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**Submission to the Senate Standing Committee on Environment and Communications  
with respect to the regulation of the fin-fish aquaculture industry in Tasmania**

**on behalf of**

**Skretting Australia**



## Executive summary

The salmon industry is the largest farming industry in Tasmania and at the current growth projection it is set to become a \$1 billion industry by 2030, underpinning the success of the "Food Bowl" concept for Australia.

Skretting as a leading global fish and shrimp feed supplier, and in the following submission we would like to acknowledge the feed technologies developed or adapted by the Tasmanian salmon industry over the last decade - as examples of this industry's ongoing commitment to global best practice. The Tasmanian salmon industry is very much influenced by, and leading with, the most progressive global feed technologies available - with the outcome of reducing the impact on waterway health in the environment which they operate.

The notable feed technologies developed or adapted by the Tasmanian salmon industry include:

- (1) Use of low-protein feeds in accordance to the lower protein requirement of salmon during later stages of fish production. An equivalent approach to diet protein is applied across salmon industries globally and achieves reduced nitrogen outputs from salmon farming operations. Application of low-protein feeds in Tasmania has enabled a 10% reduction in the protein required during the entire salmon production cycle, and results in a direct 10% decrease in organic nitrogen entering the farming environment per tonne of fish produced.
- (2) Use of high-energy feeds, in line with the high-energy density feed strategies applied in other global salmon industries. Application of high energy density feeds in Tasmania has demonstrated up to 13% reduction in feed input per tonne of fish produced. This means a direct 13% decrease in organic (nitrogen) and inorganic (phosphorous, minerals) nutrients into the farming environment per tonne of fish produced.
- (3) Application of functional feeds designed for optimised fish health, and used at specific time during production when feed can provide a complementary salmon production management tools. Tasmanian salmon industry applies functional feed widely across the production cycle, including: hatchery feeds with physical properties that are designed to improve water quality; transfer feed feeds to reduce stress during the transfer of juvenile salmon from freshwater land-based hatcheries to the seawater grow-out sites; seasonal diets to help support fish during periods of high water temperature; and feeds designed to help salmon cope with disease or environmental insults and subsequent recovery from these stressors.
- (4) A continued program of reducing reliance on marine ingredients through R&D and commercial evaluation of new feed technology. In 2010, the grower feeds that are applied over the majority of the Tasmania salmon production cycle contained greater than 25% fishmeal and 10% fish oil, and now in 2015, these same feeds contain only 5% fishmeal and 6% fish oil. Tasmania achieves world's best practice with regard to reduced reliance on marine ingredients for the production of salmon.

The demand for quality protein farmed responsibly will continue to grow as the global population increases. All of our salmonid customers in Tasmania currently have at least one global



independent sustainability certification, such as Aquaculture Stewardship Council (ASC), Best Aquaculture Practices (BAP), or Global G.A.P. Aquaculture is the only protein production system with a referenced gold standard addressing environmental/social impacts, and includes requirements for responsible feed ingredients and feed performance. Developed by the WWF Aquaculture Dialogues, the Aquaculture Stewardship Council (ASC) has been tasked to manage these global standards for responsible aquaculture. The standard contains science-based performance metrics and requirements that are realistic, measurable and auditable. Tasmanian salmon farming is committed to the ASC standard with all of Tassal's farming operations currently certified and Huon Aquaculture as members of the Global Salmon Initiative (GSI) who aim to be ASC certified by 2020. This demonstrates further desire by the Tasmanian salmon industry to achieve global best practice in all technologies, including feed, to reduce the impact on waterway health for the environment in which they operate.





## **Skretting: producer of Sustainable Economic Aquafeeds (SEA).**

Skretting's priority focus on sustainability is borne from the global challenge to feed the 9 billion people that are forecast to be populating the planet by 2050. As an essential link in the feed-to-food value chain, Skretting understands that the drive towards greater efficiency in aquafeeds requires our full attention for environmental and economic sustainability.

Skretting is a leading global fish and shrimp feed supplier and forms the aquaculture division of international animal nutrition parent company, Nutreco. As a Nutreco company, Skretting shares the mission of "Feeding the Future". To help fulfil our mission we have developed the Sustainable Economic Aquafeeds (SEA) program, which outlines our commitment to sustainability and is the foundation of our sustainability strategy. The SEA program is comprised of six guiding pillars founded on the objectives of Nutreco's 'Sustainability Vision 2020'.

The following submission to the Federal Government's Senate inquiry into Tasmania's salmon industry uses the six pillars of Skretting's SEA program to provide a framework for documenting feed technologies developed or adapted by the Tasmanian salmon industry over the last decade, and provides examples of the ongoing commitment to global best practice by this salmon industry.

### **1. Having our own house in order**

Skretting operates a dedicated aquaculture feed plant in Cambridge, Tasmania that meets the highest quality standards and product is manufactured in accordance with:

- Full traceability - Nutrace®
- ISO 9001 Quality Management System Standards
- Audit standard: AS/NZS ISO 9001:2008
- HACCP certification
- FeedSafe™ certification
- Global G.A.P. CFM certification (GGN: 4052852637961)

External auditing and certification surveillance is provided by SGS International Certification Services, a member of the SGS (Société Générale de Surveillance)

Skretting believes sustainability begins at home and as such we are firmly committed to ensuring our own house is in order. Our sustainability commitment therefore includes pursuing greater energy efficiencies and reducing the amount of waste and emissions generated throughout our operations. Human resources are another vital input and we strive to provide the best working environment possible.

In 2013, Skretting Australia published its first sustainability report. As the leading supplier of aquaculture feeds in Australia and New Zealand, we have a strong responsibility to support our



local industry to deliver the most sustainable economic aquafeeds. This sustainability report is our statement about how we are setting and achieving our sustainability targets, and how the outcomes flow onto benefit the whole Tasmanian aquaculture industry and community, though the increased transparency of our industry practices.

The individual companies making up the Tasmanian salmon farming industry have independently certified quality systems and voluntarily publish their own sustainability initiatives to demonstrate their own houses are in order. These transparent sustainability reports take the form of website-based information, web-based performance dashboards and annual reporting aligned with the Global Reporting Initiative (GRI) for sustainability reporting. This emphasises the desire of the Tasmanian salmon industry to communicate transparently to all stakeholders and strive toward global best practices. And as a credit to these initiatives, Tassal was benchmarked in 2013 as the world's top salmon farming company in corporate, social and environmental reporting by Seafood Intelligence.com, an independent international seafood market intelligence news and information service.

## **2. Developing sustainable nutritional solutions**

Meeting growing global demand for protein will require innovative solutions that enable more food to be produced from a fixed resource base. The aquaculture industry offers a good solution since aquatic animals are more efficient at feed conversion than terrestrial animals. Skretting believes there is always room for improvement and is determined to help the aquaculture industry become even more efficient. This can be achieved through continued investment in R&D to optimise both environmental and economic returns.

Skretting Aquaculture Research Centre (ARC) is the global research organisation for Skretting, ensuring that the world's leading fish and shrimp feed producer maintains its position at the forefront of the rapidly developing aquaculture industry. Based in Norway, the ARC's key competencies are with nutrition, health, feed production and research methodologies. In 2014, Skretting Global invested the equivalent of AUD \$19 million into fish and shrimp feed technology R&D.

Over the last fifteen years, Skretting ARC have been refining diet protein requirements for salmon – this means research to identify the minimum dietary protein required to sustain normal growth and health of salmon. The research has demonstrated that as a salmon grows larger, it requires less diet protein, which enables Skretting to offer salmon diets with protein contents specifically tailored to the production stages of the animal. Application of low-protein feeds in the Tasmanian salmon industry has, over time, enabled a 10% reduction in the protein required during the entire salmon production cycle when compared the diets used in 2001. This reduction of diet protein has resulted in a direct 10% decrease in organic nitrogen entering the farming environment per tonne of fish produced annually, and less nitrogen emissions into the environment.





In 2011, a breakthrough innovation by Skretting ARC was the discovery of naturally occurring substances that can stimulate fish metabolism and increase the utilisation of digestible energy from feed – particularly feed with a high-energy content. During the winter of 2012, a replicated commercial feed trial was undertaken in the South East of Tasmania, comparing the growth performance of Atlantic salmon fed a high-energy feed compared to a standard energy feed. The high energy feed demonstrated a 14% improvement in salmon growth rate and 13% reduction in feed input per tonne of fish produced. This improved growth rate means a 12% reduction in the production cycle for Tasmanian salmon and a direct 13% decrease in organic (nitrogen) and inorganic (phosphorous, minerals) nutrients into the farming environment per tonne of fish produced than when fed standard energy feed. The outcome for the industry is less nutrient emissions to the environment per tonne of fish produced which has a long-term positive impact on the waterway health for the salmon industry.

All the salmon farming operations of Tasmania have now used low-protein and high-energy feeds commercially and identified the reduction in feed input per tonne of fish produced and realised the reduction in nutrient emissions to the environment. The use of low-protein and high-energy feeds brings the Tasmanian salmon industry in line with global salmon practices, with the outcome of reducing the impact on waterway health in the environment which they operate.

### **3. Securing animal health**

Many aquaculture systems are open to the natural environment, which exposes the fish to stresses such as extreme temperatures, handling and a range of parasites and infectious agents that can have negative health impacts. Additionally, stress can come from routine farming practices, such as transferring fish and grading. Skretting is committed to helping farmers' secure animal health through continued investment in R&D. Maintaining a high level of animal welfare improves both the efficiency and sustainability and reduces the impact on waterway health in the environment which they operate.

With the anticipated expansion of the Tasmanian salmon industry comes great responsibility, particularly with regards to ensuring that the salmon industry continues to function safely and sustainably. Recently, the industry broke ground on its AUD 6 million Experimental Aquaculture Facility (EAF) at the University of Tasmania's Institute for Marine and Antarctic Studies' (IMAS) Taroona campus. Jointly-funded by the University of Tasmania, Huon Aquaculture, Skretting and the Australian and Tasmanian governments, the EAF will provide the capacity to undertake experiments with large Atlantic salmon, which has not previously been available in Tasmania and is certain to bring benefits to all local salmon producers. This facility is another important step in the development of the industry and will allow us to build our local knowledge. It offers a significant opportunity for undertaking collaborative industry research and building international research linkages in the future.

Skretting has long made a significant contribution to developing nutritional solutions, or functional feeds, that help increase the resilience of fish to stress and health challenges. Over the last 10





years, Skretting Australia has invested between \$0.5 and 1.0 million annually into local R&D for the Australian and New Zealand salmon industries. Some of the most recent R&D investments include: support for two PhD projects, and R&D trials on fish nutrition, health and Amoebic Gill Disease (AGD) research. The outcome of the research is to develop functional feeds for the local salmon industry that successfully promote optimal fish health used at specific times during production. This provides salmon producers with feed solutions complementary to current production management tools for challenging production situations.

The Tasmanian salmon industry utilises a range of functional feeds, each one specific in its application: hatchery feeds have physical properties designed to improve water quality, therefore reducing nutrient emissions to the environment; transfer feeds help to reduce stress during the transfer of juvenile salmon from freshwater land-based hatcheries to the seawater grow-out sites; seasonal diets help to support the fish during periods of high water temperatures in order to improve feed utilisation and support optimal health; and feeds designed specifically to help salmon cope with disease or environmental insults and subsequent recovery from these stressors.

#### **4. Finding alternatives to limited marine resources**

The aquafeed industry has attracted significant attention with regards to its use of fishmeal and fish oil sourced from finite supplies of wild capture fish. Skretting has made significant progress towards reducing its reliance on these materials through investment in R&D that has facilitated the use of alternative raw materials. We are committed to continuing this research to achieve the further reductions that are required to create a more sustainable future for the aquaculture industry. Efforts have also been made to improve the traceability of marine ingredients to ensure those used in Skretting feeds come from responsibly managed fisheries.

The use of fishmeal and fish oil in aquafeeds is one of, if not the most material issue for our sector. This is because aquafeeds have traditionally contained high levels of fishmeal and oil, sourced from finite supplies of wild-capture fish. Growth in the aquaculture industry was therefore seen to be unsustainable from both an ecological perspective, as well as an economic one. As a result, a continued program of reducing reliance on marine ingredients through R&D and evaluation during commercial production has been a major focus in the Tasmanian salmon industry.

The fishmeal content in our larger Tasmanian grow-out salmon feeds have been reduced since the launch of the Skretting breakthrough MicroBalance<sup>TM</sup> – using this technology fishmeal levels have reduced from greater than 25% in 2010 to just 5% in 2015. Notably, this low fishmeal level is used in feeds for 1+kg of fish body weight, and typically represents more than 75% of the feed used in the production cycle. Fishmeal is still a good and complete source of protein for salmonids, but today we have greater focus on digestible nutrients than on which ingredient they come from – and commercially we do not rely on any particular protein feed ingredient. In a similar fashion, fish oil content of our larger Tasmanian grow-out salmon feeds have been





reduced from greater than 10% in 2010 to just 6% in 2015 - while focusing on product quality that provides good nutrition and health benefits for the salmon consumer. Tasmania's Atlantic salmon industry achieves world's best practice with regard to reduced reliance on marine ingredients for the production of salmon. Annually, the fishmeal and fish oil usage has been reduced year on year and is publically reported in the Skretting Australia sustainability report that is freely available on our website.

Regardless of the efforts to reduce fishmeal and fish oil inclusion in feeds, this will not improve the status of the world's marine resources unless there are endeavours, further up the supply chain, to improve fisheries management. As part of our sustainability commitment, Skretting only sources marine ingredients from suppliers that are able to demonstrate a commitment to responsible fisheries management. Continued engagement with our marine raw material suppliers has allowed us to strengthen our supply chain traceability of these key ingredients, but also the documentation and declaration of species names and origins. Annually, the fishery origin and species in our marine ingredients are publically reported in the Skretting Australia sustainability report.

## **5. Creating a sustainable based for feed**

The sustainability attributes of feeds are highly influenced by the methods used to produce and distribute the ingredients from which they are formulated. If these activities are not managed in a responsible manner, it could eventually lead to a decline in productivity and a reduction in the quality and/or safety of feeds. Skretting is helping to create a sustainable foundation for fish and shrimp feeds through comprehensive engagement with its suppliers as well as third-party organisations to support responsible practices throughout our supply chain.

All of our salmonid customers in Tasmania have at least one global independent sustainability certification such as Aquaculture Stewardship Council (ASC), Best Aquaculture Practices (BAP), or Global G.A.P. Aquaculture is the only protein production system with a referenced gold standard addressing environmental/social impacts, and includes requirements for responsible feed ingredients and feed performance. Developed by the WWF Aquaculture Dialogues, the Aquaculture Stewardship Council (ASC) has been tasked to manage these global standards for responsible aquaculture. The standard contains science-based performance metrics and requirements that are realistic, measurable and auditable. Tasmanian salmon farming is committed to the ASC standard with all of Tassal's farming operations currently certified and Huon Aquaculture as members of the Global Salmon Initiative (GSI) who aim to be ASC certified by 2020. This demonstrates further desire by the Tasmanian salmon industry to achieve global best practice in feed technologies to reduce the impact on waterway health for the environment in which they operate.

As a feed supplier, all of our feeds are required to comply with criteria in the standards that our customers are certified against. All standards have a key focus area on fishmeal and fish oil conservation, and identifying species origin and traceability. The ASC Salmon Standard and BAP





aquaculture practice have requirements regarding the amount of fishmeal and fish oil sourced from wild-capture reduction fisheries (e.g. small bony fish not usually for direct human consumption, such as Peruvian anchoveta) that can be used in Atlantic salmon feeds. Tasmania Atlantic salmon industry meets the independent sustainability certification requirements of both the ASC Salmon Standard and BAP aquaculture practice with regard to the reliance of marine inputs for salmon farming.

The ASC salmon standard also has future criteria on sourcing marine ingredients from wild-capture reduction fisheries that are certified globally as sustainable/responsible, such as Marine Stewardship Council (MSC) or International Fishmeal and Fish Oil standard (IFFO RS). In addition, Skretting Australia also utilises marine ingredients from trimmings sources (e.g. by-products from the human food industry that would otherwise be not used) as a protein source in feeds instead of relying on reduction fisheries sources.

## **6. Involve and motivate**

A sustainable future is not viable without the involvement of motivated people committed to research and technological innovation - willing to promote the benefits for the long-term sustainability of the industry. In recognition of the fact that the impacts of feed production extend beyond the manufacturing process, Skretting is committed to taking a supply chain approach to stakeholder engagement. To do this, a range of initiatives are in place that enable us to connect with people who have varying opinions on feed manufacturing, and with stakeholders who have different abilities to implement the necessary changes to create a more sustainable value chain in the future. Some of the stakeholder initiatives undertaken are publically reported in the Skretting Australia sustainability report.

As the peak body of the salmon industry, the Tasmanian Salmon Grower's Association (TSGA) recognises that environmental sustainability requires operating a business that is environmentally appropriate, socially beneficial and economically viable. The association recognises that environmental integrity, transparency and innovation are key values, and the commitment to environmental sustainability includes:

- (1) Open communication with employees regarding environmental issues and safeguards and promotion of environmental sustainability and action to suppliers, customers and stakeholders.
- (2) Commitment to meet and exceed all government environmental regulations, industry Codes of Practice and corporate guidelines.
- (3) Dedication of resources to ongoing research and technological innovation to learn more about the local environment and continue to reduce the industry environmental footprint.
- (4) Commitment to communicate environmental sustainability research findings by making data available on the TSGA website on a regular basis.



The TSGA recognises that Tasmanian salmon is a relatively young industry, but through collaboration, research, transparency and sharing of knowledge the industry can make the necessary changes to do better, and keep getting better (TSGA website, May 2014).

## Summary

It has been the aim of Skretting to highlight the feed technologies adapted by the Tasmanian salmon industry over the last decade, and demonstrate this industry is dedicated to global best practice. The Tasmanian salmon industry is very much influenced by, and leading with, the most progressive feed technologies available, which in turn will result in a reduced impact on waterway health in the environment which they operate. We welcome the opportunity to present and discuss the topics contained in this submission to the inquiry regarding the Tasmanian fin-fish aquaculture industry.

Yours sincerely,

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## About Skretting Australia

Skretting is a leading global fish and shrimp feed supplier and forms the aquaculture division of international animal nutrition parent company, Nutreco. Globally, Skretting:

- Has operating companies on five continents
- Produces and delivers feeds from hatching to harvest for more than 60 species of farmed fish and shrimp
- Produced approximately 2 million tonnes of aquafeeds in 2014
- Invests between AUD \$15-20 million into aquafeed R&D on an annual basis

Specifically, Skretting Australia:

- Has one factory is based in Cambridge, Tasmania
- Employs 62 staff
- Produces feed for the Australian and New Zealand aquaculture markets
- 74% of the feed manufactured at Skretting was specifically for the Tasmanian Atlantic salmon industry in 2014
- Invests between AUD \$0.5 – 1 million into local industry-specific R&D on an annual basis
- Has Full traceability - Nutrace®
- Certified by ISO 9001 Quality Management System Standards
- Applies audit standard: AS/NZS ISO 9001:2008
- Has HACCP certification
- Has FeedSafe™ certification
- Has Global G.A.P. CFM certification (GGN: 4052852637961)

External auditing and certification surveillance is provided by SGS International Certification Services, a member of the SGS (Société Générale de Surveillance)

Skretting Australia is significantly invested in the long-term sustained growth of the Tasmanian Atlantic salmon industry. The continued success of the industry has a direct influence the growth of our business. A recent example is the contribution to the development of the AUD \$6 million Experimental Aquaculture Facility (EAF), jointly-funded by the University of Tasmania, Huon Aquaculture, Skretting and the Australian and Tasmanian governments. The EAF facility is an important step in the development of the industry and will allow us to build our local knowledge. It offers a significant opportunity for undertaking collaborative industry research and building international research linkages in the future.

As a Nutreco company, Skretting shares the mission of Feeding the Future. The global challenge of feeding the 9 billion people that are forecast to be populating the planet by 2050 is the catalyst for our priority focus on sustainability. As an essential link in the feed-to-food value chain, Skretting understands that the drive towards greater efficiency in aquafeeds requires our full attention for environmental and economic sustainability.

*"Aquaculture offers an increasingly attractive solution to meeting food needs. Aquaculture is already the fastest growing animal food producing sector, but the potential for further expansion is great. I do not ask you to change direction but I ask you to accelerate progress." Kofi Annan, AquaVision 2012\*.*



The Tasmanian salmon industry is a leading example of how we can work together to achieve a sustainable, economic aquaculture industry, which is fundamental to meeting the future food production demand.

\* AquaVision, a biennial conference organised by Nutreco and Skretting for top executives in aquaculture.