply chain	Feed-to-food chain, see page 6
102-10	Business changes	See page 6
102-11	Precautionary principle	Not reported
102-12	External initiatives	Throughout the report
102-13	Memberships	Not specifically reported
<b>STRATEGY AND ANALYSIS</b>		
202-14	Message from MD	Not specifically, page 2-3
202-15	Key impacts, risks and opportunities	Not specifically reported, but indicated throughout report
<b>ETHICS AND INTEGRITY</b>		
102-16	Ethics and values	Not specifically reported
102-17	Ethics advice and concerns	Not specifically reported
<b>GOVERNANCE</b>		
102-18	Governance	Corporate governance, page 6
<b>STAKEHOLDER ENGAGEMENT</b>		
102-40	Stakeholder list	Materiality, page 6
102-41	Collective agreements	Not reported
102-42	Stakeholder selection	Materiality, page 7
102-43	Stakeholder engagement	Materiality, page 7
102-44	Stakeholder concerns	Not specifically reported
<b>REPORTING PRACTICE</b>		
102-50	Report period	1 January to 31 December 2017
102-51	Last report	Skretting Sustainability Report 1 January to 31 December 2016
102-52	Reporting cycle	Annual (2015 report missing)
102-53	Contact	Queries or comments, please email trygve.berg.lea@skretting.com
102-54	GRI compliance	The report contains Standard Disclosures from the GRI guidelines
102-56	Assurance	Not externally assured
<b>DMA and Indicators</b>		
and Indicators	Description	Page number
<b>CATEGORY: ECONOMIC</b>		
201	Financials	Not within scope of this report
204	Local procurement	Not specifically reported
<b>CATEGORY: ENVIRONMENTAL</b>		
301-1	Materials	Raw material usage, page 28
302-1	Energy	Operations, page 28
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304-1	Biodiversity	Risk assessment, page 21
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306-2	Waste	Operations, page 28
<b>CATEGORY: SOCIAL</b>		
403-2	Injury rate	Operations, page 28
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409-1	Forced or compulsory labour	Risk assessment, page 21
413-1	Community engagement	Commitment, page 30
414-2	Supplier social assessment	Risk assessment, page 21





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