



The above image is of the proposed NOK3 billion (£279m) land-based facility which will have a maximum standing biomass of 13,300 tonnes and an annual salmon output of 28,800 tonnes. The first construction stage is planned to be completed by 2021. The company expects the plant, on the peninsula of Indre Harøy in Fræna local authority, to create 80 jobs. See <https://www.fishfarmingexpert.com/article/green-light-for-europes-biggest-on-land-salmon-farm>

Submission

Marlborough District Council
Resource Consent Application U190357
New Zealand King Salmon Co Limited
Variations sought to Waitata Farm consent conditions.

Manager, Resource Consents
Marlborough District Council
PO Box 443
Blenheim 7240
Email: mdc@marlborough.govt.nz
10 July 2019

To whom it may concern;

**McGuinness Institute Submission on Resource Consent Application U190357
- New Zealand King Salmon Co. Limited – Variations sought to Waitata Farm
consent conditions.**

Summary

Thank you for the opportunity to respond to this application. Salmon farming in the Marlborough Sounds is a very complicated issue with a number of layers and a number of stakeholders and a wide range of interests – many of these interests are conflicting and therefore trade-offs are necessary.

Resource Consent Application U190357 (the Application) by the New Zealand King Salmon Co (NZKS) and our corresponding submission aims to cover many of these issues, but we consider a broader and wider dialogue is necessary in order to determine the general direction and operational practices of farming salmon in the Sounds in the future. That was in our view the intent of the Board of Inquiry (BOI), but with NZKS wishing to expand its operations through a wide range of applications, we consider a broader review is again necessary. This Application should therefore be declined and instead combined and considered with the broader dialogue NZKS is undertaking with Ministers. In other words, all applications, whether they are land, inshore or offshore should be looked at together. Importantly, NZKS have not, to our knowledge, explored land based farms, although internationally this is a very feasible option (see cover image).

Although we are uncomfortable with the Marlborough District Council (the Council) accepting this Application given its size and significance, we have tried, based on minimal information, to respond to your invitation to comment. Below we aim to contribute to the wider discussion over the costs, benefits and implications of extending the scale and size of NZKS farms through the lens of this specific application.

- The Application is asking for a 50% increase in net pen size at the Waitata farm. An increase of this scale of farming operations is more than minor, especially when the cumulative impacts above what is caused by current operations at Waitata are taken into consideration.
- The wider context, scale of the environmental impacts and high level of public interest in this Application mean that this decision is a matter of national significance.
- There have been a number of changes to original consent conditions which have allowed NZKS to increase the scale of their operations at the Waitata farm. This shows a disregard to the precautionary and adaptive management principles that went into the final consent conditions and BOI decision.
- The environmental effects of this Application are significant due to the volume of discharge, the size of structures proposed, length of the consent and the uncertainty on the exact impacts changes will have on the biodiversity, seabed and water column over time. Delicate ecosystems will be impacted and this will affect the habitats of marine life. This is especially

important for the King Shag (whose breeding and roosting buffer zone is encroached by the Waitata farm location) and other marine mammals, which have already been negatively affected by the current Waitata farm.

- The role of Council is to consider Marlborough and New Zealand's interest is unique. Given that existing legal and accounting framework in New Zealand focuses on the needs of shareholders, the role of the Council has sole responsibility to consider this application from a Marlborough perspective, and ideally from New Zealand's perspective. This is a critically important role.
- The range of options: land, inshore or offshore should be considered together. NZKS currently has a large and diverse range of applications before a number of regulatory bodies and we believe these should be considered together (including this application). It is not possible to look at the future without viewing all options and understanding their feasibility and trade-offs. This application is significant and should be seen and considered as one of a range of applications by NZKS that together are nationally significant.
- The Marlborough Sounds coastline is an important part of New Zealand landscape and this Application will both decrease public access and increase adverse visual impacts. This increase in visual pollution has negative impacts on recreation and tourism.
- There has not been research done into the reasons behind increased disease and mortality rates at NZKS farms, which are affecting the economic benefits and sustainability of the current farms and for this Application. The uncertainty of the impact of this Application means a precautionary approach should be adopted.
- There is a lack of investigation into alternative solutions to meet the purpose sought under the Application, such as farm management to reduce stocking levels, or looking into land based aquaculture options.
- There is insufficient information on the current operations at Waitata farm and if it is meeting the guidelines set in its resource consent conditions. There is also a lack of clear research and information on the impact of the proposed Application and how the increased size of the farm will impact the environment.
- The level of mortalities should immediately call into question whether that social licence should be withdrawn. In New Zealand, to compare salmon farming with other animals that are farmed, a 20% mortality rate would be considered an animal welfare issue worthy of urgent attention by MPI. See Figure 1 on page two.
- There is no information on how the impacts of this Application will be monitored and how the impacts of it will be mitigated.

This Application represents a drastic expansion in operations from the carefully established consent conditions which were ascertained from a lengthy Board of Inquiry (BOI) process. This Application to increase the scale of operations less than three years after this Waitata farm has begun operations is a real concern and goes against the adaptive management approach. This Application suggests a lack of long term strategic planning and poor farm management from NZKS.

We agree with the comments made by the Marlborough Salmon Working Group in 2016 that "...relocation must not lead to an increase in total surface structure area, and must lead to a gain in environmental outcomes (ecological, social, cultural and economic)."¹ In this Application, we fail to see any beneficial outcomes, with only negative impacts on the community and the environment.

¹ *Marlborough Salmon Working Group*; Advice to the Minister of Aquaculture (23 November 2016). Accessed via <https://www.mpi.govt.nz/dmsdocument/15982/send> (p. 15)

We submit that for the reasons outlined in this submission that NZKS’s application should be declined.

1.0 About the McGuinness Institute

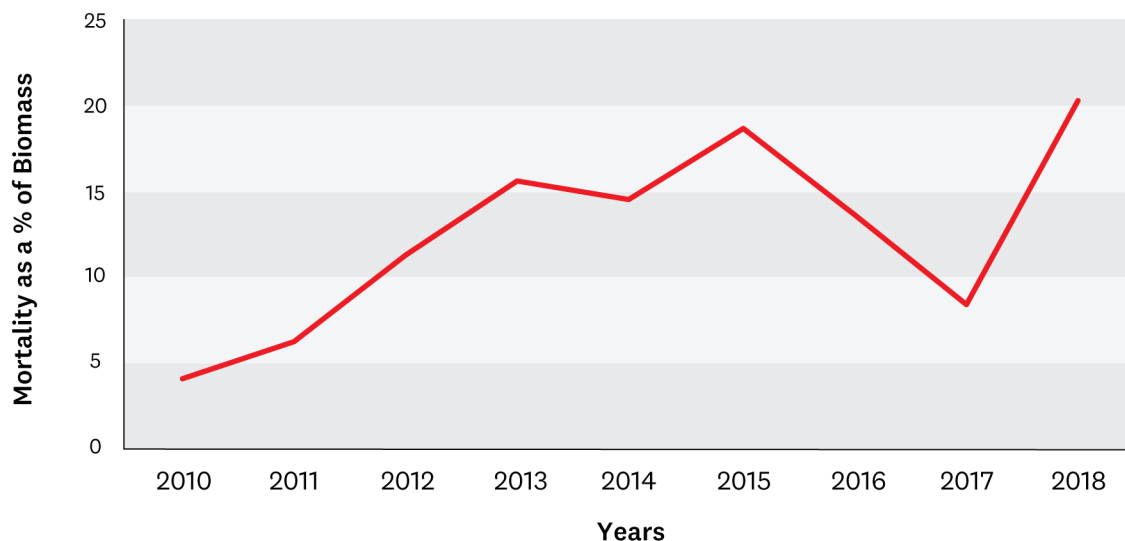
The McGuinness Institute is a non-partisan think tank working towards a sustainable future for New Zealand. Project 2058 is the Institute’s flagship project focusing on New Zealand’s long-term future. As a result of our observation that foresight drives strategy, strategy requires reporting, and reporting shapes foresight, therefore we developed three interlinking policy projects: ForesightNZ, StrategyNZ and ReportingNZ. Each of these tools must align if we want New Zealand to develop durable, robust and forward-looking public policy. The policy projects frame and feed into our research projects, which address a range of significant issues facing New Zealand.

We have been involved with the NZKS applications since 2011. The McGuinness Institute was a submitter and economics expert at the Board of Inquiry.

The Institute has recently published a discussion paper called *The Climate Change Reporting Emergency: A New Zealand case study*.² In this discussion paper we look more closely at Z Energy and NZKS’s annual reports. Both companies operate and pollute in New Zealand but Z Energy is, from our perspective, more mature, more invested in New Zealand’s interest and is working hard to maintain its social license to operate (e.g. Z Energy’s leadership of the Climate Change Leaders is a good example). In contrast, although NZKS is making improvements (for example we are pleased to see it has taken on our suggestion to join the Global Salmon Initiative³), it still has a long way to go. Please see Figure 1 from the discussion paper.

Figure 1: NZKS’s premature mortality as a percentage of biomass

Source: McGuinness Institute, *The Climate Change Reporting Emergency: A New Zealand case study*



² See <http://www.mcguinnessinstitute.org/discussion-papers>

³ See <https://globalsalmoninitiative.org/en>

2.0 Background

2.1 NZKS already have ample space

The NZKS 2018 Annual Report, in particular page 13 and 14, seen in Appendix 1 (note that the red circle is added by the Institute for emphasis), illustrates that based on 'based on existing water space' the future incrementation growth is significant. NZKS forecast growth from 8108 mt in 2018 to 12,000 mt in 2032, which is an increase of 48% of biomass from 2018 figures based only on existing water space. These numbers assume this Application (and other applications by NZKS) are not approved by the MDC, and still show a significant growth rate in production. This paints a picture of steady growth and raises the question of why NZKS needs more water space in the Sounds.

From the public perspective, it appears as though NZKS is running two different narratives for two different audiences, one for investors and one for Council. In the 2018 Annual Report, NZKS are showing that the existing water space is going to deliver major improvements in production (which in turn implies increased profit). The Chair and CEO's report contained in the 2018 Annual Report states that:

For the twelve-month period ending 30 June 2018, the Board is delighted to report a record net profit after tax of \$16.1 million. This is up 14.0% on the Prospective Financial Information (PFI) as included in our Product Disclosure Statement (PDS). The Pro Forma operating EBITDA, a metric used extensively by your Board as an indication of the underlying profitability for the group, is \$26.2 million, up 21.1% on FY17 and 17.0% ahead of PFI. (NZKS 2018 Annual Report, p.11)

However, the Council is being told it needs more space in this Application and a number of other concurrent applications by NZKS for greater space.

It is hard to understand from the outside how these two narratives work together. What is clear from the outside is that more water space delivers increased pollution, mortality (see Figure 1 above), waste (burying dead fish in council landfill), carbon (e.g. fish feed comes from Australia), costs to the council to manage the admin and impacts of farming for a theoretically higher profit for NZKS's shareholders. And sitting alongside this latest application for additional water space, MDC is yet to put in place a regime to charge water space. We are unsure why there has been a delay.

The Institute is not alone in terms understanding how these two narrative works together to create a clear picture of NZKS operating model. For example Jarden Investments note:

However, "materially higher" FY19 mortality costs (compared with FY18) surprised relative to our analysis of water temperatures. The drivers of materially higher mortality (increased exposure, algal bloom, pathogens, thermoclines, residual volatility, etc.) are unclear. In addition, the trade-offs associated with the new operating model remain difficult to assess. With these factors 'muddying the water', we prefer to take a cautious approach while NZK establishes a track record under the new operating model. (Jarden Securities Limited, Market Daily, (p. 60) 'NZKS: Investment Overview' 25 June 2019).

The Jarden Investments report notes something we have not been able to clarify anywhere else; this further illustrates why per coastal permit is important information for all stakeholders (i.e. investors, MDC (which in reality provide NZKS a licence to operate) and other wider stakeholders):

However, **NZK is also decreasing utilisation at its high-flow** / Tory Channel sites (to accommodate fallowing), and **increasing utilisation at its low-flow sites** (Otanerau, Ruakaka, Waihinau) which have recently been used (part-year) for smolt grow-out. [Footnote 3: We understand NZK intends to operate its four low-quality sites (Otanerau, Ruakaka, Waihinau, and Forsyth) with extended fallowing periods so each

farm is only operated on alternate summers (i.e., every second summer).] **Accordingly, it is difficult to assess the mortality implications of the new operating model.** NZK is guiding to higher-than-average FY20 mortality rates (on average temperatures). As noted above, the new operating model also increases asset intensity. (Jarden Securities Limited, Market Daily, bold added, (p. 57) 'NZKS: Investment Overview' 25 June 2019)

Furthermore, the Institute remains unsure the purpose of the Application – why is NZKS asking for an increase in the water space for Waitata while decreasing its use of water space at the Tory Channel sites? The reasoning behind this request is unclear.

The Institute did not agree with the relocation proposal concept for a number of reasons; one of its core weaknesses was that it was trying to swap pears (low flow water spaces) for apples (high flow water spaces). Furthermore, the BOI effectively took those low flow farms into account when approving four new farms. It therefore seemed inappropriate for NZKS to use these farms as collateral in a new proposal, when in reality, the BOI should have removed those consents as part of the BOI decision.

Following the same argument NZKS has applied in the relocation application, it could have asked to swap apples for apples (i.e. 0.75 ha of high flow space in Tory Channel) for apples (0.75 ha of high flow space in Waitata). For example, requesting the decrease of 0.75 ha from a coastal permit in the Tory Channel for an increase in the coastal permit for Waitata coastal is one possibility. A farm-by-farm assessment would still be essential but such an approach may lead to a feasible and fair outcome. A farm-by-farm assessment would help determine the impact on shags, dolphins and seals – and other aspects of the environment and landscape.

To this end, we consider it is critical that a public report on past death and injury events by coastal permit should be prepared looking back ten years. Historical data of such events is not recorded in one place and frequently does not mention the farm. The reporting of such events, the reasons and the location, are strategically important for the country.

2.2 Extent of other space being applied for by NZKS

NZKS are exploring a range of options, in addition to requesting additional water space at Waitata. We briefly provide some background on what we understand is the current range of applications followed by an overview of this specific application.

A tentative list of applications by NZKS to obtain additional water space in New Zealand are mentioned below. The Institute forwarded an OIA to MPI on 17 June to clarify the status of this list and other issues. We had hoped to receive a response in time for this application. We will ensure you receive a copy once we receive a response.

1. Expansion of Waitata coastal permit (being one of the BOI farms).
This submission is a response to this particular application.
See <https://www.marlborough.govt.nz/your-council/latest-news-notice-and-media-releases/public-notice?item=id:265s1s6uu1cxby9oim4p&ed-step=1>
2. Relocation of existing coastal permits in Marlborough Sounds.
Written submissions closed in 27 March 2017 and the Panel decision was made public [Marlborough Sounds Salmon Farm Relocation Advisory Panel Decision](#) (14 February 2018). I think Cabinet was [last advised in 2016](#).
See also <https://www.kingsalmon.co.nz/our-environment/potential-relocation/>
2. New space on North of Cape Lambert in the Marlborough Sounds: *New Zealand King Salmon has made a resource consent application to use 1792 hectares of water, 4.7 nautical miles north of Cape Lambert in the Marlborough Sounds.*

See <https://www.stuff.co.nz/business/107084822/new-zealand-king-salmon-takes-first-step-towards-submersible-farms>

4. New space in Otago: *New Zealand King Salmon Company Ltd has applied for coastal permits for two equal-sized marine monitoring sites off the Otago coast covering a total of 7200ha. One is 16km southeast of Coal Point, in South Otago, and the other is 12km southeast of Shag Point, in East Otago.*
See <https://www.odt.co.nz/business/salmon-farms-proposed-otago-coast>
5. New space in Southland - Stewart Island: *New Zealand King Salmon is investigating establishing a \$100 million, three-hectare offshore salmon farm near Stewart Island.*
See <https://www.stuff.co.nz/southland-times/news/108290731/salmon-company-investigating-stewart-island-site-for-100m-farm?rm=a>
6. New space in Canterbury. The Minister for Conservation has received a request from the Southland Regional Council and Marlborough District Council to call in four resource consent applications (the matters) lodged by New Zealand King Salmon Company Ltd (NZKS) for the monitoring of offshore sites.

3.0 Waitata coastal permit application

The NZKS Waitata farm has been officially open since July 2016 and its operation has been subject to specific constraints set by its resource consent. These conditions were set due to the uncertainties surrounding the impacts of farming operations of this scale in the Marlborough Sounds. This specific Waitata site was selected in the BOI process for unique conditions thought to be perfect for good salmon farming including a high current, sufficient depth and consistently cool temperatures. The size and location were carefully selected to minimize adverse impacts on the surrounding environment whilst allowing for NZKS to profit from a thriving farm system.

In light of the long, complicated and carefully considered BOI result, the demand for an increase of area (which must be looked at cumulatively alongside the prior variation of increase in feed discharge) demonstrates a pursuit of growth with a lack of consideration for the existing consent processes, and a lack of understanding for the adaptive management principles behind these.

A significant proportion of the operating life of the farm has involved operating beneath the maximum consented surface area, with the farm only increasing from four farms to the full eight in 2019. There has thus been insufficient time (less than a year) of operating at full capacity at Waitata to establish the impacts of the full running of the farm on the environment.

This Application is pushing for a 50% increase in size without giving sufficient time to confirm the full running of the farm is appropriate in this location by measuring the current impacts, which must be looked at cumulatively alongside other changes to resource consent that have been made without public notification.

This haste for growth without sufficient evidence as to the current baseline shows a disregard for precautionary principles and the adaptive management approach. Less than half a year of operation of eight farms in this location is insufficient in establishing that there will not be increased biological and environmental risks from operating at capacity as consented, let alone operating at 50% greater than capacity as is requested. The long length of the consents means that none of the longer term impacts of the decision can be measured yet and thus it is far too soon to approve such a significant extension in size and scale.

3.1 Timeline from the original BOI Decision to the latest application

The Application seeks to “install four additional net pens and associated moorings, and up to 100 mooring buoys at an existing consented salmon farm...north of Waitata Bay, Waitata Reach...and to increase the maximum area of the net pen surface structures to 2.25ha.”⁴

It is clear that the scale and nature of farming operations that were consented at the Waitata farm are being increased significantly and this raises a number of concerns. The Application proposes a significant increase of 50% from the originally consented area of 1.5ha, as well as a number of additional fixtures to support this increase. In addition to this, there has previously been consented a significant increase in feed discharge amount to 4,000 tonnes. We consider these should be looked at cumulatively with previous changes to this resource consent, and that these changes are all a significant increase in impacts which should not be treated as a minor.

Though the Application attempts to present this increase in net pen area as minor, it is a significant change from the original consent approved under the BOI in 2011. Table 1 below aims to illustrate changes from the original consent and also the areas where relevant information was not available. We recommend that this information is requested before a decision is made, and that any inaccuracies or gaps in this table are clarified by MDC (via NZKS or relevant experts).

The Institute is highly dependent on the information that is in the public arena, so it is important the Council requests all the necessary information to make an informed decision, to make all information public and to benchmark the history of requests and decisions that change conditions. The Institute has always argued that per permit information is required in order to manage each specific coastal permit; this Application is further evidence of the need for this approach. Each farm needs to be looked at (i) in isolation, (ii) together to understand its impacts on the region and (iii) as a country (from a strategic perspective).

Table 1 is our attempt to showcase the history and the recent application. Our expectation is that the MDC should have all the relevant information in order to understand the whole picture before making a decision.

Table 1: Analysis of Waitata Bay Resource Consent Application U190357 (Tentative)

Note: An investor presentation document noted that Waitata in FY17 produced 1290 mt and in FY18 1935 mt.

Characteristic	Original Application (2011)	BOI Decision (2012)	Non-Notified MDC decision U140294 (2018)	Latest Application (2019)	% Change from BOI Consent to New Application
Area	1.5ha maximum	1.5ha maximum		0.75 ha (2.25ha in total)	50% increase
Feed Discharge Limits	3,000 tonnes with annual increase of 1,000 (up to a maximum of 6,000).	3,000 tonnes for the first three years <i>(with 1,000 yearly increase up to 6,000 if conditions are met)</i> .	1000 tonnes as part of a non-notified decision by MDC. ⁵	No additional request – (as increase effectively given in October 2018)	No increase (as increase effectively given in October 2018)

⁴ *The New Zealand King Salmon Co*, Application for Resource Consent or Fast Track Resource Consent (Received by Marlborough District Council 8 May 2019). Page 2.

⁵ In October 2018 MDC granted a non-notified consent to increase tonnage by an additional 1000 above BOI decision requirements despite the 3,000 threshold not being met for the first three year. See Section 3.2: Feed Discharge Increases on Pg 9 of this submission.

Characteristic	Original Application (2011)	BOI Decision (2012)	Non-Notified MDC decision U140294 (2018)	Latest Application (2019)	% Change from BOI Consent to New Application
Annual Tonnage of Nitrogen Discharged	7% of annual tonnage of feed. ⁶	No information available	No information available	No information available	<i>Assume same: 7% of annual tonnage of feed. Thus this has increased with the feed discharge increase given in October 2018 as discussed above.</i>
Actual and Expected Biomass Production	No information available	No information available	No information available	No information available	No information available
Water space charges to MDC	Nil.	Nil.	Nil.	Nil.	Nil.
Pens – number of farm cages allowed	8	8	No information available	12 (note only four pens were in operation until 2019)	50% increase.
Feed/Accommodation Barge	One barge with maximum footprint of 280m ² and max height of 7.5m above sea level.	One barge with maximum footprint of 280m ² and max height of 7.5m above sea level.	No information available	One barge with maximum footprint of 280m ² and max height of 7.5m above sea level.	No change (but can MDC confirm the currently barge meets the consent requirements?)
Mooring Buoys	Original mooring buoy numbers not found.	No information available	60 or more added but little transparency. ⁷	Maximum of 100 sought.	Increase of 100 (possibly 50% increase).
Term	35 years	35 years	35 years	35 years	No change
Fish Mortality Levels Reported Note: This is key information that is needed by farm	No specific information for Waitata. but 20.4% across all NZKS operations in 2019. ⁸	No information available	No information available	No information available	No information available
Temperature	No information available	No information available	See Figure 2 below.	See Figure 2 below.	The water temperature is rising.
Number of Employees at Farm	No specific information available. Total employment numbers for NZKS in 2019 was 446. ⁹	No information available	No information available	No information available	No information available. Importantly if there is not change to the barge, there may be no change to staff numbers.
Dolphins Mortalities Note: NZKS must identify the type of dolphin, see p. 30 of	No information available	No information available	No information available	Mortalities on NZKS farms do	Incomplete information. We suspect Waitata expansion may lead to more mortalities.

⁶ New Zealand King Salmon, Conditions of Consent: Waitata Farm (Appendix 9) (p. 213). See also the *New Zealand King Salmon Benthic Compliance Monitoring 2017/2018* report and in particular the increase in enrichment between 2017 and 2018 for Waitata. Found at https://www.marlborough.govt.nz/repository/libraries/id:1w1mpps0ir17q9sgxanf9/hierarchy/Documents/Your%20Council/Meetings/2018/Environment%202018%20List/Environment_22_November_2018_Agenda.pdf (p. 18).

⁷ *See Para 21 of Kenepuru and Central Sounds Residents' Association - Resource Consent Application U190357 - New Zealand King Salmon Co. Limited – Variations sought to Waitata Farm consent conditions.*

⁸ *New Zealand King Salmon Annual Report. The New Zealand King Salmon Co. (03.10.19) (pg. 13).*

⁹ *New Zealand King Salmon Annual Report. The New Zealand King Salmon Co. (03.10.19) (pg. 7).*

Characteristic	Original Application (2011)	BOI Decision (2012)	Non-Notified MDC decision U140294 (2018)	Latest Application (2019)	% Change from BOI Consent to New Application
the <i>Marine Mammal and Protected Shark Management Plan</i> – but the location, frequency and type of dolphin is extremely important and not collected in one place over time as a matter of public record. ¹⁰				happen – 2/3 in 2018-2019. ¹¹	
Seal Mortalities Note: 67 reported seal incidents at Waitata in 2016. ¹²					No further information available.
King Shag Population Note: 24% decrease in population since the 2015 baseline. ¹³		Note: Waitata farm encroaches breeding and roosting buffer zone site (see Table below).			

3.2 Feed Discharge Increases

It is substantial to note that despite no ‘additional feed discharge’ theoretically being requested as part of this Application,¹⁴ NZKS has already requested and received a variation on the originally consented amount of feed allowed through a variation to Condition 37 of the resource consent to this farm in late 2018. This variation from 3,000 tonnes to 4,000 tonnes was granted on a non-notified basis, despite the fact NZKS was not using the 3,000 tonnes already consented for at least three years; only 2,761 mt of feed was used for the period prior to February 2017.¹⁵ The MDC 2018 non-notified decision may have been intentionally applied for in order to lessen the significance of this application in the minds of decision makers (see Table 1, far column).

¹⁰ See for example this case where a dolphin, but not they type of dolphin, was mentioned in their report. The failure to identify the dolphin indicates poor operational management. <https://www.kingsalmon.co.nz/kingsalmon/wp-content/uploads/2018/11/27-November-2018-Statement.pdf>

¹¹ *Divers Find Dead Dolphins in New Zealand King Salmon Nets* Alice Angeloni (Nov 30 2018). Accessed via <https://www.stuff.co.nz/national/108920343/divers-find-dead-dolphins-in-new-zealand-king-salmon-nets> and also see *New Zealand King Salmon Marine Mammal Incident Report*, New Zealand King Salmon Co. Ltd (July 2019). Accessed via <https://www.kingsalmon.co.nz/kingsalmon/wp-content/uploads/2019/07/Marine-Mammal-Incident-Report-for-website.pdf> . Also in 2012 at Waihinau <http://www.stuff.co.nz/the-press/news/7260490/Dusky-dolphin-dies-in-farm-net>

¹² *August 2016 Report Prepared for The New Zealand King Salmon Company*, Ministry of Primary Industries, Cawthorn Institute (Pg 15) Accessed via <https://www.mpi.govt.nz/dmsdocument/16078/send>

¹³ *Report on King Shag Census February 2018 and Population Trend* Prepared for the New Zealand King Salmon Co. Limited by Rob Shuckard (May 2018). Accessed via <https://www.kingsalmon.co.nz/kingsalmon/wp-content/uploads/2018/05/King-Shag-census-2018-Final.pdf> (p. 6)

¹⁴ *The New Zealand King Salmon Co*, Assessment of Environmental Effects (Received by Marlborough District Council 8 May 2019). Page 6, paragraph 33.

¹⁵ *Report on King Shag Census February 2018 and Population Trend* Prepared for the New Zealand King Salmon Co. Limited by Rob Shuckard (May 2018). Accessed via <https://www.kingsalmon.co.nz/kingsalmon/wp-content/uploads/2018/05/King-Shag-census-2018-Final.pdf> (p. 2).

Further, it can be demonstrated that the quantity of feed can already be significantly increased by 25% from the amount in 2018 already under the current variation. This means that once the farm areas have increased, NZKS will increase the scale of their farming operations significantly with a wider surface area, greater feed discharges and thus an increased quantity of fish. It is important this Application is looked at in this context of anticipated growth and the cumulative effects this will have.

In the June FY20 financial guidance, NZKS wrote for the NZX: “Capital expenditure for 2019 will be approximately \$17m, and for 2020 is forecast at \$20m as the Company continues to put in place the infrastructure to facilitate future growth and to improve fish survival and performance. Investment includes additional pens and barge to utilise the increased feed limits available on Waitata and Ngamahau sites...”¹⁶ A significant increase in investment, plus an increase in consented allowance, means the production of Waitata will increase beyond the originally anticipated levels.

The increased scale and nature of operations at Waitata means that this Application is significant and should thus not be treated as minor.

3.3 Lack of Relevant Information

This Application lacks a substantial amount of information on how NZKS has reached its conclusions with little to no data available on this specific farm. A lack of information will impair a thorough response, and for an Application of this scale and significance we think much more information is required. These concerns are expanded upon further in this submission. In particular, there is a serious lack of information in this Application regarding three areas critical areas;

- (a) how the current consent is operating in comparison to what was promised, including how it is being managed and the effects it is having on the environment;
- (b) how the proposed change will influence the impacts that are already had under the current consented conditions; and
- (c) how NZKZ purports to monitor the effects of this Application above and beyond the current conditions, and what mitigation it will take if negative impacts are found.

We request clearer independent information prior to the hearing in order to understand the reasoning made behind a number of statements by NZKS in this Application.

3.4 Legal Issues

Please note that for the purposes of this Application, we have followed the assumption that NZKS is correct in that the Application to expand is a ‘non-compliant activity’ under rule 35.5 (point 13). To receive consent under this assumption, NZKS must therefore prove that the adverse effects of the activity are minor, or the activity must not be contrary to the objectives and policies of the MSRMP and the proposed Marlborough Environment Plan (MEP).

We submit that NZKS has failed to establish that the adverse effects of the activity are minor, or that the activity is not contrary to the objectives and policies of the MSRMP and the proposed

¹⁶ NZ King Salmon Provides Guidance for FY20 Financial Year (20 June 2019), New Zealand King Salmon. Accessed via <http://nzx-prod-s7fsd7f98s.s3-website-ap-southeast-2.amazonaws.com/attachments/NZK/336374/302102.pdf>.

Marlborough Environment Plan (MEP). In fact, this Application raises a number of issues that could affect the environment with impacts that are much ‘more than minor.’

To summarise, this Application fails to present any benefits to the substantial increase in farm size, but clearly shows the increased risks and issues that come with an increase in scale of farming operations. The Application fails to establish the impacts of the size increase will be ‘less than minor.’ The reasoning behind this is detailed in the paragraphs following.

Please note that in order to make this submission as clear as possible, we have roughly followed the order of contents in the resource consent application by NZKS, pulling out the relevant areas from the Application document (and its appendices) where relevant, and adding new points where necessary.

4.0 Revisiting the Purpose of the Application

NZKS have presented the purpose of this Application is to expand the farm pens at Waitata to ‘improve fish health’ by ‘decreasing stock densities in the pens.’ This is a concerning statement considering the farm has been operating (at less than the maximum consented capacity) for under three years. The Application presents a picture of a farm that is struggling to work within its current conditions due to stock overcrowding which has caused poor fish health, increased mortality rates and heightened biosecurity risk. There is a lack of information on these health, mortality and biosecurity statistics for this specific farm and across each NZKS farm separately, and we believe this information should be provided as it is material to this Application.

Mortality increases suggest that salmon farming in this Waitata location (and potentially across other farms too) may not be a sustainable activity, both in terms of the economics, and in terms of environmental conditions such as increasing water temperatures. There is no evidence that NZKS has investigated the reasons for these issues and how they will affect the viability of the salmon farming business over the long term, which is a huge gap in information and a critical part of this consenting process and sustainable management principles.

The increases in salmon mortality rates at NZKS farms are a concerning trend that cannot be explained by increasing water temperatures alone. Poor farm management, in particular the overcrowding of pens, has led to decreased salmon output for NZKS. This is reflected in “materially higher” FY19 mortality costs (compared with FY18) surprised relative to our analysis of water temperatures. The drivers of materially higher mortality (increased exposure, algal bloom, pathogens, thermoclines, residual volatility, etc.) are unclear.”¹⁷ This is a significant issue, not only because it means NZKS are not delivering the economic benefits that were promised, but because it also illustrates that the farm has not been managed using the adaptive management approach to protect fish health and prevent biosecurity and environmental hazards.

Rather than following the adaptive management approach prescribed in the BOI process, this Application seeks to improve salmon farming operations with a significant increase in the scale of farm operations. By increasing the scale of net pens by 50%, with no restrictions on stocking density, and with a further 1,000 tonnes of feed allowed under their consent variation, NZKS will have the ability to significantly increase the quantity of salmon farmed. It is important to note that not only is this fast growth the antithesis of the adaptive management approach, it is also unsustainable in the long term.

¹⁷ Jarden Securities Limited, Market Daily, (p. 60) ‘NZKS: *Investment Overview*’ 25 June 2019

As evidenced by Dr John Volpe in the BOI process, increasing scale of operations has a negative impact on environmental effects. To maintain environmental performance and the efficient use and development of natural and physical resources requires both modest production volume and a small area of overall production.¹⁸ This Application directly goes against these principles and we submit that an extension of scale of farming operations will not meet the purpose stated in this Application.

5.0 Failure to Investigate Alternative Solutions

It is disappointing that this Application does not identify any investigation into alternative methods to meet NZKS's purpose within the carefully crafted BOI conditions. Investigation into alternatives is a part of Schedule Four of the *Resource Management Act (6)(1)(a) Assessment of environmental effects: if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity*. We submit that an investigation of alternative methods to decrease fish stress, implement higher biosecurity and transition to single year class farming is required by NZKS as a critical part of this Application.

We submit that rather than expanding the size and scale of farming operations as this Application requests, NZKS should first look at alternative methods of resolving its issues within the consented conditions, in a way that does not negatively impact the public or the environment. Farm management can be an effective method for resolving the mortality and biosecurity issues. For instance, by decreasing the stocking density in the pens to an appropriate level, fish stress and poor fish health can be adequately mitigated without requiring a significant extension of the consent conditions.

Reducing stock density to appropriate levels in order to improve fish health is clearly required here as the current high mortality rate and increased disease at NZKS farms have massive sustainability, biosecurity and waste management risks. There is no evidence in this Application that an expansion of salmon farming activities through a 50% increase in pen size will correlate with a decreased amount of risk. We submit that by reducing stock density to an appropriate level, NZKS will be able to achieve the purpose it seeks under this Application without breaching the conditions of its current consent, and thus this extension is not required.

6.0 Assessment of Environmental Effects

6.1 The Context

The wider context of sustainable management and the protection of natural resources in the Marlborough Sounds is an important part of this Application, which is requesting more space in the public sphere for privately owned farming operations. The Marlborough Regional Policy Statement (RPS) addresses this balance of providing for economic wellbeing for the community and the need to protect the environment and its natural and physical resources. As stated in the BOI decision, "sustainable management of the marine environment is at the heart of this proposal

¹⁸ *Email from Dr John Volpe (Seafood Ecology Research Group, School of Environmental Studies, University of Victoria), 2 October 2012: Comment from Dr John Volpe from Canada regarding impact of 'Scale' on environmental effects*

as King Salmon seeks to use the natural resources and ecosystem services provided by the waters of the Marlborough Sounds.”¹⁹

Sustainable management is an underlying principle for managing growth of the size and scale of NZKS operations at Waitata Reach and in the wider Sounds area. This Application must be considered with this context in mind in order to reach a balanced decision. The relevance of the ‘wider context’ to this Application can be seen in the report provided by the Marlborough Salmon Working Group in 2016, which reiterates that there “...is risk in terms of a lack of alignment created by planning for salmon farming in isolation to the broader review of planning for the sustainable management of natural and physical resources in the Marlborough Sounds...”²⁰

The increasing loss of diversity on our oceans calls for an evidence based and integrated approach to decision making. This is an issue that is increasing in scale and urgency. The ecosystems in our oceans are deeply interconnected and this means that every decision will have impacts on the wider ocean sphere.

The wider context of this Application points towards an adaptive management approach due to the uncertainty of the impacts of an expansion of salmon farming. There is insufficient data to prove that an expansion in net size of 50% will not adversely affect the environment and its natural and physical resources. We submit that a lack of evidence on this point, as well as a clear lack of economic benefits, means that this Application should be denied.

It is also relevant to note that NZKS using a series of non-notified resource consent applications to slowly get around conditions imposed by the original resource consent and expand the scale of their operations. These applications must be looked at alongside this Application in order to understand the wider context of the decision and the impacts it will have.

6.2 Expansion of Farms – Greater Intensification

As established in the BOI process, “...the impact of salmon farming in the Waitata Reach is a matter of scale.”²¹ The specific site size and location of the Waitata farm was carefully selected as a result of input from a number of professional scientists and experts. This Application seeks to increase scale by 50% and yet does not identify how the environmental impacts of this expansion will be minimised, or how this intensification will fit into the wider Sounds context.

In the Assessment of Environmental Effects for this Application, NZKS has argued that this expansion should be minor because it is looked at within the content of the existing consents.²² However, as was established in the BOI process, greater intensification by expanding production levels of existing farms creates an increase in cumulative effects that are ‘more than minor.’ Increasing the size of farming operations (known as ‘double parking’ or ‘greater intensification’) will have an impact on the scale of effects, as was seen in the BOI decision when it stated that “...“double-parking” was not a realistic alternative, as salmon farms cannot be expanded or double

¹⁹ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p.109)

²⁰ *Marlborough Salmon Working Group; Advice to the Minister of Aquaculture* (23 November 2016). Accessed via <https://www.mpi.govt.nz/dmsdocument/15982/send> (p. 24)

²¹ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 285)

²² *The New Zealand King Salmon Co, Assessment of Environmental Effects* (Received by Marlborough District Council 8 May 2019). (p. 6, paragraph 32).

parked without significant cumulative effects.”²³ This BOI discussion illustrates that an increase of 50% surface area of extra cages will increase the impacts of each farm beyond the consented conditions.

We submit that an expansion of 50% pen size is a significant increase in scale of farming operations, and that this will have a substantial increase in cumulative effects the Waitata farm has on the environment.

6.3 Farm Management and Stocking Density

Farm management is an important tool for ensuring biosecurity risks are minimised in fish farming operations. This includes stocking density in particular, which can have serious issues on the disease and mortality levels of the fish. High levels of stocking density can lead to increased fish stress, decreased fish health and high mortality levels. Certain levels should be maintained for good health, as explained in the BOI process “... fish welfare issues occur at stocking densities above 25kg/m³ and King Salmon operate their farms at or below that mark throughout the entire life cycle.”²⁴ Information on the current and proposed stocking densities is required for the Waitata farm.

By managing the farm adequately and reducing stock density, NZKS could avoid these biosecurity and disease risks without requiring an expansion in scale. As well as having impacts on the health of the fish and preventing biosecurity risk, reducing stocking density also can minimise environmental effects, as stated by the Marlborough Salmon Working Group in 2016, “Reducing stock density within sea pens reduces the amount of feed required, and hence leads to an eventual reduction in seabed enrichment.”²⁵

We request further information on the current stocking densities at the Waitata farm, and on the proposed change with the expansion. We submit that the levels of stocking density should be measured and monitored to ensure it stays within safe levels, and that this can and should be done within the currently consented conditions.

6.4 Adaptive Management Approach

The Adaptive Management Approach is an underlying principle behind the consent conditions that were awarded as part of the original consent for this farm. Adaptive management “provides for ongoing monitoring of the effects of an activity, in order to promote careful and informed environmental decision-making, on the best information available. It is a precautionary technique that provides a pragmatic way forward, enabling development while securing the ongoing protection of the environment, in complex cases where there are ecological or technological uncertainties as to the effects of the proposal.”²⁶ This approach must be the baseline standard for both managing current operations and approving any new applications made by NZKS.

²³ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 75)

²⁴ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 285)

²⁵ *Marlborough Salmon Working Group; Advice to the Minister of Aquaculture* (23 November 2016). Accessed via <https://www.mpi.govt.nz/dmsdocument/15982/send> (p. 13)

²⁶ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 83)

The adaptive management approach is required because of the uncertainty on potentially severe impacts of salmon farming at this scale in the Sounds. This approach is an important part of the consenting process and it should be the backbone of both the current farm management at Waitata and of any future expansion of the farm.

There is no evidence of this approach being used by NZKS in farm management, and there is no data to prove that there has been enough time farming in this Waitata location to assess the impact of the current operations on the environment. Before the current impacts can be assessed, it would be high risk and premature to allow a 50% expansion.

6.5 Economics

This Application reflects the tension between economic gains and environmental costs that underpins resource management in New Zealand. An important reason behind the salmon farms being originally consented was that there were economic benefits promised for the community.

As said in the BOI decision:

... each of the farms individually would have economic benefit at a local, regional, and to a much lesser extent, a national level. We accordingly find that in exercising our judgment, each of the farms, both individually and collectively, would be of economic benefit.²⁷

We request confirmation that the Waitata farm is delivering on this promised economic benefit, both in terms of financial and employment benefits. As NZKS cannot demonstrate any economic benefits from this expansion, it is unclear why this Application would be approved. NZKS have admitted in this Application:

...there will be no direct regional or national economic benefits. Similarly, there will be no additional production or employment positions at the site as a result of this application.²⁸

A significant gap in information is the economic benefits that this expansion in scale at Waitata would bring. As part of this Application, NZKS should provide an updated comparison of the current financial information they have against the original amounts used as estimates in the economic evidence of the BOI decision below:

Professor Hazledine provided his estimates, as annual \$ benefit arising from additional salmon farming activities at his estimated production level... combining his three figures suggested a total benefit of \$9m annually – \$7.5m + \$0.75m + \$0.75m – which includes \$8.25m indirect benefit.²⁹

Once a comparison can be had with what was promised, the actual economic benefits of NZKS salmon farming operations can be measured.

6.6 Cultural Effects and Tangata Whenua Values

²⁷ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 105)

²⁸ *The New Zealand King Salmon Co*, Assessment of Environmental Effects (Received by Marlborough District Council 8 May 2019). Page 6, paragraph 34.

²⁹ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 104)

We note that the Applicant has failed to contact Ngati Koata regarding their Application for an extension in size of farming operations. As part of the BOI decision, it was noted that ‘cultural concerns arising out of the identified waka routes on the northeast part of the Reach’ was a specific area of concern with this site.³⁰ As a means of minimizing this impact, Condition 35 of the Conditions of Consent set out in Appendix 7 requires the consent holder (NZKS) to ‘notify Ngati Koata of the initial placement of the first structures within the occupancy area of the farms in the Waitata Reach and any subsequent additions or establishment of the structures.’³¹

We submit that a failure to do so in this Application displays a disregard for the cultural impacts and tangata whenua values that are a critical part of using this public natural resource for private use. NZKS must consult local iwi on this Application.

6.7 Public Access

The public will be excluded from 0.75ha of coastal marine area over and above what is prohibited through the current farm. There is no information on what parts of the public this will impact or how it will affect them. We request this information is collected and shared as part of this Application so that the impacts can be measured and monitored.

6.8 Ecological Effects

The ecological effects of an increase of the size and scale proposed in this Application are unclear, and the Application shows that NZKS have not prepared any research to establish that the increase in surface area will not result in any adverse ecological effects. We request detailed information on the ecological impacts of an increase in the scale of farming operations at Waitata.

There is also a lack of information on how the increase in farm size (and thus an increase of the area over which feed is directly discharged) will be monitored in order to ensure benthic effects and other ecological risks are minimised. The area directly beneath the farming operations are the most significantly impacted by the discharge, and this Application will increase that impact by 50%. There is also no consideration on how NZKS will respond if these delicate benthic communities are compromised, which is an important factor in risk minimization. We request information on how ecological effects will be monitored under this Application, and how they will be mitigated if they are found to exceed the consented levels.

6.9 King Shag

Protection of significant and endangered species habitat is an especially important part of this consenting process. This is established in Policy 1.4 to:

... avoid, remedy and mitigate adverse effects specifically on bird-breeding and nursery areas, feeding patterns, habitats important to the survival of indigenous species, wildlife and marine biota, and the intrinsic value of ecosystems ...³²

³⁰ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 345)

³¹ *Ibid* (p. 21)

³² *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 111)

The ecological integrity of the Waitata reach farm area, particularly with the habitat of the King Shag, was a significant area of concern in the BOI process.³³ It is noted that:

A precautionary approach is warranted given the threatened status and limited geographic range of this species. The King Shag has had a significant decline in numbers with a survey taken in May 2018 that shows that the number of King Shags in 2018 was 24% less than compared with the 2015 baseline.³⁴

This is a significant sudden decline in population which suggests that precautionary approach is required to protect this species.

As stated by a number of experts in the BOI decision, King Shag are ‘dependent on deep benthic prey (particularly witch flounder), in clear water and in close proximity to breeding sites,’ and the Waitata Reach is an ‘important feeding ground for King Shag.’³⁵ Due to the proximity of this farm to the endangered King Shag habitat, we submit that NZKS must establish the extension of pen size and the adjacent farm structures will not impact on the delicate feeding habitats of the birds.

See for example below Table 1 from the BOI, showing the encroachment status.

Table 1: Proximity of proposed salmon farming sites to sites of importance

Proposed site and source of information	NZ King Shag feeding habitat (MSRMP)	NZ King Shag breeding and roosting buffer zone site (MSRMP)	Areas of habitat for Hector’s Dolphin (MSRMP)	Areas of “Outstanding Landscape Value” (MSRMP)	The “National Transportation Route” (MSRMP)	Natural Character (NZKS assessment)	Landscape (NZKS assessment)
Waitata		Encroaches				Med-High	VAL*
Kaitira	Encroaches			Adjacent		Med-High	ONFL** (VAL)***
Tapipi	375m south-west					High	VAL
Richmond	Adjacent					Med-High	VAL
Papatua				Adjoins		High	ONFL
Kaitapeha			Within		Partially	Med-High	VAL
Ruamoko			Within		Within	Med-High	VAL
Ngamahau					Within	Medium	VAL
White Horse Rock		Adjacent				Med-High	VAL

There are also risks with increased sedimentation which will occur from the development. This could impact on the habitat of king shag prey, and as stated by *Sustain Our Sounds*, increased nutrients lead to ‘increased phytoplankton and reduced water clarity which would make hunting difficult.’³⁶ We submit that research on the impacts of the farming operations on the King Shag over a longer period is required before this Application can be approved.

³³ *Ibid* (p. 345)

³⁴ *Report on King Shag Census February 2018 and Population Trend* Prepared for the New Zealand King Salmon Co. Limited by Rob Shuckard (May 2018). Accessed via <https://www.kingsalmon.co.nz/kingsalmon/wp-content/uploads/2018/05/King-Shag-census-2018-Final.pdf> (p. 6)

³⁵ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 178).

³⁶ *Ibid* (p. 167).

The experts were agreed that the King Shag in the Marlborough Sounds are a vulnerable species that may be the “canary in the coalmine”, that is, a species sensitive to ecosystem changes.”³⁷ We submit that to protect this endangered species, this Application is not approved, especially as the Waitata farm encroaches on the King Shag breeding and roosting buffer zone.

6.10 Marine Mammals

Salmon farming operations have extreme and potentially fatal adverse effects on marine mammals. Some of these include entanglements, injuries, habitat disturbance and issues with diet. NZKS submit that “the new pens and moorings will be subject to the same procedures to minimise the risk of marine mammal entanglement as the existing consented pens.”³⁸ These plans are clearly inadequate in protecting marine wildlife.

We request that NZKS share the procedures they claim to have in place to minimise the risk of marine mammal entanglement. That two dolphins were caught on separate occasions in 2018 in November alone, is evidence that these systems are inadequate for protecting the natural wildlife of the sounds.³⁹ We disagree that two serious issues that have occurred very recently (within two months of one another), plus another dolphin occurrence in 2019⁴⁰ are ‘less than minor’ impacts. We also note that the information on marine mammal mortalities on the NZKS website is incomplete, in that only the most recent mortality incident reports are available which does not give a full picture of the impacts of farming operations on marine mammals. We submit that NZKS must make available all the incidents and mortalities at each farm since their opening so that the impacts of farming can be looked at cumulatively.

We also note that there is incomplete information on the number of seal and other marine mammal mortalities at Waitata specifically which is critical for this information. We did find that in 2016, there were 67 seal incidents at NZKS Waitata farm.⁴¹ This is an extremely high number, especially when compared with the farm of the next highest number of incidents (Ngamahu with 18 incidents in 2016). This Application fails to adequately address how an expansion in size and scale at Waitata will not impact these mammals, and makes no mention on how it will mitigate these server impacts on the local marine mammal ecosystem.

We suggest that at a minimum, NZKS get a qualified expert to check and improve these plans to ensure no more marine mammals are injured. This is a serious issue and more research and evidence that an expansion would not make the impacts on marine mammals even worse is required. An increase of net size by 50% will have impacts on the scale of possible impacts on marine mammals. The procedures must take into account the impact of this change in scale and how the effects on marine mammals will be minimised. In order to prevent greater harm to marine mammals and to protect their habitat, we submit that this Application is declined.

³⁷ *Ibid* (p. 345).

³⁸ *The New Zealand King Salmon Co, Assessment of Environmental Effects* (Received by Marlborough District Council 8 May 2019) (p. 11, paragraph 62).

³⁹ *Divers Find Dead Dolphins in New Zealand King Salmon Nets* Alice Angeloni (Nov 30 2018). Accessed via <https://www.stuff.co.nz/national/108920343/divers-find-dead-dolphins-in-new-zealand-king-salmon-nets>.

⁴⁰ *New Zealand King Salmon Marine Mammal Incident Report*, New Zealand King Salmon Co. Ltd (July 2019). Accessed via <https://www.kingsalmon.co.nz/kingsalmon/wp-content/uploads/2019/07/Marine-Mammal-Incident-Report-for-website.pdf>

⁴¹ *August 2016 Report Prepared for The New Zealand King Salmon Company*, Ministry of Primary Industries, Cawthorn Institute (Pg 15) Accessed via <https://www.mpi.govt.nz/dmsdocument/16078/send>

6.11 Structural Safety and Navigation

The 50% increase in net pen area will affect the navigable space around this farm to a significant extent. The application does not provide for any evidence on how NZKS will minimise effects of the expansion on the structural safety and navigation around the farm. The effects of the expansion on the structure of the farm have not been explained, though such a substantial size increase would have impacts on the structural integrity and the safety of the farm. The risks if this structure were to break (releasing the farmed salmon into the wild), would be severe on the health of the ecosystem.

At minimum, a plan from a qualified expert on the safety of the structure, as well as on navigation, and an improved health and safety plan, would be required before it could be established that the effects on structural safety and navigation are ‘minor.’ A significant increase in pen size in a high flow area requires expert engineering assessment, and we request evidence on this as a part of the Application.

6.12 Natural Character, Landscape, Visual Amenity and Cumulative Effects

The Waitata Reach was identified in the BOI as one of the least modified areas in the sounds, with medium to high natural character, and marine natural character that is ‘very high.’⁴²

The Waitata site is of a moderate to high sensitivity and because of this, a more thorough analysis of potential effects on the landscape values of the site must be established. There is an issue with the independence of the report provided by NZKS to establish that the effect of the 50% increase will be ‘no more than minor.’ More evidence, including from completely independent experts, is required in order to determine that the application is not going to have a great impact on the sensory and associative landscape values at the site.

The unique natural character and landscape values have been identified as a specific area of concern of the Waitata Reach location.⁴³ The BOI has determined that 1.5ha of marine farm pens are appropriate at this location, but have not provided consideration for 2.25ha. This increase in scale will have an impact on natural character values, especially when considered in the context of the current site.

We disagree with NZKS’s Landscape and Visual Amenity Report that there will be little change to visual amenity ‘due to the relatively small scale of the expansion,’⁴⁴ because the reality of a 50% expansion, with over 100 new mooring buoys, is evidently far beyond ‘small scale.’

The cumulative impact of this extension above and beyond what is currently consented will significantly increase the impacts on natural character, landscape and visual amenity in a relatively untouched and picturesque area of the Sounds. Furthermore, we request modelling and visual evidence on how the proposed pens and moorings will have only a ‘marginal’ impact on the

⁴² *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 211).

⁴³ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 345).

⁴⁴ *Landscape and Visual Amenity Report: Waitata Pens Expansion* (Rough and Milne Architects Limited, prepared for the New Zealand King Salmon Company Limited) (April 2019) (p. 18, paragraph 5.4).

biophysical natural character values at the site, and how NZKS proposed to avoid ‘significant adverse effects.’⁴⁵

6.13 Seabed and Benthic Habitat

It has been established salmon farming operations have negative impacts on the seabed and benthic habitat beneath and surrounding the farm. Increasing the surface area of the pens by 50% increases the area of impact on the seabed and benthic habitat by (at the least) that same amount (noting there is potential for exacerbated cumulative effects also). These impacts flow beneath and around the farm which “... concentrates organic material – including faeces from salmon, uneaten food pellets, and biofouling material – on the seabed beneath and within the immediate vicinity of the farm.... King Salmon acknowledged “pronounced” effects directly beneath the cages...”⁴⁶ A significant increase in the size of the net pens will have a significant negative impact on the biodiversity affected by the farming operations in terms of the area of the effects and the cumulative nature of the impacts.

The conditions of the original Waitata consent were carefully selected to specify zones and environmental quality standards to protect the boundaries beneath the farms. The zone with the most pronounced effects is the zone directly beneath the cages,⁴⁷ which means there will be an increase of 50% of pronounced impacts of the cage size increase under the proposed conditions.

It is clear that “there is no doubt that the area beneath the proposed salmon farms would be highly impacted, with much reduced biodiversity and significant changes in sediment chemistry.”⁴⁸ We request more information on the cumulative impacts on the seabed and benthic habitat of increasing the farm size by such a large amount. NZKS must establish how they propose to monitor and mitigate increased impacts of this Application on the seabed and benthic habitat.

5.14 Water Column Uncertainty

The Application does not include any information on how the increase in size of the farms will affect the water column. As identified in the BOI process, this is an area of great sensitivity and also of great uncertainty. To allow an expansion to be approved would directly contradict the findings a precautionary approach to adaptive management is required via the existing consent conditions.

An acknowledgement of water column uncertainty and risk is clearly summarised in the BOI decision as follows

“...the uncertainty that exists with regards to the ability of the Sounds marine ecosystem to assimilate the nutrient loadings that would eventuate should all the zone locations be approved, thus creating the ability for consents to be considered and granted... Our finding that only two of the zone locations sought in the Waitata Reach can be approved is partly underpinned by our recognition of the

⁴⁵ *The New Zealand King Salmon Co, Assessment of Environmental Effects (Received by Marlborough District Council 8 May 2019) (p. 13, paragraph 76).*

⁴⁶ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision), (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 112)*

⁴⁷ *Ibid* (p. 129)

⁴⁸ *Ibid* (p. 122)

(unresolved) uncertainty and risk that exists with regards to the water column effects should all the zonings be approved and consents granted.”⁴⁹

This Application will have a significant impact on the water column, but due to the uncertainty of this effect on the highly sensitive water column ecosystem, we submit that a precautionary approach is taken and that this Application is declined.

We also require evidence from NZKS that the Environmental Quality Standards (EQS) especially the Water Quality Standards (WQS) of the Resource Consent are being met. This includes information on the impacts of the current farm on the water column, and the affects anticipated by the proposed expansion.

5.15 Discharges

NZKS have previously established an increase in existing feed discharge limits to 4,000 tonnes at Waitata with current “feed discharge levels are below the consented maximum.”⁵⁰ This was achieved with a non-notified application for higher feed levels despite not meeting the threshold of 3,000 tonnes for the initial three years of farming operation.

Higher levels of discharges will have increased impacts on the environment, which will also be spread over a greater area if this Application is approved. Due to this, the effect of the proposal on discharges will be more than minor. NZKS have failed to provide any evidence that increasing the area of discharge beneath the farms of 50% will not have any adverse impacts on the surrounding environment.

Under Schedule Four of the Resource Management Act 1991, *Information Required in Application for Resource Consent 6: Assessment of Environmental Effects* we think a much deeper analysis of the impact of an increase of farming of this scale is required prior to the resource consent being approved. In particular, “(6)(1)(d) ...a description of...(ii) any possible alternative methods of discharge...” There is no evaluation of alternative discharge methods in the Application.

We also note the application provides for an increase in “drop-off from biofouling” with no information on the quantity of this, what it is made from or the impacts it will have on the environment. The increased scale and impacts of discharges, and the uncertainty of their effects, mean that this Application should not be approved. NZKS must establish that there would not be negative impacts if this Application were to be approved and this Application fails to do so.

5.16 Disease and Biosecurity Risks

These risks are a serious concern for the health of the sounds and the wider environment. It has been established that “disease and biosecurity risks will be increased through the establishment of the salmon farms, because of the increased density of salmon at a regional scale.”⁵¹

⁴⁹ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 338).

⁵⁰ *The New Zealand King Salmon Co*, Assessment of Environmental Effects (Received by Marlborough District Council 8 May 2019). Page 16, paragraph 100.

⁵¹ *Board of Inquiry – New Zealand King Salmon (Final Report and Decision)*, (February 2013). Accessed via <https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000002/Boards-decision/King-Salmon-Final-Decision-Volume-1.pdf> (p. 338)

The current sizes and locations of farms were consented because it was found that the benefits would outweigh these risks. However, it is important to note that conditions have changed as since the BOI decision as there have been known harmful disease outbreaks in salmon farms in the Sounds. This increases the chance of new hazards and also shows that the farm management by NZKS has increased biosecurity risks.

The unfortunate consequences of this poor farm management can be seen in the MPI Intelligence Report on two new bacteria which were found in NZKS farmed salmon:

From samples provided to AHL, two new-to-New Zealand detections were confirmed in king salmon (*Oncorhynchus tshawytscha*): a New Zealand Rickettsia-like organism (NZRLO1) and *Tenacibaculum maritimum*. This was the first time the presence of these two bacterial agents had been confirmed in New Zealand. Of the two bacteria, the NZ-RLO is of particular interest because it is listed as an unwanted organism under the Biosecurity Act 1993.⁵²

This is clearly a significant concern in terms of increased disease and biosecurity risks for New Zealand.

The Report shows there are severe risks being taken by NZKS with a disregard to biosecurity and safety, with a clear requirement for NZKS to drastically review and improve their biosecurity practices. This issue is clear in the TAG recommendation in the MPI Report that:

The NZKS Biosecurity Management Plan is inadequate and does not provide clear guidance on the management of biosecurity risks across the company's salmon farming operations. The TAG observed that the operational guidance provided by the plan is vague and the lack of detail on prescribed actions potentially makes the plan difficult to implement.⁵³

Furthermore, there is no evidence that NZKS have followed this advice as "...further work is required to improve NZKS' Biosecurity Management Plan. NZKS should be encouraged to do this."⁵⁴

We submit that NZKS must, at an absolute minimum, produce an adequate Biosecurity Management Plan which is verified by independent experts prior to receiving permission for expansion of their operations. With an increase in size and scale of operations at Waitata, as is applied for by NZKS in this Application, the biosecurity risks will only increase to higher levels. We agree with the TAG that "...improving biosecurity practices will be critical to minimising the risk exposure and spread of pests and diseases, and enable the sector to protect itself."⁵⁵

5.17 Water temperatures

One of the challenges for decision makers in considering this application is to have confidence about the relationship between rising water temperatures and mortality. Our understanding is that NZKS is wanting to relocate farms due to higher water temperatures causing mortality.

However, the cause-and-effect relationship is looking less clear. One would expect the high-flow cooler farms would have little or no mortality and therefore NZKS would use these rather than the low flow higher-temperature farms. However, that is not the case – see Section 2.1; here we quote a recent investor report that states NZKS is moving away from Tory Channel (which has

⁵² MPI Intelligence Report *NZ-RLO & T. maritimum 2015 Response* (May 2017) (p. 5).

⁵³ *Ibid.* (p. 28)

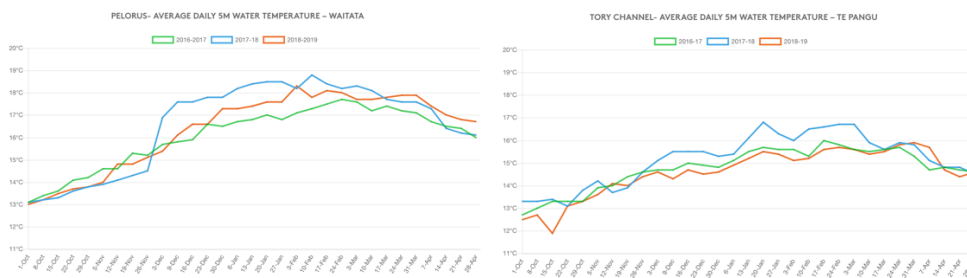
⁵⁴ *Ibid.* (p. 20)

⁵⁵ *Ibid.* (p. 28)

the coldest water) and increasingly utilising low-flow sites (warmer water). This lack of clarity, particularly given the relocation proposal before the Minister, calls for a broader assessment as well as a detailed integrated assessment of each farm. If NZKS are moving away from high-flow and back to low-flow farms, there must be a reason but that reason is not apparent.

Furthermore, the Institute remains unsure the purpose of the application – why is NZKS asking for an increase in the water space for Waitata while at the same decreasing its use of water space at the Tory Channel sites? And why is this latter point not public.

Figure 2: Comparing Tory Channel and Waitata water temperatures



6. Policy Analysis

6.1 Part 2 Matters - Section 5

There is no evidence that this proposal is consistent with the principles of sustainable management. Rather than improving fish health by adapting farm management practices, NZKS are seeking to increase the size of pens by 50% in order to allow their excessive fish stocks enough space for good health. The fact that the farm has only been operating for three years and is already requesting an increase in size suggests poor planning on behalf of NZKS. This strategy shows a lack of foresight and is inconsistent with the principles of sustainable adaptive management.

Rather than running the farm within the parameters of the resource consent conditions, NZKS has filled the pens to a level of density that is unhealthy and unsustainable. The Application is a push towards growth in fish output with a disregard for sustainability and environmental constraints. We submit that this Application does not meet the criteria for sustainable management.

6.2 Part 2 Matters - Section 6

It is incorrect to state in the Application that “the increase in the maximum area of net pen surface structures is small,”⁵⁶ when in reality the increase is 50%. As discussed above, there is a more than minor effect on seabirds (specifically the King Shag), and on the marine mammals (dolphins in particular).

There is no evidence that the increase in area will have less than minor effects on the environment. There is also no investigation into what the impacts of the decreased area of public access will be.

⁵⁶ *The New Zealand King Salmon Co, Assessment of Environmental Effects (Received by Marlborough District Council 8 May 2019) (p. 15 [89]).*

We submit that this information is required in order for MDC to make an informed final decision.

6.3 Marlborough Sounds Resource Management Plan – Policy 3

The current farm has been in operation since mid 2016, and is already submitting for increases in area with no evidence that the increase in area will have any benefits. This application proves that NZKS are not following the conditions and thus it is false that the activity will continue to be “adaptively managed in accordance with the existing conditions of consent.”⁵⁷ This application shows that NZKS are pushing for an increase of 50% above and beyond what was consented, and that this activity should be managed with a precautionary approach.

6.4 Marlborough Sounds Resource Management Plan – Policy 6

A 50% increase in net pen surface structures, and an increase of 100 mooring buoys and all such associated structures are a significant change to the existing built environment. The environment is of a medium to high natural character, as stated above, and thus the adverse visual impact of this Application will be more than minor.

It is not evident how there will actually be an increase in production efficiency as a result of the increased size of net pens and farming area or how this change will lead to any flow on benefits. As stated in the Application, NZKS have no information on the benefits of this expansion other than it “may marginally improve the social and economic wellbeing of the community derived from the existing farm...”⁵⁸ There is no evidence on this point and ‘marginally’ is an insufficient standard for an Application of this scale.

We submit there needs to be evidence on how the social and economic wellbeing of the community could improve despite “no new employment positions.”⁵⁹ As part of this Application, NZKS need to provide more detail on this point to establish any benefits that outweigh the costs and risks of this Application.

6.5 Marlborough Sounds Resource Management Plan – Policy 8

As stated above, there is no evidence that will be “more effective farming practices”⁶⁰ with an increased area of pen size, and NZKS have not established that there is a connection between the greater pen sizes with any contribution of aquaculture to the social, economic and cultural wellbeing of communities.

There is no evidence to the statement that the proposed 50% increase in net size and accompanying structures will “...not result in any change to water quality which might impact on aquaculture activities.”⁶¹ In contrast, it is clear that the scale of farming operations will have an

⁵⁷ *The New Zealand King Salmon Co, Assessment of Environmental Effects* (Received by Marlborough District Council 8 May 2019) (p. 16 [100]).

⁵⁸ *The New Zealand King Salmon Co, Assessment of Environmental Effects* (Received by Marlborough District Council 8 May 2019) (p. 17 [103]).

⁵⁹ *Ibid* (p. 17 [103]).

⁶⁰ *Ibid* (p. 17 [104]).

⁶¹ *Ibid* (p. 17 [105]).

increased impact on water quality and ecology. In particular, new development of pens and the associated structured will disrupt the seabed and increase sedimentation.

We submit that information is required to explain how this Application sits under this policy, specifically;

- (a) how the farming practices will be more effective with the extension (including information on stocking density for this specific Waitata farm and how the Application will impact this); and
- (b) how the water quality will not be affected by the extension when it is an increase of scale by 50%.

6.6 Marlborough Sounds Resource Management Plan – Policy 11

As stated above, NZKS have not provided evidence in this Application that a 50% increase in surface area of the pens will have ‘less than minor’ effects on indigenous biological diversity. To establish what the effects of the increase will be, we require a baseline measurement of the current levels of biological diversity, modelling of the impact of the increase and also confirmation that the growth in operations will not affect this. We are not satisfied that NZKS has the capacity and systems monitor the operations of the farm to meet this policy.

If this Application is approved, the area beneath the net pens of feed discharge will increase by 50% and NZKS also have allowance to increase feed levels up to 4,000 tonnes. This is a significant increase from current operations and as stated in this response under the ‘King Shag’ and ‘Marine Mammals’ headings, there needs to be new analysis of the impact of the increase in scale on the surrounding environment, in particular on the benthic effects, the seabirds and the marine mammal habitat.

6.7 Marlborough Sounds Resource Management Plan – Policy 13

NZKS have provided no explanation on how this Application will increase in size but will avoid adverse effects on the area of coastal environment, which is required under Policy 13. As discussed above under ‘natural character,’ we require a deeper analysis with more independent reports on this issue than the single report in this Application (which was paid for by NZKS). We submit that NZKS do further work in this area and this Application is incomplete.

6.8 Marlborough Sounds Resource Management Plan – Policy 18

As stated in the Application, an increase in area occupied by applicant means that there is a decrease in publicly accessible space. This requires a deeper analysis of impacts, including what parts of the public this will affect. We submit that further consultation and investigation is required under this policy.

6.9 Marlborough Sounds Resource Management Plan – Policies 22 and 23

Under these policies, information is required so that forecasted changes can be modelled alongside current standards set by the current Waitata resource consent.

Under this point, we require information on what level of sedimentation is anticipated from the changes. Once this is established, it can be compared to current sedimentation levels. Only once this change is determined can it be assessed whether the increase above what has been consented is more than minor in terms of effects.

The changes to shading and an increase in biofouling have no investigation and require at the very least models that identify the impacts and show the changes over and above the levels that have been consented for. It is impossible to determine what is a 'minor' increase when NZKS has provided no information on the levels of change.

Another serious issue of contention is the increased area the feed will be discharged over. The increased pen size of 50% will expand the feed discharge over a significant area. It is unclear how NZKS intend to prove this impact is 'minor.'

7.0 Further Information Required

The Application lacks a significant amount of relevant data and information that must be shared in order to allow Council to make an informed decision and to allow parties to make detailed submissions. We have noted some of these requirements above, and include a brief list below of other information required from NZKS:

- Resource Consent Compliance at Waitata:
We require evidence that the existing farm is working within the original stipulations imposed by the BOI. This includes economic evidence the farm is providing the employment and other benefits to the community that were promised as part of the original application. This also includes evidence on the environmental impacts of the farm and that the water column and benthos have not been negatively affected past the constraints allowed for under the BOI stipulations.
- Detailed Data on Current Operations at Waitata:
We require information on stocking/fish density levels of this farm, statistical data on mortality levels and other biosecurity and disease statistics. This also includes data on the specific mortality rate at the Waitata farm over the past three years and at other NZKS farms in the Sounds so it can be determined whether expansion here is a sustainable option.
- Impacts of Proposed Extension:
We require evidence that the changes requested will provide economic or community benefits, and evidence that the environment will not be adversely affected. We also require information on the intended stocking density levels of the farm if the new size was allowed.
- Monitoring of Conditions:
We require information on how NZKS will monitor the extension to ensure it will comply with the resource consent conditions, and what the response will be if these conditions are breached.
- Investigation of Alternatives:
We require information on other options NZKS have to meet the purposes of this Application without requiring a significant extension in the size and scale of farming at Waitata. This is a legal requirement and we see no evidence of it in the Application.

Other questions:

- Clarification on what NZKS means when the Annual Report describes the “routine immunization programmes for our juveniles...”⁶² as the farms have previously been classified as free of antibiotics. Antibiotics and chemicals will have a materially different impact on the surrounding environment than what has already been approved. If antibiotics were to be used, we submit that there will be severe risks and that to prevent them the precautionary principle be applied.
- All reporting by NZKS demonstrates a lack of strategic planning information from NZKS. We require forecasts of salmon output at the farm over the long term, including consideration of environmental changes such as rising water temperatures.

As mentioned above, there are also serious gaps of information in this resource consent application, which is inadequate for any application, but particularly in a case such as this which has significant use of public resources and the potential of serious environmental impacts. Much more detailed and independent information is required in order to reach an informed decision.

8.0 Size of overseas shareholding should be taken into account

The existing legal and accounting framework in New Zealand focuses on the needs of shareholders (not stakeholders). Given that over half of NZKS’s shareholding are held by overseas shareholders, it is easy to understand why NZKS tends to not focus on New Zealand shareholders or more broadly, New Zealand’s interests. In legislation, companies that are predominantly overseas owned have a higher responsibility to report than predominantly New Zealand companies (see for example, Companies Act 1955, section 297E). This illustrates that the current legal system does indicate that overseas interests do require a higher level of transparency than New Zealand companies. This, we would argue, means that the Council can and should take this overseas shareholding when considering this application and apply a higher level of due diligence.

9.0 Recommendation

NZKS has failed to prove that there is a sufficient reason for this Application, other than to increase their production. Beyond this, NZKS have also failed to demonstrate that there will not be negative impacts and risks that arise from this Application.

The 50% increase in net size, and the increase in associated structures, are a significant intensification in the effects that will be caused by the farming activities, and these effects will be spread over a much greater area than is currently consented. Rather than minimizing the impacts of its Waitata farming operations with good farm management practices, NZKS is seeking to increase the scale of its farming by increasing the surface area of its farms substantially.

A significant concern is the failure to investigate any alternative solutions to the problems NZKS is seeking to solve at Waitata. It is recommend that rather than increasing the area by a substantial 50%, it would be more effective and closer to the original resource consent for NZKS to manage their farming practices within their consented size. This can be done by NZKS managing their own stocking densities and following the ‘adaptive management’ principles of their original consent.

⁶² *New Zealand King Salmon Annual Report*. The New Zealand King Salmon Co. (03.10.19) (p. 36).

It is for these reasons that it is clear this application should be denied. The deliberate applications by NZKS to increase seemingly 'small' parts of the BOI conditions, with no regard for the current conditions that have been imposed, suggest a disregard for both the New Zealand environment and for the large number of people involved in reaching the conditions in the first place.

The Institute views that granting of this Application is inconsistent with the Act's sustainable management purpose and it should not be approved. There are environmental impacts that will arise that are more than minor, and in this Application NZKS has failed to identify how it will measure and mitigate the effects of this significant increase in pen size. As well as this, the Application is contrary to the objectives and policies of the RPS, the MSRMP, or the MEP. It is unfortunate that the Application lacks substantive information and evidence on which it could be determined what the effects will actually be.

10.0 Conclusion

We submit this Application be denied due to the reasons outlined above.

The Institute would like to be represented at the hearing and also kept informed of any relevant information that is part of this Application. Please let us know if you have any questions or comments.

Yours sincerely,



Wendy McGuinness
Chief Executive

Appendix 1: NZKS 2018 Annual Report (pp. 13 and 14). Red circle added to highlight graph

