



nuterra™

Our sustainability programme

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

Sustainability report

Australia · 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.



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

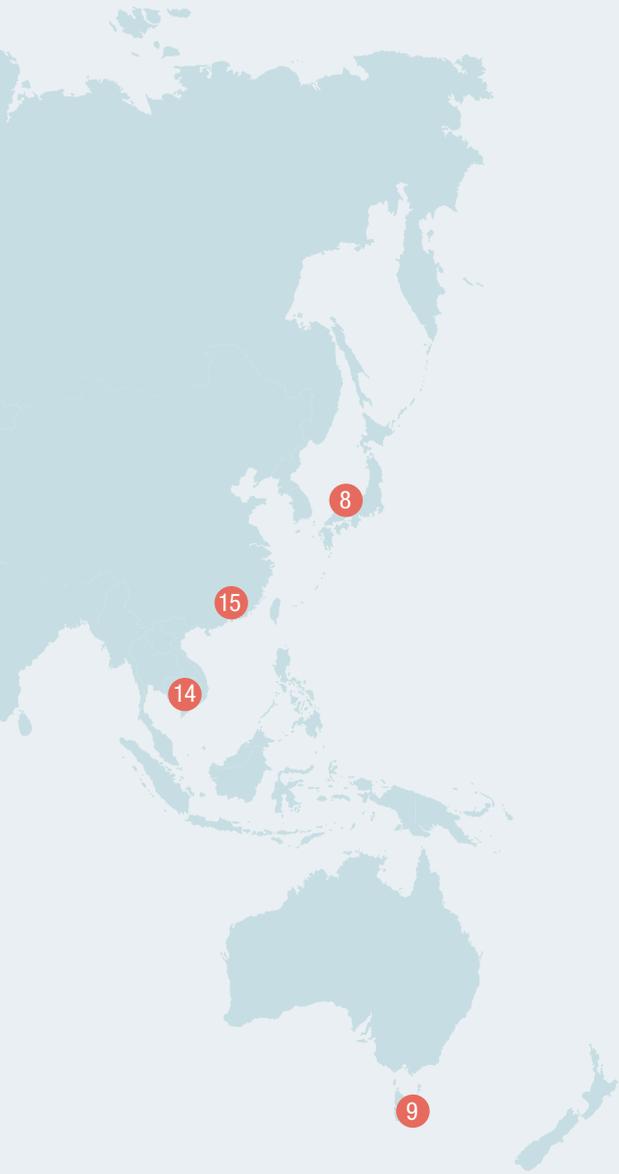
R&D: Skretting Validation Station Australia
Plant: Hobart
Feed for: Atlantic salmon, chinook salmon, barramundi, yellowtail kingfish, abalone, freshwater and seawater trout

10 SKRETTING EGYPT

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

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.



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

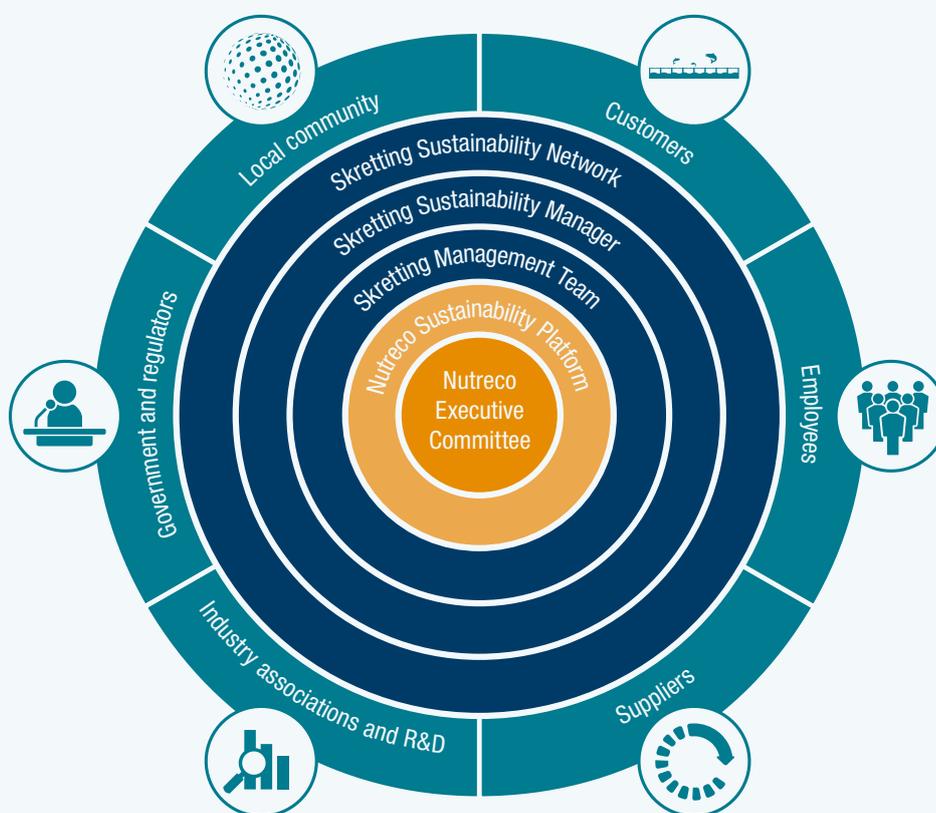
Skretting is owned by Nutreco, a global leader in animal nutrition and aqua feed. In October 2017, the Nutreco Executive Committee announced a restructuring of the company, with a shift from six Business Units to two Divisions. This means that all Operating Companies (OpCos) producing for aquaculture 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

NUTRITIONAL SOLUTIONS



ENABLING THE ANIMAL AND FARMER TO PERFORM BETTER

Animal health supporting and strengthening health
Antibiotics helping to prevent antibiotic use
Animal welfare meeting nutritional demands
Raw material scarcity producing more with less feed
Precision farming tools and education for farmers
Marine raw materials reducing the nutritional need for marine ingredients
Financial performance creating innovative and high value products

INGREDIENTS



CREATING A SUSTAINABLE BASE FOR FEED

Biodiversity no agricultural ingredients cultured in valuable habitat areas
Deforestation no agricultural ingredients cultured in illegally deforested areas
Land/water shortage finding alternative ingredients that use less arable land
Raw material scarcity increased use of co-products and support of circular economy
Slavery/human rights improved risk assessment of suppliers and ingredients

OPERATIONS



ENSURING OUR OWN HOUSE IS IN ORDER

Climate change mapping and monitoring our carbon emissions
Labour conditions creating a safe working place
Land/water shortage reducing use of water in feed production

COMMITMENT



INVOLVING PEOPLE IN THE CHALLENGE OF «FEEDING THE FUTURE»

Deforestation signing the New York Forest declaration and the Cerrado Manifesto
Marine raw materials participation in Fishery Improvement Project in Peru and Vietnam
Slavery/human rights participation in the Seafood Business for Ocean Stewardship
Precision farming/efficiency community development projects in Nigeria and Zambia

the feed-to-food chain

1. PRIMARY PRODUCERS



AGRICULTURE



FISHERIES



MINES

Agricultural crops, land animal farming and wild fisheries are directly and indirectly used for food, feed and energy. If not managed properly, primary producers of feed ingredients can contribute to a loss of biodiversity, climate change and human rights violations.

1

6. CONSUMERS



People purchase and eat high-quality, safe and nutritious seafood – fish and shrimp.

6

5. FOOD DISTRIBUTORS



RETAILERS
MARKETS
FOODSERVICE

Food distributors have an important role to play in promoting and advancing sustainable consumption and production of farmed fish and shrimp.

5

Raw materials are used in energy production and co-products can be used in the feed-to-food chain

ENERGY

2

2. FEED INGREDIENT MANUFACTURERS

Raw materials are processed into ingredients that can be made into fish and shrimp feeds. Feed ingredients are selected for the nutrients they can provide, the absence of anti-nutritional or undesirable substances, economics and sustainability credentials.



FOOD

Raw materials are used in food production and co-products from food processing can be used in the feed-to-food chain

3

3. SKRETTING

> 2 MILLION TONNES OF FEED PRODUCTION IN 19 COUNTRIES



AQUAFEED PRODUCER

Skretting converts ingredients into innovative fish and shrimp feed products. Our operations are built upon a solid foundation of human resources provided with good labour conditions and a safe working environment.

4

4. FARMERS

Aquaculture farmers feed their fish and shrimp to grow high-quality and nutritious food. Aquaculture farming performance is determined by animal health, nutrition and farm management.



AQUACULTURE

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.



Skretting engages in aquaculture and starts commercial production of complete feed for trout

1963



Respons – the first aquaculture health diet launched in the market, contributing to reducing antibiotic use in fish farming

1992

1996

The first AquaVision conference organised. A broad range of stakeholders gather to address current and future sustainability challenges in the industry



Skretting issues its first sustainability report and demonstrates transparency related to sustainability issues in aquaculture



1999

2001

AquaSim – the first growth model for salmon developed, representing the start of precision farming



Nutrace – our comprehensive feed to food safety programme established



2003

2016

Skretting rebrands its sustainability programme, SEA to Nuterra, Nutreco's company-wide sustainability programme



2017

Skretting starts a systematic sustainability assessment of feed ingredients and manufacturers of feed ingredients



Skretting ARC is the first to verify that salmon can be produced on a feed with no fishmeal or fish oil

FLX

2017

Skretting is engaged in five aquaculture community development projects leading to increased food security and nutritional security in emerging economies

2020

2015

Skretting starts systematic monitoring of the environmental footprint of its production sites



2014

Skretting endorses the United Nations New York declaration on Forests



Skretting engages in our first aquaculture community development project with Nigerian catfish farmers



2015

Skretting engages with the Global Salmon Initiative (GSI) and becomes associate member of the organisation



2013

2005

Skretting launches SEA – Sustainable Economic Aquafeeds – our first programme for developing sustainable feed solutions for aquaculture



2010

Products based on the MicroBalance nutritional technology are launched, leading to a reduction in aquaculture dependency on marine ingredients



Skretting engages with the International Fishmeal and Fish Oil Organisation (IFFO) to develop guidelines for responsible management of industrial fisheries



2009

Skretting and Nutreco develop our first Supplier Code of Conduct. The Supplier Code of Conduct explains our requirements to suppliers and engage them in improving sustainable practices



2011



39
DEDICATED
RESEARCHERS



250
RESEARCH
PROJECTS



15
MILLION EURO
IN R&D

7 new products worldwide

Optiline



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.



THE GLOBAL GOALS
For Sustainable Development



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



14 LIFE BELOW WATER

NUTRITIONAL SOLUTIONS

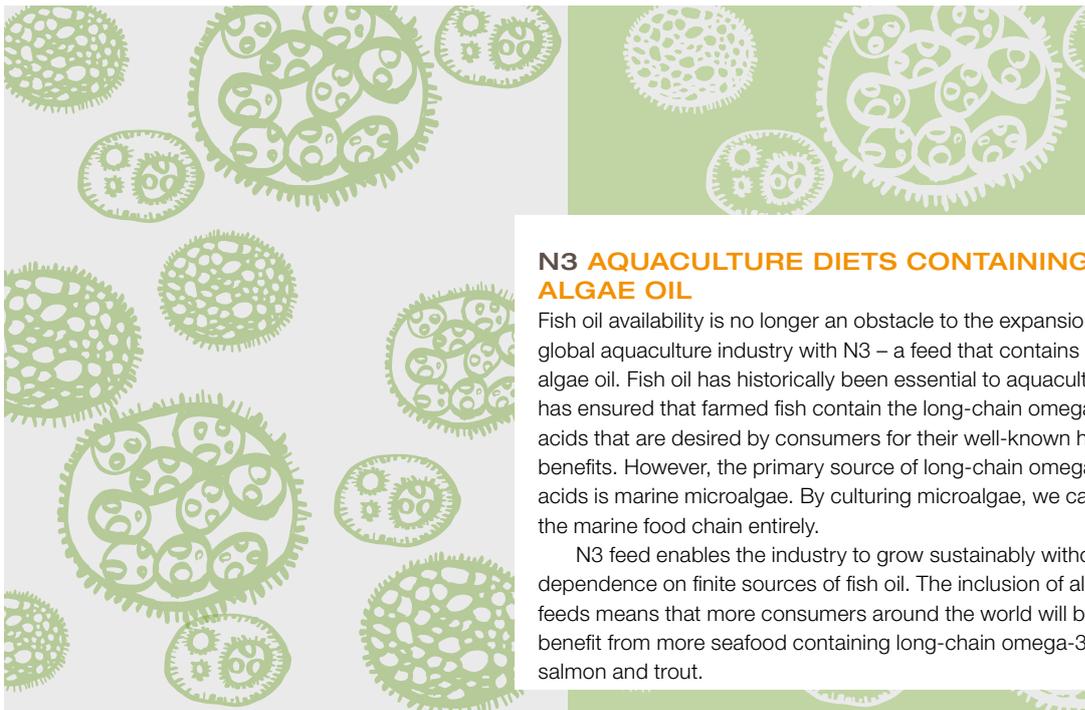
Through our offering of products, services and models we not only aim to boost productivity and support animal health, we also try to encourage the development of environmentally friendly aquaculture practices.



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.



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.

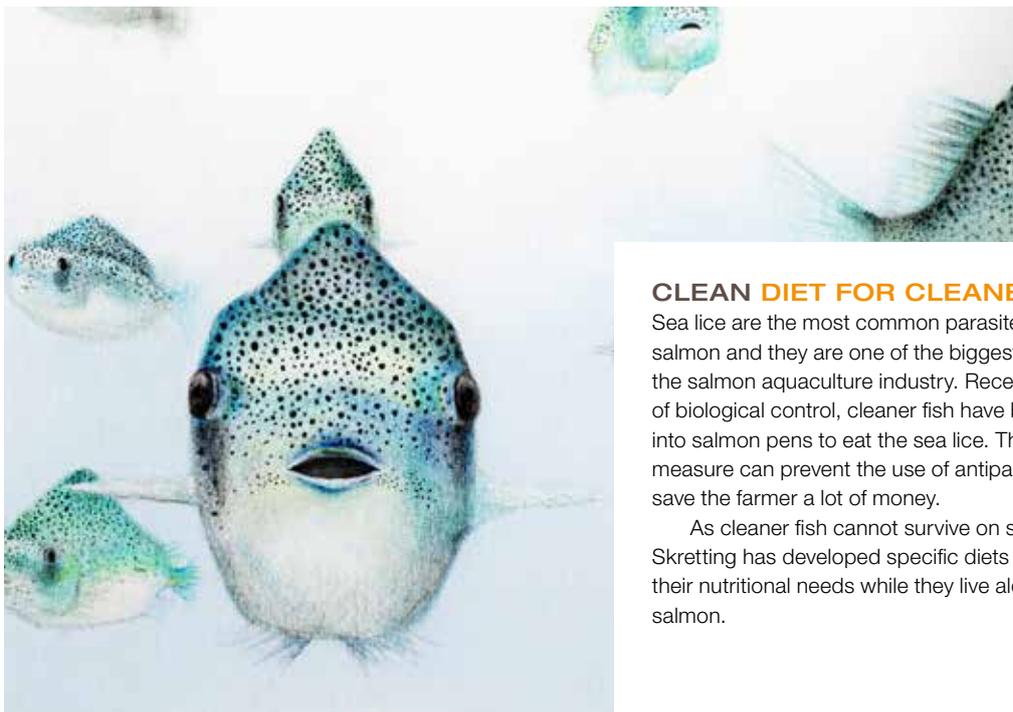
N3 feed enables the industry to grow sustainably without the dependence on finite sources of fish oil. The inclusion of algae oils in feeds means that more consumers around the world will be able to benefit from more seafood containing long-chain omega-3s, not just salmon and trout.



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.

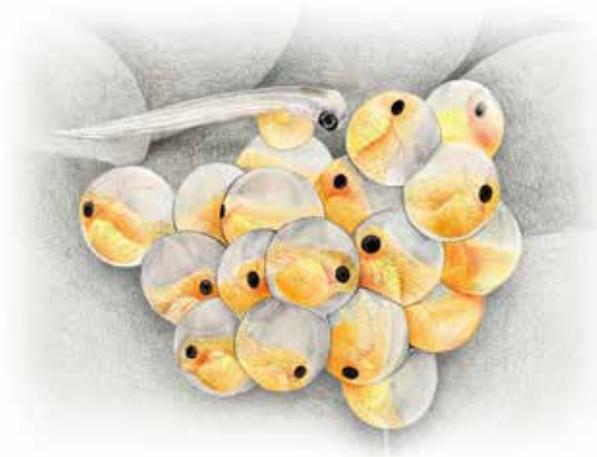
SHIELD supports the intestinal health of sea bream by maintaining a healthy organ structure. This ensures the fish can utilise all the nutrients from the feed and are not subject to secondary challenges from the environment that can impact production.



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.

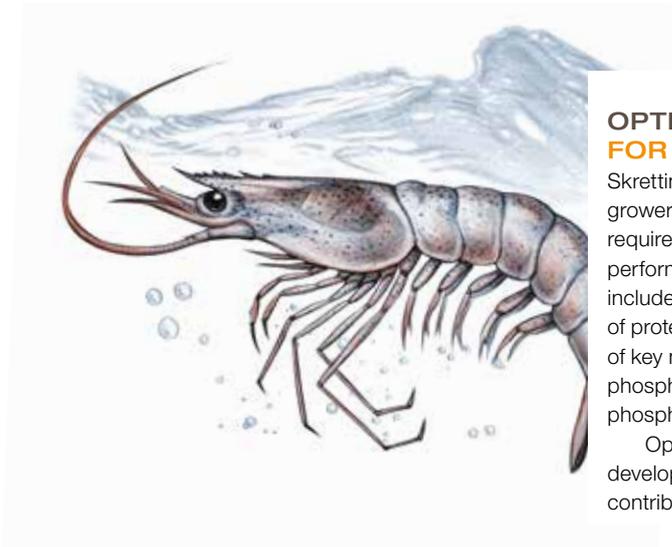
As cleaner fish cannot survive on sea lice alone, Skretting has developed specific diets CLEAN to support their nutritional needs while they live alongside the salmon.



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.



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.

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.



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.



THE GLOBAL GOALS
For Sustainable Development



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



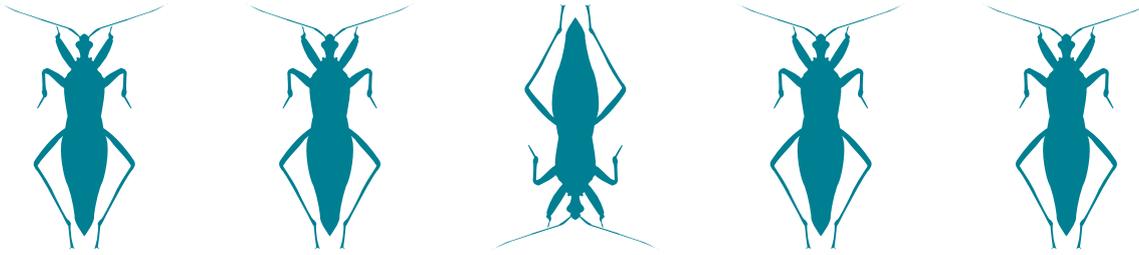
14 LIFE BELOW WATER



15 LIFE ON LAND



17 PARTNERSHIPS FOR THE GOALS



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

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

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

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.

100%
**OF SKRETTING
AUSTRALIA'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 FEFAC 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 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.

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.



FISHERY IMPROVEMENT PROJECT IN VIETNAM'S VUNG TAU REGION

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.

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.

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
 <p>AGRICULTURAL CROPS</p>	60%	<p>WHEAT, SOY, RAPESEED, CORN, FABA BEAN, RICE, SUNFLOWER AND LUPIN Typical feed ingredients <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></p>
 <p>WILD-CAPTURE FISH AND CRUSTACEANS</p>	15%	<p>SMALL PELAGIC FISH AND KRILL Typical feed ingredients <i>Protein: Fish meal, crustacean meal</i> <i>Fat: Fish oil</i></p>
 <p>BY-PRODUCTS FROM FARMED LAND-ANIMALS</p>	13%	<p>BY-PRODUCTS FROM LAND-ANIMALS Typical feed ingredients <i>Protein: Poultry meal, feather meal, blood meal</i> <i>Fat: Poultry oil</i></p>
 <p>BY-PRODUCTS FROM WILD-CAPTURE FISH AND CRUSTACEANS</p>	5%	<p>BY-PRODUCTS FROM A WIDE RANGE OF FISH AND SHRIMP must not originate from threatened species according to IUCN redlist Typical feed ingredients <i>Protein: Fish meal, crustacean meal</i> <i>Fat: Fish oil</i></p>
 <p>BY-PRODUCTS FROM FARMED FISH AND CRUSTACEANS</p>	1%	<p>BY-PRODUCTS FROM SALMON, TILAPIA AND SHRIMP Typical feed ingredients <i>Protein: Fish meal, crustacean meal</i> <i>Fat: Fish oil, salmon oil</i></p>
 <p>MICRO NUTRIENTS</p>	5%	<p>VITAMINS, MINERALS, PIGMENTS Typical feed ingredients <i>Vitamin premixes</i> <i>Mineral premixes</i> <i>Pigments: Astaxanthin</i></p>

100%
monitoring of
our environmental
footprint



TOOLS TO REPORT
AND REVIEW QUARTERLY
ARE NOW INTEGRATED

New employment

SKRETTING OPENED A FACTORY IN ZAMBIA, AFRICA



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.

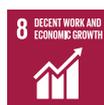
WHAT WAS THE IMPACT IN SOCIETY?

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.



THE GLOBAL GOALS
For Sustainable Development



8 DECENT WORK AND ECONOMIC GROWTH



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION

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



CO₂
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 m³ down to 0.74 m³ 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

PARTICIPATING FARMERS

109

DECREASED FEED CONVERSION RATE

45%

INCREASED AVERAGE HARVEST WEIGHT

100%

INCREASED SURVIVAL RATE

33%

INCREASED PRODUCTION STYLES

50%

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).



THE GLOBAL GOALS
For Sustainable Development



Skretting Australia 2017

The following section contains data specific to Skretting Australia's operations and markets.

GENERAL MANAGER'S ADDRESS: MELISSA ABBOTT

Last year was an exciting and eventful year for our business. We are pleased to report that we have made significant inroads to strengthen the position of our company and create value for both our customers and our broader industry stakeholders.

Firstly, I would like to recognise our former Managing Director James Rose, who has departed Skretting Australia to take up a global position as Procurement and Operations Director from March 2018. James has been a profound leader for Skretting Australia, and leaves a strong legacy for the future of our business. I would formally like to thank James for the significant contributions over his 18 year journey with Skretting Australia, and wish him all the best with his new global role with Skretting.

Here in Australia we are proud to have delivered the next generation in high performance Atlantic salmon grower diets, Prime and Express to our customers. These new feeds focus on enhancing appetite and digestion efficiency to facilitate higher growth rate and reduce time at sea. Prime and Express will provide our customers with increased flexibility to optimise their production system; either choosing to reduce the production time or to provide the market with larger salmon, there are considerable benefits to be had from both approaches.

In last year's report we highlighted the new feed innovation MicroBalance FLX, allowing us to offer feed for Atlantic salmon with zero fishmeal inclusion. In 2017, Skretting Australia successfully adapted our ground breaking MicroBalance FLX technology to rainbow trout species, producing farmed trout with zero fishmeal and no loss in final quality or yield. Skretting Australia will continue to validate and adapt this technology for other species in order to provide the most advanced and economical feeds possible.

Globally, Skretting was excited to announce the Infinity feed concept at the AquaNor conference held in Norway. The infinity seminar demonstrated Atlantic salmon grown on feed completely devoid of fish meal and fish oil. The technology builds on the zero fish meal inclusion validated by MicroBalance FLX. The substitution of fish oil ingredients relies on the identification and utilisation of new and alternative sources of omega-3 oil. In the future omega-3 oils will be generated by algae farms or GM crops such as canola. This will depend largely on the social and commercial restraints of those procurement options. The result further highlights the critical importance of research and development at Skretting to deliver solutions that enable sustainable growth of the aquaculture industry.

Here at Skretting Australia we will always endeavour to make continuous improvements across the entirety of our business. Our company mission is Feeding the Future, and I believe Skretting Australia has been able to deliver significant steps to realising a more sustainable future for the aquaculture industry.



Organisational profile

OPERATIONS

Feeds for aquaculture species

OWNER

Part of Nutreco, privately-owned by SHV Holdings

REPORT PERIOD

1 January to 31 December 2017

LOCATION

Head office and factory location
Cambridge, Hobart, Tasmania

SCALE OF OPERATION

>100,000t of feed produced

KEY MARKETS

Australia and New Zealand

KEY SPECIES FEEDS ARE MADE FOR

67% Atlantic salmon (*Salmo salar*)
21% King salmon (*Oncorhynchus tshawytscha*)
9% Barramundi (*Lates calcarifer*)
2% Rainbow trout (*Oncorhynchus mykiss*)
>1% Abalone (*Haliotis sp*)
>1% Yellowtail kingfish (*Seriola lalandi*)

WORKFORCE

Employees: 76



- Men: 60
- Women: 16

QUALITY CERTIFICATIONS

ISO 9001
ISO 14001
HACCP
Global GAP CFM
FeedSafe
ASC compliant
BAP compliant

GLOBALG.A.P.



MEMBERSHIPS

Australian Human Resources Institute
Australian Renderers Association
Chartered Accountants Australia and New Zealand
Continuous Improvement Specialists
Experimental Aquaculture Facility Advisory Committee
National Aquaculture Council
New Zealand Salmon Farmers Association
Stockfeed Manufacturer's Association

LAST REPORT

Skretting Australia Annual Sustainability Report 2016
(published April 2016).

Available at <http://www.skretting.com/en-AU/sustainability/reports/>

STRATEGIC PRIORITIES	STATUS	UPDATE OF PROGRESS TOWARDS TARGETS
Nutritional Solutions		
Continue the validation and documentation of our products through our R&D program and facilities.	●	We continued to have a strong year with the trials that we conducted throughout 2017. The trials at the Experimental Aquaculture Facility (EAF) allowed us to document high energy feeds with high temperature support for Atlantic salmon. We successfully validated Microbalance FLX technology for rainbow trout species and reduced our marine raw material inclusions for barramundi products.
Continued engagement and investment in collaborative R&D on developing species on mainland Australia Undertake fish health R&D specific to our customer requirements	●	Skretting Australia continued with its research partnerships increasing our nutritional research capacity into a broad range of the species within our market. These partnerships will continue to be valuable to Skretting Australia's business strategy moving forward.
Ingredients		
Audit all our land-animal protein and oil raw material suppliers against our sustainability criteria	●	Skretting Australia audited all its land-animal protein and oil raw material suppliers against its sustainability criteria to ensure that all our suppliers are compliant to our code of conduct and meet our supplier expectations.
Participate in FIP project for Peruvian anchoveta to secure an ASC compliant source of marine raw material	●	The Peruvian anchoveta fishery entered into a comprehensive fishery improvement project in March 2017. The end goal of this 3-5 year project will be that the fishery will become MSC certified. Subsequently this FIP has secured an ASC source of marine ingredients for Skretting Australia.
Operations		
Implement a forklift project to support a 25% reduction in forklift related incidents	●	Skretting Australia exceeded this goal in 2017. Safety within our operations will continue to be paramount for our business and new projects will be implemented to safe guard our employees within the workplace.
Map the locations and quantity of outbound logistic movements within the external supply chain (controlled and non-controlled)	○	This project was undertaken to identify potential GHG (greenhouse gas) reduction strategies that our major outbound logistic providers could undertake. Skretting Australia will engage with its outbound logistic providers to understand their position on CFP (carbon foot print) reduction in 2018.
Achieve an environmental certification for our operations (ISO14001) (continuation from 2016)	●	Skretting Australia ascertained environmental certification which validates the environmental system that we have in place.
Increase relative recycling volume by 5%	●	Skretting Australia successfully achieved its relative recycling goal at the end of 2017. This was largely attributed to our integrated environmental management system.

2017 HIGHLIGHTS

 Complete

 In progress

STRATEGIC PRIORITIES	STATUS	UPDATE OF PROGRESS TOWARDS TARGETS
Commitment		
Develop a stakeholder engagement strategy to guide our business management strategy meetings with our key stakeholders		In 2017 Skretting Australia sponsored, donated and attended a range of community events, functions and conferences. We hosted various groups such as universities, government officials and industry personnel, to expand knowledge about our business. Skretting will continue to develop a more robust strategy that proactively engages with its key stakeholders.
Organise our biennial AquaScience event as part of our engagement strategy for our customers		Skretting Australia held its biennial customer conference, AquaScience in July 2017. The conference was held in both New Zealand and Australia. The level of participation at these events and topics were appealing to our customers, and we will host this event again in 2019.



Nutritional solutions

New high energy diets to boost summer performance:
Express HT Atlantic salmon

The Experimental Aquaculture Facility (EAF) has provided Skretting Australia with the capacity to work locally with large salmon in a temperature controlled environment to focus on developing feed solutions that support fish during high-temperature conditions.

One of the defining features of the appetite and growth reduction typical of salmon in summer is a dramatic change in gut microflora; shifting from lactic acid bacteria to *Vibrio*. Addressing this change has been one of the pillars of our HT feed since it was first established in 2011, and the new feed took us a step forward in feed-mediated gut stabilisation. The success of this new feed relates not only to stabilisation of microflora, but also to robustness of the gut wall. Destabilisation of gut microflora can cause inflammation, which we are able to significantly reduce through supporting the function of the cells that line the gut, reducing the passage of bacteria and related undesirable compounds through the gut wall. This in turn reduces inflammation, a sign of poor gut health.

The other component to be evaluated in this new summer diet development was the performance of high energy feeds in adverse high temperatures. High energy feeds have been demonstrated to have a positive effect on both growth and energy metabolism of fish exposed to high temperatures. These results complement our recently launched feeds Prime and Express that combine appetite stimulation and digestive functionality to promote growth and build on our established high energy feed line.

We are happy with the results from our high temperature trials carried out in the EAF so far and pleased to be able to offer well documented new feed solutions for our customers' summer feeding strategies. Optiline HT provides an improved low energy option, however, Express HT is the recommended strategy for the best possible summer performance of Atlantic salmon.



MICROBALANCE FLX FOR RAINBOW TROUT

Reducing our need for fish meal has been a major research focus for more than twenty-five years.

While it provides a balance of essential nutrients and easily digestible protein, fish meal is a limited resource and adds considerable cost and cost variability to aquafeeds. In order for global aquaculture to continue to grow sustainably it needs to obtain flexibility over its feed raw materials. The drive for fish meal free feeds received a major boost in 2010, with Skretting announcing a major breakthrough in micronutrient requirements and raw material flexibility, termed MicroBalance®. This breakthrough provided a new horizon for minimum fish meal levels in fish feeds and became the platform for further developments. Over successive years this technology was refined and validated to the extent that we were able to launch commercially validated feeds for salmon totally devoid of fish meal in 2016. MicroBalance FLX is an innovative concept in sustainability that can be applied to all Skretting feed products. The positive outcomes from this innovation are significant: it means Skretting can be increasingly flexible with raw material inclusions, enabling the available responsibly sourced fishmeal resource to go much further than in the past, and thereby increasing the sustainability credentials of salmon production globally.

Since this major breakthrough was launched, we have turned our attention to FLX validation across other species. In 2017 Skretting Australia was pleased to bring its customers the first part of this validation, in the form of rainbow trout FLX results. MicroBalance® FLX diets were trialed on rainbow trout at the University of Tasmania's Launceston campus. There were no differences in salmon growth, size and feed conversion. This result demonstrates that FLX formulations were every bit as effective as standard diets. This result expands on the extensive documentation for FLX salmon and builds on the excellent commercial results achieved with FLX for Atlantic salmon species.



1990

At this point, research was nutrient-driven and focused on identifying the requirements for amino acids, minerals & protein.

Early to Mid 2000

A greater understanding of the nutrient requirements led to further investigation into raw material quality with digestibility and antinutritional factor analyses.

2010

The beginning of the MicroBalance journey. In 2010, researchers at Skretting ARC revealed a significant breakthrough, identifying specific nutritional requirements and detailed raw material replacement capabilities.

2012

The MicroBalance concept has been progressively refined and documented. Trials are initiated with feeds using 0% Fishmeal.

2015

We Can do it. Comprehensive trials prove that we can now formulate feeds that contain no fish-meal, with equal fish health, performance and quality.

2017

MicroBalance technology validated for rainbow trout.

R&D COLLABORATIONS

Project: Kingfish for Profit (KP4)
Purpose: Growing a profitable, innovative, collaborative Yellowtail Kingfish industry, bringing 'white' fish to the market
Stakeholders: Fisheries Research and Development Corporation
South Australian Research and Development Institute
Department of Primary Industries New South Wales

Project: Research on large Atlantic salmon health
Purpose: Amoebic gill disease and high water temperature
Stakeholders: Institute of Marine and Antarctic Studies
Experimental Aquaculture Facility

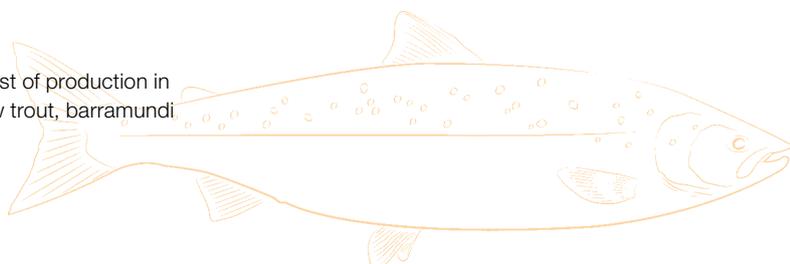
Project: Feed development projects
Purpose: Addressing production issues in Atlantic salmon and rainbow trout
PhD sponsorship: Pigmentation physiology in Atlantic salmon
Stakeholders: University of Tasmania

Project: Feed development projects
Purpose: Optimisation of feeds for barramundi
Stakeholders: NSW Department of Primary Industries
Port Stephens Fisheries Institute

Project: Feed development projects
Purpose: Improving King (Chinook) salmon feed efficiency for industry growth and improving gut health
Stakeholders: Cawthron Institute New Zealand
Nelson Marlborough Institute of Technology
Collaboration with Brightwater Consulting Ltd

Project: Spinal malformations in King salmon
Purpose: Collaboration with industry on fish quality improvement program, focused on reducing skeletal malformations
PhD sponsorship: Spinal deformity mechanisms
Stakeholders: Massey University, New Zealand
Ghent University, Belgium

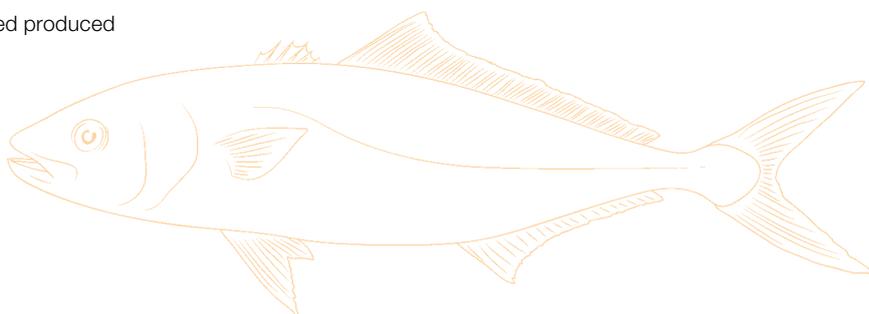
Project: Customer feed trials (on-farm)
Purpose: Feed development addressing the cost of production in Atlantic salmon, king salmon, rainbow trout, barramundi and yellowtail kingfish



LIFE CYCLE ASSESSMENT

Average carbon footprint of our feeds:
5.98kg CO₂ emissions per tonne of feed produced

Feed production is 0.05kg CO₂e/kg
Feed ingredients are 5.94kg CO₂e/kg





Ingredients

INCLUSION OF FEED INGREDIENTS (%)

Marine Proteins	
Fish meal (reduction fisheries)	6.1
Fish meal (by-products)	6.5
Land-animal Proteins	
Poultry meal	16.1
Feather meal	6.2
Meat meal	3.5
Blood meal	3.6
Vegetable Proteins	
Lupin	4.2
Wheat gluten	3.6
Soya Protein Concentrate	3.0
Faba bean	2.9
Marine Oils	
Fish Oil	6.4
Land-animal Oils	
Poultry Oil	9.9
Vegetable Oils	
Canola Oil	6.4
Carbohydrate	
Wheat	12.9
Technical and Others	
	8.7
	100.0

PROCUREMENT PRACTICES/ SUPPLIER SCREENING

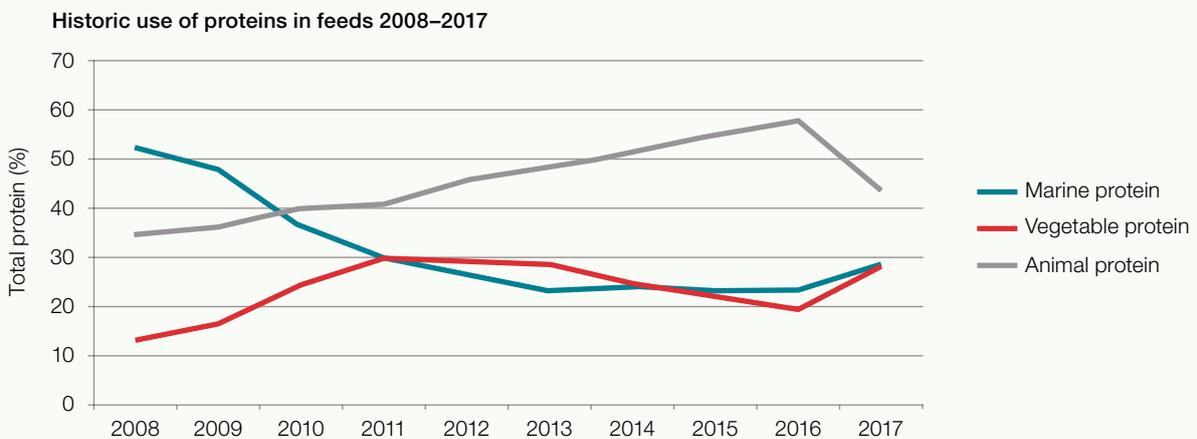
Skretting and parent company Nutreco focus on supplier engagement through the group-wide.

Supplier Code of Conduct <http://www.nutreco.com/en/our-way/Sustainability/supplier-code-of-conduct/>

The Supplier Code of Conduct is applicable to all our suppliers and provides clear guidelines for how we expect them to act in the areas of Integrity and Business Conduct, Human Rights, and the Environment. We wish to use our influence to encourage suppliers to adhere to the Supplier Code of Conduct and to request their suppliers to do the same, supporting us in making a positive contribution to using sustainable raw materials.

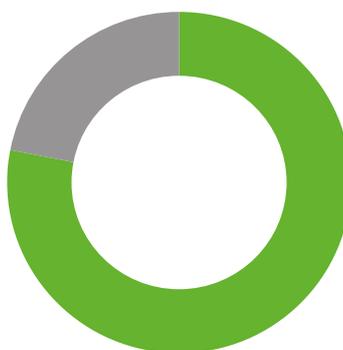
Supplier code of conduct

Mandatory for all suppliers to sign after 1/1/2015



MARINE BIODIVERSITY

According to our criteria for marine products from fish processing must not come from threatened species. Suppliers shall not process species or by-products from species that are classified as "Critically Endangered" or "Endangered" in the IUCN Red List. Species that are listed as "Vulnerable" are not eligible for use as by-product, unless for fisheries from a discrete sub-population assessed to be responsibly managed. Regarding marine ingredients processed from whole fish, stricter requirements apply regarding fishery management.



Local procurement

- 78.3% raw materials sourced locally
- 21.7% raw materials imported

CERTIFIED AND COMPLIANT MARINE AND SOY INGREDIENTS

Fish meal

100% IFFO RS (reduction fisheries only)
100% ASC Compliant

Soy

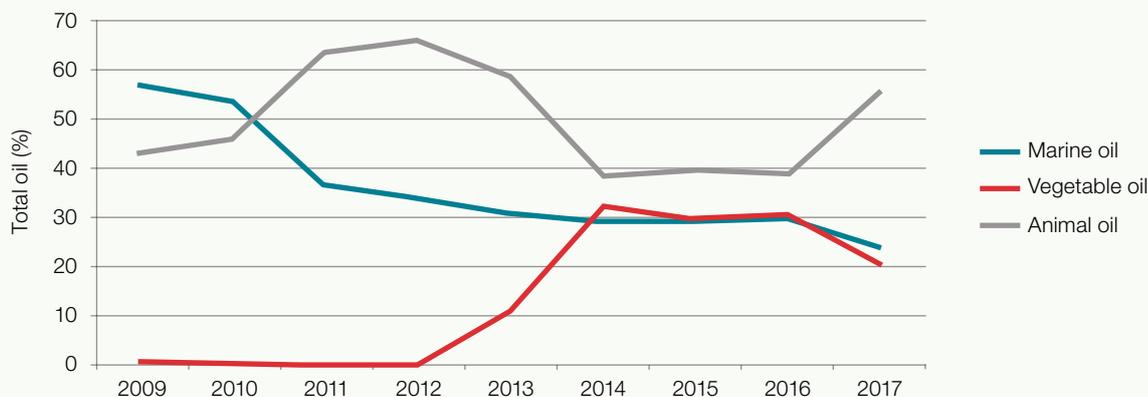
100% Proterra
100% ASC compliant

Fish oil

80% IFFO RS (reduction fisheries only)
6% MSC
82% ASC Compliant

IFFO RS: International fish meal and fish oil code of responsible supply
MSC: Marine Stewardship Council

Historic use of oil in feeds 2008–2017



SPECIES ORIGIN AND CONSERVATION STATUS



Fishmeal

- Sourced from reduction fisheries 43.3%
- Sourced from by-products/trimmings 56.7%



Fish oil

- Sourced from reduction fisheries 91.4%
- Sourced from by-products/trimmings 8.6%

Sourced from reduction fisheries

Country of origin	Species common name	Latin Name	Fishmeal (%)	Fish oil (%)
Peru	Anchovy	<i>Engraulis ringens</i>	43.3	61.7
India	Sardine	<i>Sardinella longiceps</i>		5.5
USA	Atlantic Menhaden	<i>Brevoortia patronus</i>		12.2
China	Japanese anchovy	<i>Engraulis japonicus</i>		12.0
			43.3%	91.4%

Sourced from by-products/trimmings

Country of origin	Species common name	Latin Name	Fishmeal (%)	Fish oil (%)
Samoa	Albacore tuna	<i>Thunnus alalunga</i>	6.0	
	Skipjack tuna	<i>Katsuwonus pelamis</i>	13.8	
	Yellowfin tuna	<i>Thunnus albacares</i>	2.0	
Thailand	Skipjack tuna	<i>Katsuwonus pelamis</i>	12.8	
	Yellowfin tuna	<i>Thunnus albacares</i>	1.8	
Ecuador	Skipjack tuna	<i>Katsuwonus pelamis</i>	15.5	
	Yellowfin tuna	<i>Thunnus albacares</i>	4.8	
New Zealand	Barracouta	<i>Thyrsites atun</i>		0.32%
	Blue whiting	<i>Micromesistius australis pallidus</i>		0.2%
	Frost fish	<i>Lepidopus caudatus</i>		0.1%
	Hake	<i>Merluccius australis</i>		0.03%
	Hoki	<i>Macruronus novaezelandiae</i>		5.89%
	Jack mackerel	<i>Tracherus murphyi</i>		0.63%
	Javelin fish	<i>Lepidorhynchus denticulatus</i>		0.4%
	Ling	<i>Genypterus blacodes</i>		0.15%
	Rattail	Family Macrouridae		0.39%
	Silver Warehou	<i>Seriotelella punctata</i>		0.1%
Spiny dogfish	<i>Squalus acanthias</i>		0.15%	
Other				0.2%
			56.7%	8.6%
Total			100.0%	100.0%



Operations

						
ENERGY	WATER	EMISSIONS	WASTE	WASTE TYPE	ENVIRONMENTAL INCIDENTS	EMPLOYEE INJURY RATE
<ul style="list-style-type: none"> • 272.44 kwh/t of feed produced 	<ul style="list-style-type: none"> • 0.48 m³/t of feed produced • 100% from municipal water supply 	<ul style="list-style-type: none"> • 49.13kg CO₂e/t of feed produced 	<ul style="list-style-type: none"> • 2.48kg/t of feed produced • 73% of waste is recycled/reused • 27% general/controlled burial • 19.3ML trade waste volume 	<ul style="list-style-type: none"> • General: 27% • Cardboard/paper: 7.3% • Plastic: 29.2% • Wood: 31.2% • Organic: 0% • Metal: 5.3% • E-waste: 0% 	<ul style="list-style-type: none"> • 32 odour • 0 noise • 2 potential discharge to water • 1 dust • 3 food safety incidents 	<ul style="list-style-type: none"> • Lost time injury: 1 • 100% employee performance reviews

ISO 14001: ENVIRONMENT SYSTEM CERTIFICATION

Skretting Australia is pleased to report that it obtained ISO 14001 certification for its environment system in 2017. ISO 14001 is an internationally agreed standard that sets out the requirements for an environmental management system. It helps organisations improve their environmental performance through more efficient use of resources and reduction of waste. This third party certification validates that Skretting Australia has established an excellent environmental system to mitigate and manage our environmental impact. It also provides our stakeholders the assurance that we are compliant with current and future statutory requirements.

Skretting Australia is pleased to report that it obtained ISO 14001 certification for its environment system in 2017.





Commitment



AQUASCIENCE CONFERENCE AUSTRALIA & NEW ZEALAND

Skretting Australia held its AquaScience conferences in Tasmania and New Zealand in 2017. The conferences were research-orientated forums with the purpose of extending important industry updates to Skretting Australia's customers. The agenda included a diverse range of topical issues such as the effects of high temperatures on salmonid production, new grower feeds (Prime & Express), sustainability projects (Alternatives to Fish Oil), the evolution of land-based recirculation systems and 25 years of health diets.

Among the presenters were Charles McGurk and Vibeke Vikeså from Skretting ARC (Aquaculture Research Centre), and Global Product Manager for fresh water species Roar Sandvik, all travelling from Norway to present at the event.

Skretting Australia received a significant amount of positive feedback on the high standard of the conference. We were thrilled with the level of participation we received at both these events and we hope that we can continue to bring the latest innovations to our customers that continuously improves our customer's production performance.



SKRETTING AUSTRALIA COMMUNITY CLEAN-UP AUGUST 11

This year Nutreco is coordinating a global community day initiative that involves all our companies engaging in some form of goodwill within their local communities. Skretting Australia decided that they would undertake a cleanup of a local Cambridge wetland that was in need of some tender love and care. This was a great chance for employees across all departments to join forces and make a positive contribution to our local community. A huge thank you must go out to those that put their hand up to help out.

SUPPORTING OUR LOCAL ENVIRONMENT: FIFTEEN TREES SPONSORSHIP

Skretting Australia continued its support of Tasmania's environment through the Australian company Fifteen Trees. Fifteen Trees coordinates the planting of trees through local conservation groups such as Landcare Tasmania. Skretting Australia sponsored a total of 2030 trees to be planted throughout Tasmania in 2017 to offset the previous year's business travel carbon emissions. The trees were a mixture of Eucalyptus and Acacia species indigenous to the area in which they are planted and sourced from local native nurseries. Once established, the trees will provide shelter and food for our native wildlife, absorb carbon dioxide from the atmosphere, help keep our rivers clean and limit the effects of rising ground water and soil erosion. Trees encourage native wildlife to establish itself within the plantings and this sets up a whole self-sustaining ecosystem.

SPONSORSHIPS/ DONATIONS

We sponsored, donated and attended a range of community events, functions and conferences. These include but are not limited to:

- Variety 4WD charity event
- Strahan Beach to Bay Fun Run
- 15 Trees
- Cambridge Primary School
- Cancer Council - daffodil day
- Speak up stay chatty
- Child Poverty Group New Zealand
- Deaf Cricket Australia
- Strahan Picnic
- Australian Farmers
- New Zealand Aquaculture Conference
- Fish in Schools program – New Zealand

We also donate feed to educational organisations such as schools, universities and trade training centres, etc. These include but are not limited to:

- Huon Trade Training Initiative
- Experimental Aquaculture Facility



Future goals

NUTRITIONAL SOLUTIONS



ENABLING THE ANIMAL AND FARMER TO PERFORM BETTER

- Increase our research capacity in New Zealand to optimise feed conversion for king salmon
- Explore opportunities to provide benefits through health feed offerings to our customers
- Enhance feed conversion properties of our feeds

INGREDIENTS



CREATING A SUSTAINABLE BASE FOR FEED

- Investigate and evaluate potential new and alternative raw materials
- Work towards 100% IFFO RS certified for marine reduction ingredients by 2020

OPERATIONS



ENSURING OUR OWN HOUSE IS IN ORDER

- Obtain Best Aquaculture Practice (BAP) certification for our feed mill
- Further optimise our existing safety program within our operations

COMMITMENT

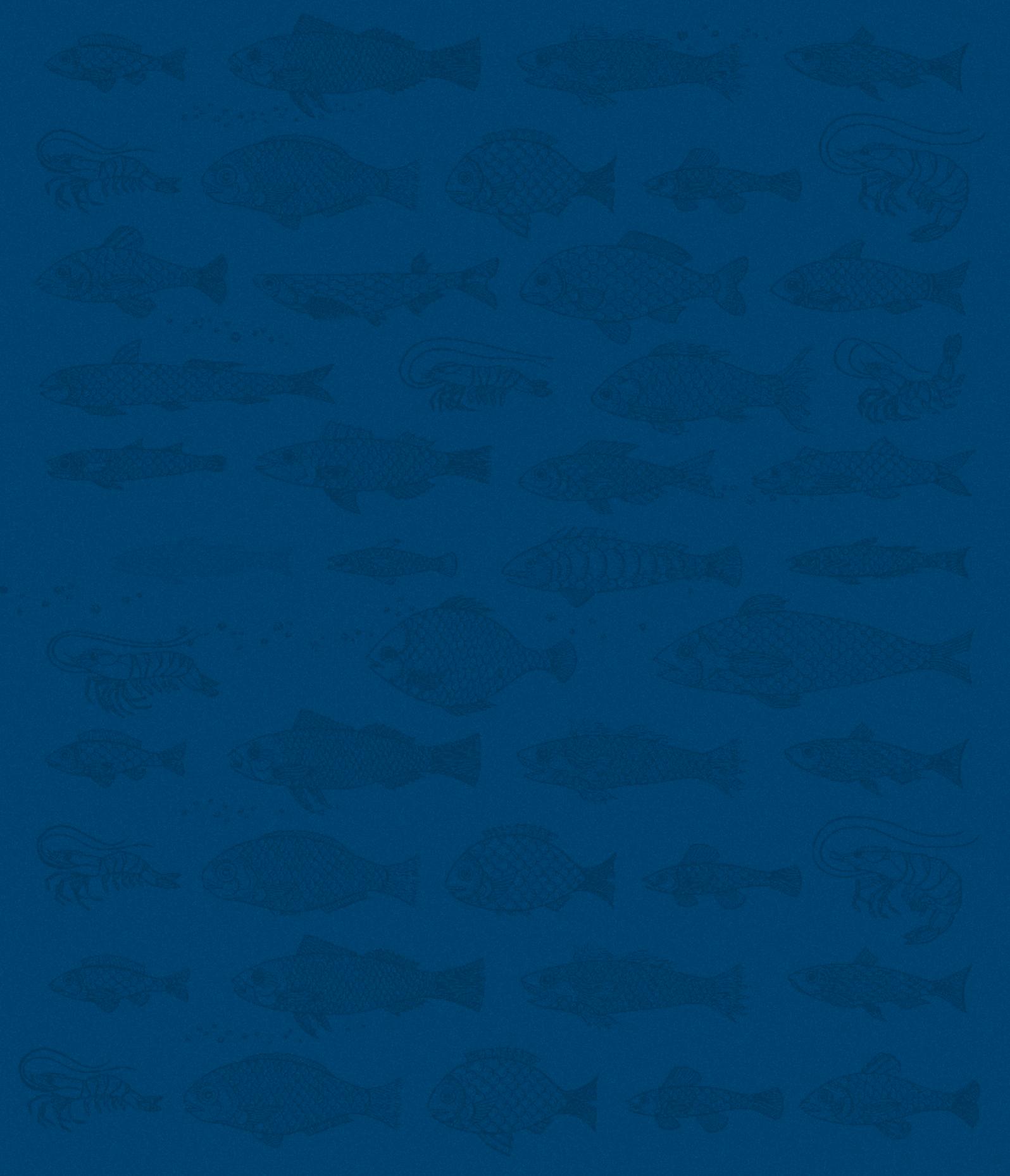


INVOLVING PEOPLE IN THE CHALLENGE OF «FEEDING THE FUTURE»

- Coordinate our customers attendance in the 2018 AquaVision conference
- Conduct community day event at Skretting Australia



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www.skretting.com.au
www.nutreco.com