Before Southland Regional Council

APP-20157616-V1

under: the Resource Management Act 1991

in the matter of: Applications by Sanford Limited to change the conditions of various resource consents that authorise the farming of salmon in Big Glory Bay, Stewart Island

by: **Sanford Limited**
Applicant

Statement of evidence by Edward (Ted) John Culley

Dated: 11 March 2019

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INTRODUCTION

1 My full name is Edward John Culley (*Ted*).

QUALIFICATIONS AND EXPERIENCE

2 I am the General Manager Aquaculture for Sanford Limited (*Sanford*) based at Havelock. I am responsible for managing all Sanford's aquaculture operations across New Zealand and have held senior management positions within the company's seafood and aquaculture operations for the past 25 years. I have spent my entire post-graduation working life in the food production industry.

3 I am authorised by Sanford to give evidence on its behalf. I am familiar with Sanford's application to change the conditions of several resource consents that it holds for salmon farming in Big Glory Bay (the Application).

4 In my aquaculture management role at Sanford I have overseen the acquisition and development of the 3,300 tonne per annum salmon farming operations in Big Glory Bay, Stewart Island, which are the subject of this hearing, as well as approximately 2025 hectares of water space, primarily growing Greenshell mussels, in Coromandel, the Firth of Thames, Marlborough, Golden Bay, Canterbury and Southland.

5 I am a director of Aquaculture New Zealand, which is the sector representative body of marine farmers and processors. I am also an industry representative on the MPI National Direction team which is reviewing the amendments to current legislation intended to support the "re-consenting" of the bulk of the marine farming resource consents across New Zealand in 2024.

6 I am a member of the Marlborough Working Group, which is a Marlborough District Council initiative whereby community stakeholders have come together to work on the aquaculture provisions in the proposed Marlborough Environment Plan.

7 I have an in-depth knowledge of the New Zealand aquaculture industry – particularly King Salmon, oysters and Greenshell mussels, and a good understanding of international trends. I have travelled to Norway, Iceland and Tasmania on study tours and attended many science and industry symposiums aimed at continuous improvement, fish health and environmental sustainability.

SCOPE OF EVIDENCE

8 The purpose of my evidence is to set out:

8.1 Some background to Sanford and its operations;

8.2 The demand for New Zealand salmon and Sanford's role in the market;

8.3 The history of salmon farming in Big Glory Bay;

8.4 The need for industry growth and why we have selected Big Glory Bay;

8.5 The rationale for the Application and the role of fallowing in managing salmon farms and their environmental effects;

8.6 Future environmental management proposed; and

8.7 My summary and conclusions.

BACKGROUND TO SANFORD AND ITS OPERATIONS

9 Sanford is New Zealand's oldest publicly listed company. The company was listed in 1904 and is New Zealand's only publicly owned seafood company. The company's 'salmon' investments comprise: the Big Glory Bay salmon farms, including all infrastructure and mainland farm support, a salmon processing plant in Bluff and two salmon fresh water hatcheries - one in Kaitangata and the other inland of Glenavy. Currently across the Sanford company there are 95 people employed in the salmon business. Sanford also has a shareholding in Salmon Smolt New Zealand which provides a portion of our smolt.

10 Other marine farming interests owned by the Sanford include Greenshell mussels farms (also located in Big Glory Bay), one mussel processing plant, a 50% share in a joint venture mussel farming and processing operation, a joint venture farm servicing company, a mussel spat rearing hatchery (developed with the Government under the Primary Growth Partnership Programme) and a mussel drying (nutraceutical powder) plant.

11 Sanford has a bold vision to be 'the best seafood company in the world'. Central to this is the company's belief that the company itself and all its staff have a responsibility to do their best for the ocean environments in which we operate and the communities that grant it the social licence to undertake its business. Sanford's intention is to farm its sites for eternity.

12 In that regard, the way that Sanford conducts itself in Big Glory Bay and interacts with the communities of Stewart Island and Bluff are very much at the forefront of my mind when I think about sustainability and corporate responsibility.

13 Sustainability is the foundation of Sanford's business philosophy and is the key to its on-going excellence. To this end, Sanford focuses on six performance outcomes, which are built into its business plans and operational strategies, as shown in Figure 1 below.

Figure 1 – Sanford's Sustainability Principles

THE DEMAND FOR NEW ZEALAND SALMON AND SANFORD'S ROLE IN THE MARKET

14 New Zealand's aquaculture products are internationally recognised as being of premium quality, safe to eat and grown sustainably.

15 The global demand for aquaculture consumption is high and trending up. Salmon is no exception. Global production of Atlantic Salmon sits at approximately 2.5 million tonnes annually, while New Zealand is producing close to 16,500 Green weight tonnes of King Salmon in 2018.

16 King Salmon is a niche, premium product and makes up less than 0.002% of global salmon production. New Zealand salmon producers are privileged to be growing what is widely considered the world's best tasting salmon.

17 The tables below, provided by AquacultureNZ show global growth in salmon production, and where New Zealand's exported salmon products go, noting that 69.5% of Sanford's salmon production is currently supplied fresh to the domestic, New Zealand market.

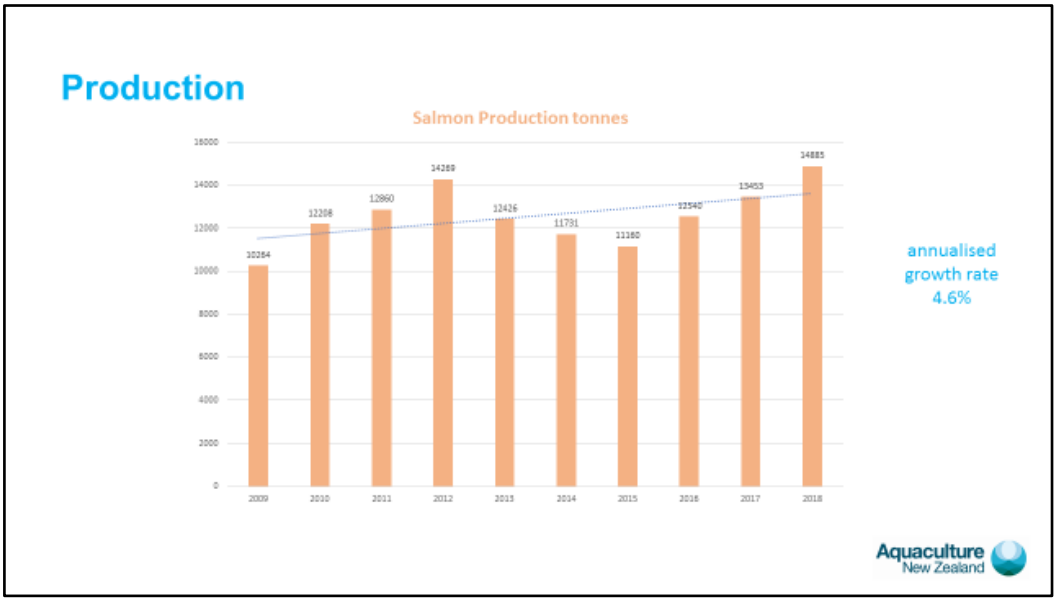

Figure 2 – Annualised growth in New Zealand salmon production tonnes

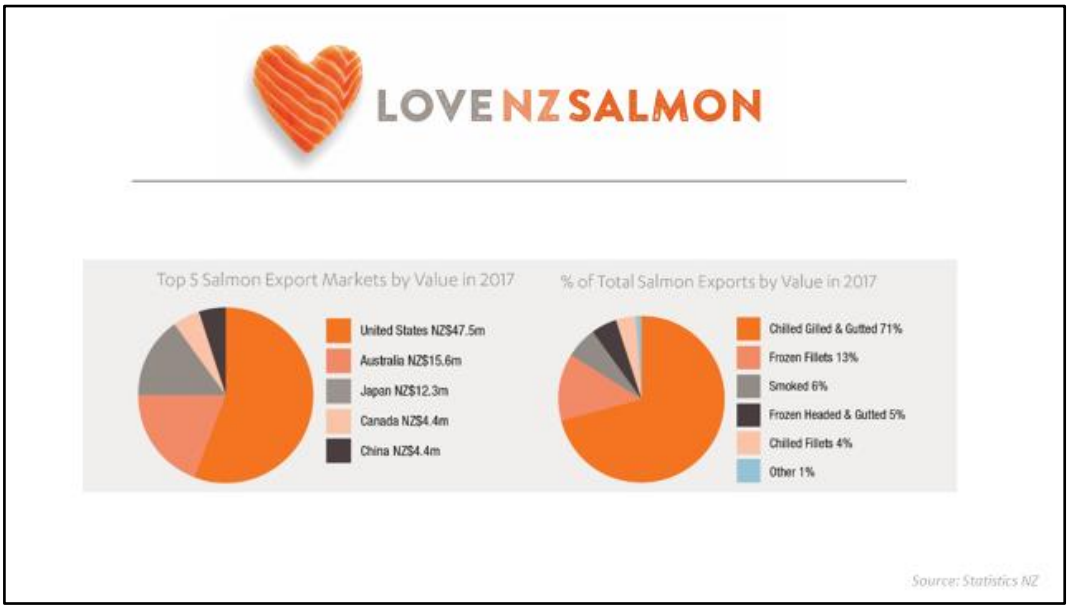

Figure 3 – Salmon exports from New Zealand by market and value in 2017

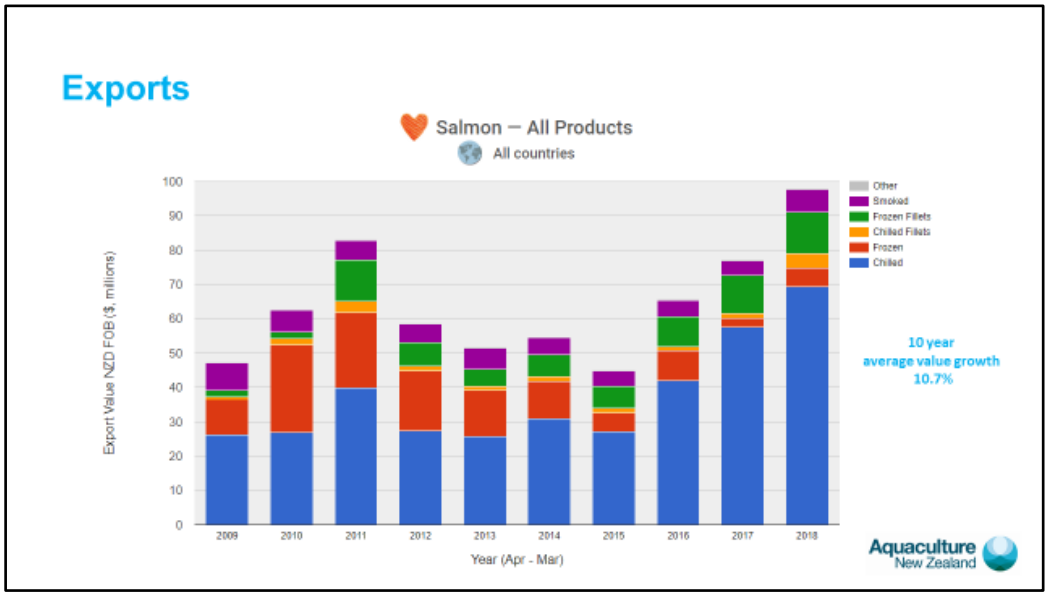

Figure 4 – Global growth of salmon exports in tonnes between 2009 and 2018, demonstrating that global appetite for salmon is increasing

18 It is my very firm belief that Big Glory Bay salmon is a food for our future, with our current operation producing about 20 million meals a year[1].

19 The following Figure 4, which has been produced by The International Salmon Farmers Association sets out the demand for seafood protein in the future.

[1] Personal communications with Tim Runnalls, Sanford Finance Manager, March 2019

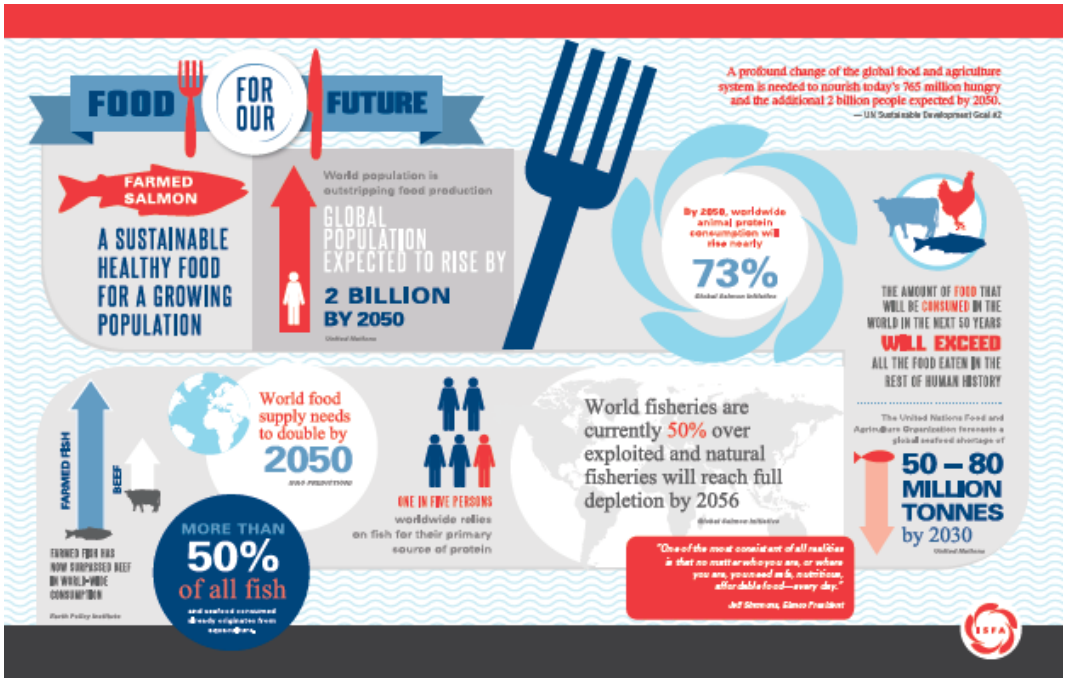

Figure 5 – Food for Our Future by the International Salmon Farmers Association.

THE HISTORY OF SALMON FARMING IN BIG GLORY BAY

20 Big Glory Bay in Stewart Island was the first place in New Zealand where salmon were reared and farmed in pens. Farming was first trialled in the 1970's and in those days experimentation and learning by doing was very much how things happened. It became very clear early on that local knowledge and innovation was more successful than imported (Scottish) salmon farming knowledge.

21 In 1983 changes in New Zealand legislation allowed the rearing of salmon in sea cages (also called pens). This opened up opportunities for companies to invest and expand and by 1987 Big Glory Bay Seafoods – an early aquaculture company that was purchased by Sanford Limited in 1993 – was harvesting 186 tonnes of salmon annually between January and March. Photographs of the Big Glory Bay salmon farms from those early days are shown in Figure 5 below.

Big Glory Bay Seafoods, salmon farms, circa 1983

22 **Ms Undorf-Lay** has given further detail of Sanford's purchase in Big Glory Bay in her evidence.

23 The first salmon farms on Stewart Island were licenced by the then Ministry of Agriculture and Fisheries on seven Big Glory Bay sites. A nitrogen cap was established that limited the Bay-wide input of nitrogen in feed to 483 tonnes per annum. These seven original sites still exist as does the same nitrogen cap.

24 Developing successful salmon farms has not been easy and it has taken many years to grow the Sanford salmon business into a successful fresh product operation that is able to supply premium quality fish all year round.

THE NEED FOR INDUSTRY GROWTH AND WHY WE HAVE SELECTED BIG GLORY BAY

25 Sanford is committed to continuous improvement and investing in research to improve farming and processing performance. Growth in production on the salmon farms has historically come from doing things better with the equipment available, in the space available and within the nitrogen allocated, rather than by acquiring new water space opportunities.

26 Sanford would sell considerably more salmon if it was able to produce it, based on our premier King Salmon product, projected demand for salmon products both domestically and internationally and because we have to turn down customer requests. However, the Big Glory Bay nitrogen cap prevents the production of any more fish. Furthermore, at some times of the year (particularly in summer months) sales need to be rationed to customers otherwise Sanford would run out of salmon stock.

27 Without the ability to produce more fish Sanford's salmon business in Big Glory Bay will stagnate. Sanford can no longer step change the business through continuous improvement, it needs to be able to grow more salmon on its available sites so that it efficiently uses its existing consents. Increasing Sanford's salmon farming capacity would include making a significant capital investment in hatchery and processing capability.

28 It is my view that Big Glory Bay, Stewart Island is the best preforming salmon farm area in New Zealand. The Bay has exceptionally high water quality and is not influenced by sediment run off or effluent discharges. There is no disease. Weather conditions and water temperatures are ideal. There is collaboration amongst the growers in the Bay, and Islanders are proud of the great products. There have been salmon farms on these sites since the 1970s. For all these reasons, the Big Glory Bay brand is an easy story to tell.

29 The Greenshell mussel farms in Big Glory Bay assist the salmon farms by filtering the water and consuming some of the nitrogen. The mussels sit easily inside the wider Big Glory Bay sustainability story. Sanford is the only finfish aquaculture company in New Zealand that is growing multi-species aquaculture, and which has filter feeders, such as Greenshell mussels, in such close proximity to the salmon farm sites. In this respect we are world leading, and other companies such as Leroy in Norway, who are one of the biggest salmon producers in the world, have recently visited us to learn how we do it.

RATIONALE FOR THE APPLICATION AND THE ROLE OF FALLOWING IN MANAGING SALMON FARMS AND THEIR ENVIRONMENTAL EFFECTS

30 As explained above the nitrogen cap in Big Gory Bay has not been rigorously reviewed since it was first established in the 1980s, despite significant advancement in modelling software and computer capability and the long history of environmental monitoring in the Bay. In part this was because there was no demand for a nitrogen review; there was no significant environmental concern and production and 'consented nitrogen allocations' aligned.

31 On Sanford's Big Glory Bay farms up until about 2014 salmon were very much fed to the nitrogen limit, harvested and frozen down. Production was then bulk sold at the end of the season into the Japanese market.

32 At that time growth in the salmon business came from continuous improvements, such as those outlined in **Mr Swart's** and **Mr Wybourne's** evidence – including better fish husbandry, innovation in feeding equipment, and improved fish performance by better feed.

33 In 2015 Sanford began the process of reviewing its Big Glory Bay strategy, realising that production levels were nearing capacity. It applied for, and was granted, the right to farm salmon on Marine Farm Licence 246

(MFL246) that at the time could only grow mussels. It was an excellent site, but was constrained by the existing Bay-wide nitrogen feed cap. As part of this application Sanford also proposed fallowing as a consent condition across all its salmon farming sites.

34 After the MFL246 consent was granted the site was farmed, and the 'grower farm' was moved there. **Mr Swart** in his evidence explains the distinction between the three different farms (smolt, brood and grower farm). Because of the consent size and shape, the actual fish pens covered half of the consented area. In 2018 the grower farm was then shifted to cover the second half of the site, leaving the first half to fallow (recover).

35 Having enough consented area, so as to rest a site periodically and allow it to remediate, was the first step in growing production.

36 Fallowing is not standard practice in the New Zealand salmon industry. While it makes good sense to fallow, most farms do not have sufficient space to allow relocation of their farm sites on a regular basis.

37 Sanford is currently in the process of modelling the farming potential for each of its salmon farm sites under different pen configurations (layouts). This modelling, once complete, will be documented and incorporated in the Big Glory Bay Salmon Farm Environmental Management Plan (BGBSFEMP).

38 Not every consent holds the same farming potential and some farm sites, because of the way that they are positioned in the Bay in relation to ocean current or their geometric shape. This means that some sites may be able to carry more-or-less fish biomass, or may be farmed longer than 2 years or may need to be fallowed longer (for example, site 320). The fallow plan recognises this and has proposed variable time-spans for fallowing. The recently developed hydrodynamic model, as described by **Dr Hartstein**, on which this application is founded, has been ground-truthed with actual benthic sampling under pens and has allowed Sanford to have a much better understanding of each consented area's capabilities and limitations.

39 In 2016 and 2017 Sanford began a serious, technically based review of the total Bay-wide nitrogen cap. Sanford asked **Dr Hartstein** to model the implications of increasing salmon production to 6,000 tonnes of fish per annum (this requiring an increased nitrogen in feed cap of 176 tonnes per year). This level of production was selected because Sanford considered it to be readily marketable, most likely to be socially accepted by the Stewart Island community and ensured maintenance of world class fish husbandry practices within the Bay. But first Sanford had to confirm whether this level of production was sustainable environmentally. I need to stress that we did not ask **Dr Hartstein** to push the model to determine what the absolute upper level nitrogen cap could be. We also asked him to take a conservative approach, by asking him not to include any allowance for the amount of nitrogen that was consumed by mussels, or taken out of the Bay in fish production.

40 Sanford received a low number of submissions on the Application, supporting a conclusion that the proposed nitrogen cap increase was considered to be broadly acceptable by the general public. No submission has raised a concern with the total increased amount of allowable nitrogen discharge being sought, and the Department of Conservation was supportive of the proposal once we agreed to a staged development (100 tonnes in Stage One, and then 76 tonnes in Stage Two) and some changes in the metrics that are to be monitored.

FUTURE ENVIRONMENTAL MANAGEMENT

41 If this application is granted, the biggest changes to the farm in the future will be accommodating (hatching, growing and processing) the additional fish. This will include the addition of new pens and splitting both the smolt and grower farms. I also expect refinement in feed and a bespoke salmon pellet feed that is tailored to assist fish cope with rising seawater temperatures. Within the next five years I am also convinced that we will also see technological advancements in fish whole-of-life tracking systems, driven by fish husbandry, consumer demand for traceability and supply-chain transparency.

SUMMARY AND CONCLUSIONS

42 This application to increase the nitrogen allocation inside Big Glory Bay is the single biggest change accelerator in Sanford's salmon business. It holds the opportunity for growth in our business. It will ultimately assist us to make more efficient use of our water space, whilst ensuring that the Big Glory Bay environment is protected for future generations.

Ted Culley

11 March 2019