MARLBOROUGH DISTRICT COUNCIL

RESOURCE MANAGEMENT ACT 1991

Decision of Marlborough District Council

RESOURCE CONSENT: U140294 and U140296

APPLICANT: New Zealand King Salmon Company Limited

LOCATION: Site 8632, Waitata Reach, Pelorus Sound/Te Hoiere (U140294)

Site 8634, Ngamahau Bay, Tory Channel/Kura Te Au (U140296)

THIS IS THE DECISION ON THE SECTION 127 APPLICATIONS TO CHANGE THE FOLLOWING RESOURCE CONSENT CONDITIONS:

To change Condition 36 of Coastal Permit U140294, in order to increase the Maximum Initial Feed Discharge at the Waitata salmon farm from 3,000 tonnes per annum to 4,000 tonnes per annum.

To change Condition 40 of Coastal Permit U140294, in order to alter the Environmental Quality Standards and the definition of Enrichment Stages for seabed deposition at the existing Waitata salmon farm.

To change Condition 40 of Coastal Permit U140296, in order to alter the Environmental Quality Standards and the definition of Enrichment Stages for seabed deposition at the existing Ngamahau salmon farm.

DECISION: **Refused**

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Pursuant to section 127, and having regard to Part 2 matters, the Marlborough District Council **REFUSES** all three applications by New Zealand King Salmon Company Limited to change Conditions 36 and 40 of Coastal Permit U140294 ('the Waitata application') and Condition 40 of Coastal Permit U140296 ('the Ngamahau application').

BACKGROUND AND PROCEDURAL MATTERS

1. This is the combined report and decision of independent Hearings Commissioner Sharon McGarry. I was appointed by the Marlborough District Council (**MDC** or 'the Council) and delegated powers and functions under section 34A(1) of the Resource Management Act 1991 (**RMA** or 'the Act') to hear and decide applications by New Zealand King Salmon Company Limited (**NZKS** or 'the Applicant') to change the conditions of Coastal Permit U140294 ('the Waitata application') and Coastal Permit U140296 ('the Ngamahau application') pursuant to section 127 of the RMA.

2. The resource consents authorising operation of the salmon farms were granted on 17 April 2014 by a Board of Inquiry (**BOI**) appointed by the Environmental Protection Authority. The Waitata farm was established by January 2016. The Ngamahau farm was established by November 2015.

3. The Waitata section 127 application was lodged with the MDC on 23 April 2020 and was amended by the Applicant on 2 July 2020[1].

4. The Ngamahau section 127 application was lodged on 13 May 2020 and was also amended by the Applicant on 2 July 2020[1].

5. The applications were publicly notified on 26 August 2020. Seven submissions opposing the applications were received, with six indicating they wished to be heard.

6. The Applicant made further amendments to the applications on 14 October 2020[2]. Some of these amendments were subsequently withdrawn on 27 April 2021[3].

7. The hearing was initially scheduled to commence on 10 November 2020. However, following a pre-hearing meeting on 5 November 2020, the Applicant requested that the applications be placed on hold under section 91 and the hearing postponed to enable the provision of further information.

8. Prior to the hearing, two bundles of hearing reports were produced pursuant to section 42A of the Act by the Council's Reporting Officer, Mr Peter Johnson (Senior Resource Management Officer, MDC) and technical reviewer Dr Hilke Giles (Coastal and Systems Scientist, Pisces Consulting Limited); one dated 16 October 2020 and the second dated 3 June 2021.

9. The s42A Report dated 16 November 2020 included a report by Dr Giles on the proposed changes to Condition 40 for both applications, a report by Dr Giles on the proposed changes to Condition 36 for the Waitata application, and a report by Mr Johnson addressing both applications. Appended to the report bundle were copies of the following documents:

   (a) Waitata Condition 40 application as notified (Appendix 1);

   (b) Ngamahau Condition 40 application as notified (Appendix 2);

   (c) Further amendment to Condition 40 both applications (Appendix 3);

   (d) Waitata Condition 36 application as notified (Appendix 4);

[1] Gascoigne Wicks letter dated 2 July 2020
[2] Gascoigne Wicks letter dated 14 October 2020
[3] Gascoigne Wicks letter dated 27 April 2021

(e) Waitata compliance reports (Appendix 5);

(f) Ngamahau compliance reports (Appendix 6);

(g) Submissions received on Waitata application Condition 40 (Appendix 7);

(h) Submissions received on Ngamahau application Condition 40 (Appendix 8);

(i) Submissions received on Waitata application Condition 36 (Appendix 9); and

(j) Legal Memorandum – Barbara Mead, MDC (dated 12 October 2020).

10. The s42A Report dated 3 June 2021 addressed amendments to the applications and included an additional report by Dr Giles on the proposed changes to Condition 40 for both applications, an additional report by Dr Giles on the proposed changes to Condition 36 for the Waitata application, and an additional report by Mr Johnson addressing both applications. Appended to the report bundle were copies of the following documents:

(a) Amendment to proposed changes to Condition 40 (Appendix AA);

(b) Clarification of amendment to Conditions 36 (Appendix BB);

(c) Issues for further attention (Appendix CC);

(d) Breach response protocol (Appendix DD);

(e) 2020-2021 Annual Monitoring Summary for the Waitata Reach Salmon Farm. Cawthron Report No. 3632 (Appendix EE); and

(f) 2020-2021 Annual Monitoring Summary for the Ngamahau Bay Salmon Farm. Cawthron Report No. 3636 (Appendix FF).

11. The s42A Report, Applicant's evidence and submitter expert evidence were pre-circulated to the parties prior to the hearing in accordance with section 103B of the RMA. This evidence was pre-read and taken 'as read' at the hearing.

12. The rescheduled hearing commenced at 9:00 am on Tuesday 29 June 2021 and evidence was heard over the course of two days. I adjourned the hearing at 2:00 pm on 30 June 2021, having heard from all the parties in attendance.

13. The hearing was adjourned to enable:

(a) The Reporting Officer to consider the need for any further changes to implement the changes recommended by Dr Giles or any other consequential changes to the conditions;

(b) Submitters to comment on any further recommended changes to conditions;

(c) The Reporting Officer to consider submitter comments on further changes to conditions; and

(d) The Applicant to provide a written right of reply and final set of proposed conditions.

14. On 15 July 2021, the Reporting Officer provided a Memorandum setting out any further recommended consequential changes to conditions to reflect their recommended changes; and a set of conditions showing the proposed tracked changes to the existing conditions of consent.

15. Further comments on the Reporting Officer's proposed changes to conditions were received from three submitters by the 28 July 2021 timeframe set.

16. The Reporting Officer provided a response to the further comments from submitters on 5 August 2021.

17. The Applicant provided a written right of reply on 12 August 2021.

18. I closed the hearing on 23 August 2021.

19. I did not undertake a site visit given the nature of the applications.

Applications

20. The proposed changes are found in several separate applications which have been amended after discussion with the Council and submitters.

21. In summary, the applications seek the following three changes to the existing conditions of consent:

    (a) A change to Condition 40 for the Waitata and Ngamahau farms to clarify the definition of Enrichment Stage (**ES**) – '**Change 1**';

    (b) A change to Condition 40 (Table 3) for the Waitata and Ngamahau farms to clarify the Environmental Quality Standards (**EQS**) at Zone 4 – '**Change 2**'; and

    (c) A change to Condition 36 for the Waitata farm to increase the Maximum Initial Feed Discharge from 3,000 to 4,000 tonnes per annum – '**Change 3**'

22. The proposed wording changes to conditions are shown as tracked changes in the s42A Report (3 June 2021).

Notification and Submissions

23. Seven submissions in opposition to the application were received within the submission period. All of the submissions opposed the changes sought to Condition 36; four opposed changes to Condition 40 for the Waitata farm and five opposed changes to Condition 40 for the Ngamahau farm.

24. The s42A Report (16 October 2020) accurately summarised the key points of relevance raised in submissions for each condition change (pages 63-64) and should be read in conjunction with this decision.

The Hearing and Appearances

25. A public hearing was held on Tuesday 29 and 30 June 2021 in the Marlborough District Council Chambers. The following parties appeared at the hearing:

    For the Applicant:

    - Mr Quentin Davies/Mr Joshua Marshall (Counsel, Gascoigne Wicks)
    - Mr Mark Preece (Seafarms Operation Manager, NZKS)
    - Dr Lincoln MacKenzie (Senior Research Scientist, Cawthron Institute) – via Zoom
    - Dr Emma Newcombe (Coastal Ecologist, Cawthron Institute)

    For the Submitters:

    - McGuinness Institute - Ms Lucy Witkowski
    - Friends of Nelson Haven and Tasman Bay Incorporated - Mr Rob Schuckard
    - Guardians of the Sounds - Ms Clare Pinder

    Kenepuru and Central Sounds Residents Association

    - Mr Andrew Caddie
    - Ms Hanneke Kroon

For Marlborough District Council:

- Mr Peter Johnson (Lead Senior Environmental Planner)
- Dr Hilke Giles (Coast and Systems Scientist, Pisces Consulting Limited – via Zoom)

26. An audio recording of proceedings and copies of the hearing evidence are held by the Council. I also took notes throughout the hearing of responses to my questions.

SUMMARY OF EVIDENCE

Applicant's Case

27. **Mr Quentin Davies**, Counsel, conducted the Applicant's case and was assisted by Mr Joshua Marshall. Mr Davies presented legal submissions and called three witnesses. He outlined the background to the applications, the s127 statutory test, reasons for the changes, effects of the changes sought, retrospective condition changes, past compliance, and matters raised in submissions. He submitted that it is the Applicant's position that neither change of conditions (Condition 36 and 40) applied for is required but had been applied for out of an abundance of caution. In response to questions, he stated that the Applicant was not abandoning its interpretation of the conditions, but that it would be useful to have clarity of interpretation and consent conditions that better reflect current understanding. He emphasised that assessment of the application must be about the effects of the change and not broader matters relating to salmon farming. Appended to his submissions was a copy of an application for a declaration to the Environment Court as to the scope of the conditions of the coastal permits held for salmon farms in Waitata Reach, Ngamahau Bay and Richmond Bay (Kopāua) (dated 22 June 2021). He also tabled a copy of an email from Bailey Lovett (Ministry for Primary Industries) dated 28 June 2021 on whether there would be an out-of-cycle review of the benthic best management practice guidelines; and the statement of evidence of Dr Nigel Keeley in relation to benthic effects for NZKS and supplementary document of tables (dated June 2012).

28. At my request, after the adjournment Mr Davies helpfully provided a copy of the conditions of consent with all previous amendments to conditions shown.

29. At my request, Mr Davies also provided copies of 'Best Management Practice guidelines for salmon farms in the Marlborough Sounds. Part 1: Benthic environmental quality standards and monitoring protocol' (Version 1.1) dated June 2019 ('BMP guidelines'); 'Best Management Practice guidelines for salmon farms in the Marlborough Sounds. Part 2: Water quality standards and monitoring protocol' (Version 1.0) dated October 2019; 'Draft example of the Marine Environmental Monitoring and Adaptive Management Plan' by Keeley *et. al.* 2012; and '2018-2019 Annual Environmental Monitoring Summary for the Waitata Reach Salmon Farm' Cawthron Report No. 3323.

30. **Mr Mark Preece**, Seafarms Operations Manager for NZKS, provided a written statement of evidence and presented a written summary of evidence at the hearing. Mr Preece gave an overview of NZKS's high flow salmon farms, the context of the changes sought to the Environmental Quality Standards (**EQS**), changes to minimum feed levels, and the social and economic effects of the application. He noted that the annual monitoring reports demonstrate that the farms are currently operating at enrichment levels close to those which occur in the Marlborough Sounds and provided a summary of the 2019/2020 monitoring results. He outlined the change in operation of the salmon farms since the consents were granted from farming multiple ages of fish on one site to only farming a single age of fish. He noted that this had resulted in feed levels changing from being relatively constant over a period of a year to feed levels

ramping up over an 18-month period. He provided Figure 2 showing that in an 18 month grow out cycle 65% of the feed is consumed in the first year and 45% in the last six months. He stated the proposed changes addressed the farms' short term needs but that a thorough review of the consent conditions is underway with more substantial change to be made by a future review of conditions. He noted that NZKS is required to conduct three yearly surveys of the king shag/kawau and have contributed funding to annual surveys in collaboration with others. Appended to his statement were photographs and figures of feed levels.

31. At my request, Mr Preece provided me with copies of 'Pilot study on the use of mussel farms in Pelorus Sound/Te Hoiere by King Shag' (Contract Report No. 5074) by Wildland Consultants; 'King Shag research project: Year One update report' (dated November 2019) by Wildlife Management International Limited; 'King Shag research project: Year Two update report' (dated December 2020) by Wildlife Management International Limited; and 'Marine Environmental Monitoring – Adaptive Management Plan for salmon farms Ngamahau, Kopāua and Waitata (2020-2021)' Cawthron Report No. 3538.

32. **Dr Lincoln MacKenzie**, a Senior Research Scientist with the Cawthron Institute, provided a written statement of evidence and presented a written summary of evidence via Zoom addressing potential effects of salmon farm emissions on the generation of harmful algal blooms. He considered there was no evidence of the unusual occurrence of algal blooms associated with the salmon farms in nearby bays and inlets, although there had been some notable bloom activity in distant parts of Pelorus Sound/Te Hoiere in recent years. He noted that there have been a number of dinoflagellate 'red tide' blooms in several inlets in Pelorus Sound/Te Hoiere during 2018-2019 caused by previously unrecorded species which had caused problems for the mussel industry. However, there is evidence to suggest that these invasive species were introduced from offshore waters associated with the 2017-18 Tasman Sea 'heat wave'. He noted that the effects of salmon farm emissions on nutrient concentrations and phytoplankton blooms in the Pelorus Sound/Te Hoiere were simulated using a biophysical model[4] under a variety of seasonal and feed loading scenarios. He stated that under the highest loading scenarios (well in excess of current consented loads) the model predicted slight increases in concentrations of nutrients (nitrate) and phytoplankton biomass (chlorophyll) in inner Tennyson Inlet. He stated that increases of this scale in reality would not be detectable against the background variability; and that recent multi-decadal phytoplankton data from Pelorus Sound/Te Hoiere showed concentrations of chlorophyll at various locations have remained stable or have shown a small decline since the 1980s (as had much of New Zealand's coastline). He concluded there was no empirical evidence that nutrient emissions from salmon farms play a pivotal role in driving ecosystem changes; but acknowledged that there was inadequate understanding of how nutrient discharges from sea cages affect the structure and function of the wider pelagic ecosystem.

33. **Dr Emma Newcombe**, a Coastal Ecologist with the Cawthron Institute, provided a written statement of evidence and presented a written summary of evidence at the hearing addressing potential seabed effects from the proposed changes. She also showed video footage of typical seabed imagery monitoring. Her evidence focused on the effects of organic enrichment and the measurement of observed effects and background variability. She noted that changes in populations of organisms can be difficult to detect before they become unacceptably large given natural variability, which is why descriptors of physical and chemical changes in the sediment are useful early indicators of change. She stated that a combination of physical, chemical and biological variables provides a weight of evidence approach to the detection of effects

[4] Broekhuizen, N., Hadfield, M., Plew, D. 2015. A biophysical model for the Marlborough Sounds Part 2; Pelorus Sound. A report for the Marlborough District Council. NIWA report No. CHC2-14-130.

from the salmon farms on the seabed. She outlined the use of the Enrichment Stage (**ES**) approach as a means to incorporate a range of biological and chemical indicators of seabed enrichment into a single metric and the relative weighting of the three components. She stated that seabed conditions at the Waitata farm had not exceeded EQS when assessed as an overall ES. She demonstrated (with her Figure 1) why it is not ideal to measure seabed effects with a single variable. She concluded that if the component variables of the ES metric are used for assessing compliance there is a high probability that random variation will lead to the exceedances of consented environmental limits. She considered the proposed change would not change the intention of the conditions and would not permit greater change than was originally intended. She concluded that the increase in feed levels sought was unlikely to exceed the EQS beneath the cages or at the 150 metre stations; but that it is difficult to predict with certainty whether EQS could be exceeded at the 600 metre stations (Zone 3/4 boundary).

Submitters

34. **The McGuinness Institute** was represented at the hearing by Ms Lucy Witkowski. Ms Witkowski stated that the submitter remained in opposition to the changes to conditions sought and approach taken to achieve compliance with the conditions. She noted the Institute's support of the other submitters in opposition to the applications.

35. **Friends of Nelson Haven and Tasman Bay Incorporated** was represented at the hearing by Mr Rob Schuckard. Mr Schuckard provided a written statement outlining the background to the consents and the key concerns in relation to uncertainty in the modelling, the adaptive management approach, and the requirements of the conditions to achieve sustainability of the activity. He noted that based on the annual monitoring reports for the five production years, two years (2016-2017 and 2017-2018) had been within the consented Recommended Initial Feed Levels (**RIFL**) (±15%), two years had been below the RIFL (2018-2019 and 2019-2020) and one year had been above the RIFL. He highlighted this in his Figure 1 and stated this did not meet the requirement of Condition 37 to be within RIFL for three years before any feed increase is allowed. He noted that this 'erratic application of feed levels' had complicated the interpretation of the annual monitoring data and prevented any environmental equilibrium being reached. He acknowledged there was general compliance with the ES at the OLE boundary over the 2016-2021 period but noted that ES 3.0 is a state that is unlikely to be found naturally and is a point where enrichment becomes discernible. He highlighted changes at the Outer Limits of Effects (**OLE**) boundary (Zone 3/4 boundary) that were not comparable to reference sites and noted concerns regarding the locations of some of the reference sites. He concluded that no increases in feed levels should be allowed until the objectives of the adaptive management regime had been fulfilled; and that changes to Condition 40, to narrow the scope for change, were 'premature' and do not reflect the uncertainty in analysing benthic health. He requested that condition changes sought be declined.

36. Following the hearing adjournment, Mr Schuckard provided an addendum clarifying the figures in his evidence (Appendix 1), data used from annual environmental monitoring for Waitata (Appendix 2), and data used from baseline monitoring 2015 (Appendix 3).

37. As requested, Mr Schuckard also provided copies of the five technical reports[5] he referenced in evidence.

[5] 'The New Zealand King Salmon Company Limited: Assessment of Environmental Effects – Benthic' Cawthron Report No. 1983 dated August 2011;
'Assessment of Effects of Farming Salmon at Waitata Bay, Pelorus Sound: Deposition and Benthic Effects' Cawthron Report No. 1986 dated August 2011;
'State of the Environment Report 2015. Our Land, Our Water and Our Place' Marlborough District Council';

38. **Guardians of the Sounds** was represented at the hearing by Ms Clare Pinder. Ms Pinder presented a written statement outlining background to the organisation and its role as an environmental 'watchdog'. She noted the BOI had purposely used the words 'and conditions' rather than a composite index to ensure conditions were comparable to the reference sites (background conditions). She considered a better solution would be to clarify 'conditions' by inserting 'organic loading, sediment chemistry and macrofauna values' in brackets, which would retain the intention of the BOI decision. She expressed real reservations with rewarding NZKS for their bad behaviour and breaching the maximum consented feed levels. She requested that if the changes sought were granted that the changes recommended by Dr Giles to improve the monitoring regime and reflect the single year class farming be included. She highlighted Dr Giles' evidence that there is a lack of assessment of the enrichment effects on epifauna at both sites and a lack of baseline data on significant marine site 5.8. She stated that the applications should be declined on the basis of measured effects outside the OLE and failure to meet the adaptive management conditions. She noted that there was still significant uncertainty regarding environmental effects and that a precautionary approach was warranted.

39. **Kenepuru and Central Sounds Residents Association** (**KCSRA**) was represented at the hearing by Mr Andrew Caddie and Ms Hanneke Kroon. Ms Kroon presented two written statements addressing each of the conditions changes and a PowerPoint presentation; and provided copies of a graph showing temperature records for 2013 – 2020 for the Pelorus entrance and Tory Channel/Kura Te Au and three other documents.[6] She highlighted concern regarding significant adverse impacts on public space and considered this vastly outweighed the benefits to NZKS. She noted the variations were aimed at addressing non-compliance with conditions which were carefully drafted through the BOI process to address uncertainties and ensure a precautionary approach was taken. She considered the Waitata site had not performed to expectations because it is not a 'cool' water site and that temperature spikes above 17 degrees Celsius had led to significant mortality spikes. She noted that even when feed discharges were low from high fish mortality, monitoring records show non-compliance with Condition 40. She suggested that NZKS had been carefully dismantling the BOI conditions through a series of non-notified applications, which she considered was a cynical approach to adaptive management (change the consent conditions and not the farm) rather than complying with the limits. She noted concern that issues relating to the size of the depositional footprint had not been addressed. She emphasised the need for a precautionary approach (NZCPS Policy 3) and not a less restrictive approach to address non-compliance, particularly in relation to effects on king shag.

40. Mr Caddie stated that adaptive management should not be about adapting the conditions of consent to suit the operation. He considered the BOI did not get it wrong with the words 'and conditions' given the process and scientific expertise available. He noted concern that some of the reference sites were too close to other marine farm sites. He considered the level of uncertainty, as evidenced by Dr Giles review, warranted a precautionary approach and a need to retain the status quo.

41. A written statement on behalf of the **Director General of Conservation** (dated 24 June 2021) was tabled at the hearing in relation to the proposed changes to

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Morrisey, D., Anderson, T., Broekhuizen, N., Stenton-Dozey, J., Brown, S., Plew, D. 2015. Baseline monitoring report for new salmon farms, Marlborough Sounds. NIWA Client Report No: NEL1014-020. Prepared for New Zealand King Salmon; and 'A review of total free sulfide concentrations in relation to salmon farm monitoring in the Marlborough Sounds' Cawthron Report No. 2742.

[6] 'Intelligence Report NZ-RLO & *T. maritimum* 2015 response' Ministry for Primary Industries. May 2017; 'Salmon Farming: It's all about Location, Location Location' by the Marine Sub-Committee of KCSRA (dated 16 May 2016); and 'Investigation of atypical mortality patterns associated with skin lesions in farmed New Zealand king salmon (*Onchorhynchus tshawytscha*) by Gates, C. *et. al.* (undated).

Condition 36. It stated the main concern was the degree of uncertainty about the potential effects resulting from the proposed feed level increases given this would be a significant increase when compared to the discharge levels over the previous two years. It noted that there had been no assessment of the risk and insufficient details regarding the ability to detect and respond to significant adverse effects early. It noted agreement with the assessment of Dr Giles and the uncertainties outlined. It highlighted that feed loadings had not been consistent over the last three years and it is therefore unclear whether measured effects had reached an 'equilibrium' state. It also highlighted Dr Newcombe's evidence that annual monitoring had tended to take place within a number of months of a short fallow period, which may have allowed for a period of recovery of the seabed; and commented that the predictive ability of the model is somewhat confounded by the change in feed regime at the same time as the proposed feed increase. It noted that a revised monitoring plan (MEM-AMP) had not been provided with the application, which results in considerable uncertainty as to how it will address the feed increase and the transition to a single year-class salmon farm. It stated that if any feed increase was allowed it must be conditional on the preparation and certification of a revised MEM-AMP, with additional monitoring to give confidence about the magnitude of adverse effects at the OLE and monitoring undertaken when ES levels are at their predicted maximum following maximum feed discharges.

Section 42A Reports

42. **Dr Hilke Giles** spoke to her technical review and reports and provided a written statement addressing the key points and evidence presented. She acknowledged that the multiple versions of her evidence had created complexity but had been necessary given the additional information, amendments to the applications and the postponement of the initial hearing date. She remained of the view that the requirements of Condition 37 had not been met, including breaches of sub-clauses 37(a) and (b). On the basis of the 2020/2021 annual monitoring results, she concluded the receiving environment was likely to have the capacity to assimilate the proposed feed increase to 4,000 tonnes per year and would not breach the EQS at the current monitoring sites. She acknowledged that there would likely be a small increase in the spatial extent of benthic effects, but that this was ecologically acceptable. However, she noted this one year of data at higher feed discharges did not address potential cumulative effects. She highlighted a number of uncertainties regarding the effectiveness of the current benthic monitoring regime for detecting effects under the single year class farming regime and recommended further changes to the monitoring regime.

43. **Mr Peter Johnson** spoke to his s42A Report and addressed the matters raised during the hearing. He stated the identification of values should not be undertaken in a vacuum and should be viewed in the context of the statutory plans. He considered that 'narrowly speaking' the changes sought would not have significant adverse effects. He said that in terms of effects one king shag, he had taken the lead of the BOI. He considered there was good information available to assess the application and that the concerns were 'more around the margins'. He remained uncomfortable with applying the changes retrospectively and considered past compliance history should not be rewritten. He recommended that changes to conditions be granted from the date of the decision.

44. As requested by me at the hearing, Mr Johnson provided a Memorandum (dated 14 July 2021) outlining changes to conditions to implement the changes recommended by Dr Giles. As a minimum, he recommended:

    (i) Clarification for determining the timing of benthic monitoring to ensure it follows maximum feed discharges for the year;

    (ii) The addition of a 150 metre south monitoring site;

(iii) A review of the suitability and consistency of the reference sites for future monitoring;

(iv) A review of the response to potential breaches of EQS to ensure they are clear and effective under the single year class farming model to avoid the need for enforcement action by the Council; and

(v) A requirement to monitor recovery from a potential breach of EQS before restocking can occur.

45. Mr Johnson and Dr Giles helpfully provided a tracked change version to the Applicant's consolidated version of conditions to address the further recommended changes. Mr Johnson noted concern that changes suggested to defining 'a year' may have other unforeseen consequences for other consent conditions.

46. As requested, Mr Johnson confirmed his recommendation to grant the changes to conditions sought but reiterated that he remained uncomfortable with retrospectively applying the changes and any re-writing the compliance history on this basis. He noted:

> *'I anticipate that these amended conditions would be an interim measure, better than the status quo yet probably not suitable for use over the long term and/or across all existing salmon (or other finfish) farms in the Marlborough Sounds. While it remains to be seen, there appears to be a strong prospect that the applicant will seek a wider review of its consent conditions in the near future in its pursuit of best management practice'*

47. As requested, Mr Johnson provided a further Memorandum (dated 4 August 2021) commenting on the responses from submitters to the further recommended changes to conditions.

48. Ms Barbara Mead, Advocacy and Practice Integration Manager with MDC, provided a Memorandum (dated 12 October 2020), providing legal opinion as to whether a change of conditions can be granted retrospectively (i.e. the effect of the changes applying prior to the date of grant of the application).

49. Ms Mead provided a supplementary Memorandum (dated 29 June 2021) responding to the Applicant's legal submissions relating to applying the proposed conditions changes retrospectively.

Applicant's Right of Reply

50. Mr Davies provided a written right of reply on behalf of the Applicant addressing ES versus EQS, further recommended changes by the Reporting Officer, the deposition footprint, the potential 'yo-yo' scenario, effects on king shag, adaptive management, the BMP guidelines, the scope of the applications, implications for the company, the relevance of mortality and operational factors, the example MEM-AMP for the BOI, and the ability to apply the changes retrospectively. He concluded that granting the applications would resolve existing uncertainty relating to interpretation of the conditions, implement some of the BMP guidelines and enable NZKS to increase feed levels while maintaining a healthy environment.

ASSESSMENT

51. In assessing the applications, I have considered the application documentation and AEE, the s42A Reports and appended information, the submissions, pre-circulated evidence, and all the evidence provided during and after the hearing adjournment. This has required a substantial amount of time reviewing all background information and the technical documents referenced. I have summarised this evidence above. I record I have considered all the issues raised in making my determination.

Activity Status

52. Pursuant to section 127 the applications must be considered as a discretionary activity.

Sections 104 and 104B

53. Under section 127, in considering the effects of the changes to conditions proposed, I am required to have regard to the matters listed in section 104 of the Act.

54. In terms of section 104(1), and subject to Part 2 of the Act, which contains the Act's purpose and principles, I must have regard to-

    (a) Any actual and potential effects on the environment of allowing the activity;

    (ab) Any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity;

    (b) Any relevant provisions of a national environmental standard, other regulations, a national policy statement, a New Zealand coastal policy statement, a regional policy statement or a proposed regional policy statement, a plan or proposed plan; and

    (c) Any other matters the consent authority considers relevant and reasonably necessary to determine the application.

55. Section 104B states that after consideration of an application for a discretionary activity, I may grant or refuse the applications. If I grant the applications, I may change any conditions or impose new conditions under section 108, so long as they relate to the effects of the proposed changes to conditions.

56. I consider the principal issues of contention and each of these statutory considerations below in relation to each application.

Principal Issues of Contention

57. There were a number of issues raised by submitters that are not relevant to my assessment of the effects of the applications, including the suitability of the sites for salmon farming, mortality rates, and operational and management issues. I have not had regard to these matters.

58. The subject of whether the changes sought can be applied retrospectively was the subject of disagreement between Mr Davies and Ms Mead. Mr Davies submitted that the ability to grant retrospective consents is well established and logically applies to variations too. He stated that the definition of 'effect' includes past effects which could be from the start of the effect and not merely from the date of the application.

59. Ms Mead agreed that retrospective consents can be granted to enable an activity to be lawfully carried out from a certain date. However, she considered that the Council's ability to grant a retrospective variation was limited to an activity that had occurred, which had readily identifiable effects; and that the variation could only apply from the date it was granted. She further cautioned that the effects of the variation must be within scope of the original consent and do not result in 'environmental creep'.

60. In reply to Ms Mead's memorandum, Mr Davies submitted that the proposed changes are within the scope of the original application; issues of environmental creep are not relevant; and the application is not a renewal of a consent which is about to expire. He disagreed with Ms Mead's assertion that the adverse effects identified at the time of granting must be compared with the adverse effects of the variation, as the existing environment includes the effects of the currently consented activities. He considered Change 1 and 2 should be granted retrospectively because they reflect the intent of the originally granted consent. He considered Change 3 should be granted retrospectively

to avoid ‘legacy issues’ and noted that this would have been authorised after the 2018/2019 annual monitoring if Changes 1 and 2 are made retrospectively.

61. I agree with Ms Mead that the key question is whether environmental effects of the changes sought are within the scope of the assessment of effects of the consent granted and do not authorise greater (both in magnitude and extent) environmental effects than consented. I do not agree with Mr Davies that Change 2, enabling overall ES enrichment to be the sole EQS for the benthic environment outside of the OLE, was the intent of the granted consent. I consider it would be inappropriate to apply Change 3 retrospectively given I have insufficient evidence to demonstrate that the effect of increased feed discharges (discharged in breach of the conditions of consent) is within the scope of the effects anticipated by the consent granted.

62. I consider compliance history is based on the conditions that applied at the time it was assessed and it cannot be rewritten with the overlay of conditions changed at a later date. The ‘legacy issue’ the Applicant wishes to avoid is the fact it has breached the maximum allowed feed discharge under the conditions of consent. In my view, this cannot be expunged by retrospective changes to conditions.

Section 104(1)(a) Environmental Effects

63. The resource consents to operate the two salmon farms form part of the existing environmental context from which the effects of the proposed changes must be assessed. This includes the consented limits and standards which define the authorised scale of effects, in both magnitude and extent.

64. I agree with Mr Davies that this includes allowance for a certain level of benthic deposition and consequential effects on king shag feeding habitat within the consented area and the predicted (consented) deposition footprint. It does not include effects outside the OLE, where environmental effects from salmon farming were predicted to be indiscernible from natural conditions and variation. Arguments as to whether a measurable effect outside the OLE are ‘acceptable’ or ‘material’, or negative or positive was a matter for the BOI when assessing the consents granted. The fact remains that consents were granted on the basis that benthic effects outside of the OLE would be similar to natural background conditions and that this could be managed through changes to feed inputs. I have assessed the effects of the changes on this basis and consider the limits and standards of the consents define what is ‘acceptable’.

65. On the basis of the evidence of Dr MacKenzie, I accept that the changes sought are unlikely to increase the risk of harmful algae blooms occurring from the effects of salmon farming.

66. I accept that the evidence of Dr Newcombe and Dr Giles that increased water quality effects are unlikely. I note Dr Giles recommendation to required water quality monitoring in Tennyson Inlet.

67. I have focused my assessment on the environmental effects on the benthic environment. I accept that benthic effects are important to the protection of the feeding habitat of king shag and the requirement to avoid adverse effects, not just significant adverse effects.

Change 1

68. Mr Davies submitted that the reference to Figure 4 and Table 5 in Condition 40 of both consents is inherently ambiguous and does not provide an appropriate level of certainty to determine compliance. He considered the BMP guidelines contained a clear

definition for ES, including polynomials by which the ES equivalents for each variable should be calculated (BMP guidelines Table 8).

69. Dr Giles considered the change to the definition of ES (Change 1) did not have any direct consequences for environmental effects at either farm site.

Findings

70. I have considered this proposed change in conjunction with Change 2. While I accept the change will not have any direct environmental effects, the zone concept and ES approach and how the overall ES is calculated is fundamental to managing adverse benthic effects. I consider it is important that the conditions of consent define how this is to be calculated, without reference to other documents which may be superseded or changed. I consider BMP guidelines should give technical guidance to the implementation of the conditions of consent, not the other way around.

71. If reference to Figure 4 and Table 5 of the current conditions does not clearly define how the ES is calculated, this should be addressed through the changes to the conditions themselves, as suggested by Ms Pinder. However, this is not what is proposed. I find Change 1 should not be granted in isolation to a wider review of conditions to ensure they are fit for purpose.

Change 2

72. Mr Davies submitted that it is unclear whether use of 'conditions' in Table 3 of Condition 40 refers to ES as an overall aggregate of the ES variables or to the individual variables weighted to make up ES. He stated that NZKS consider 'conditions' should be interpreted as the aggregate variable ES, whereas the Council had recently taken the alternate view that it means the individual variables to calculate ES. He noted the Council's interpretation had led to past non-compliance assessments at Waitata.

73. Mr Davies submitted that assessment of the change must be on the effects of the difference between the approaches. While he conceded NZKS approach may permit greater variability in individual variables, he noted that an increase in one variable may be a poor indicator or no indicator of an environmentally material change. He submitted that what is relevant is whether the increase is 'ecologically significant' and that the original intention of the BOI was that the aggregate to ES approach be taken. He noted that if natural variability in the benthos results in a breach of consent conditions, regardless of the salmon farms, the condition is unlawful.

74. Mr Davies submitted sulphur is an imprecise environmental indicator and redox is a poor indicator based on the evidence of Dr Newcombe. He stated that BMP Benthic triggers for Type 1, 2 or 3 monitoring should not be confused with an environmental effect, as the action for exceeding Type 1 triggers is to undertake Type 2 monitoring. He noted the Applicant undertakes routine Type 2 monitoring and the present conditions do not allow for Type 1 monitoring.

75. Mr Preece provided an example for the 2019/2020 monitoring year where the Council considered the Waitata farm was non-compliant because the total abundance at the Zone 4 boundary (monitoring station 600 metre south) was higher than at the relevant reference sites. He considered this was inconsistent with the intended operation of ES and doesn't acknowledge the fact that individual variables can be poor indicators of environmental conditions. He considered the BOI intended a weight of evidence approach to be taken towards compliance.

76. Dr Newcombe referred to the evidence of Dr Keeley to the BOI and his confirmation of the intention to use an overall ES to assess compliance. She considered that using an overall ES to test compliance would not permit any greater effects than were originally intended to be permitted. She noted that when using the overall ES, a number of measurable changes could occur at or beyond the OLE (Zone 3/4 boundary) without causing non-compliance. She gave the example where sediment chemistry could be affected by fish farming activity, but that non-compliance would not result until multiple lines of evidence (or component variables that comprises ES) show an effect on the seabed. She stated that in adopting the overall ES 'as per the consent conditions' greater effects of farming could occur at the OLE monitoring sites than would be allowed if component variables are used to assess compliance. However, she noted that the permissible changes would not necessarily be negative in terms of ecological functioning.

77. Dr Newcombe outlined that the relative weighting (ratios) of the three groups of ES variables (organic loading = 0.1, sediment chemistry = 0.2 and macrofaunal composition = 0.7) derives partly from their reliability to predict ES and partly from their ecological significance. She considered the main concern of maintaining the ecological integrity of the benthic environment was represented by the macrofaunal variables; and that organic and sediment chemistry are mainly predictors of this integrity. She noted that the percentage of organic matter around farm sites is highly variable and is distributed more widely at higher flow sites.

78. Dr Newcombe concluded that if component variables of the ES metric are used to assess compliance there is a high probability that random variation will lead to exceedance of the consented environmental limits.

79. The background to the consent condition ES limits and EQS is outlined in Dr Keeley' evidence to the BOI[7]. In his statement of evidence, he described the enrichment gradient of ES 1-7 as ranging from 'natural to azoic'. He noted that numerous variables are used to indicate enrichment and that some variables are more reliable than others, with accuracy in an assessment of effects improving with the benefit of multiple variables/indicators. He noted that the established worldwide understanding of enrichment patterns and an ES classification system for salmon farms in Tasmania had been adapted specifically to suit the Marlborough Sounds environment. He explained-

> *'The ES gradient is important because it provides a framework for categorising effects, and a common scale against which a range of common environmental indicators/variables can be quantified. The resulting empirical relationships between the environmental variables and ES can be used to reliably evaluate seabed conditions by placing then on a continuous scale from 1 (good) to 7 (bad) (i.e. using a bounded continuous variable).*
>
> *Importantly, the general ES criteria can be incorporated into Environmental Quality Standards (EQS) as each stage implies measurable criteria for a range of variables.' (*Paragraph 36 and 37, page 14)

80. Dr Keeley's evidence to the BOI stated that the level of seabed impact is directly related to the farming intensity (i.e. the amount of feed or the number of fish farmed); and that seabed effects can be controlled by feed usage. He stated that the size and intensity of the depositional footprint is also strongly influenced by site depth and current speeds, which together constituent the 'dispersive qualities' of a site. He noted that deep, high flow sites are likely to have larger but more diffuse depositional footprints than low flow sites when farmed at comparable intensity due to resuspension.

[7] Statement of Evidence Nigel Brian Keeley dated June 2012 and Supplementary Document of Tables dated June 2012.

81. Dr Keeley's evidence stated that a recommended initial feed level (**RIFL**), the predicted sustainable feed level (**PSFL**) and the maximum conceivable feed level (**MCFL**) had been estimated for each site. He noted the PSFL represented the '*best estimate (based on modelling and experience) of the amount of feed the site can tolerate without seabed effects becoming unacceptable (according to predefined environmental criteria)*'. He noted it was anticipated that this would be re-evaluated after a few years at which point a maximum sustainable feed level would be able to be determined for each site. He stated–

> *'The RIFL is approximately 75% of PSFL and provides a conservative estimate of an approximate initial feed level from which stepwise increases at set maximum tonnages and frequencies may occur (dependent upon the results of annual environmental monitoring surveys).*
>
> *The MCFL represents the suggested upper limit for a site that could conceivably be achieved without excessively impacting the seabed and is mainly to assess the worst-case scenarios. However, this level may never actually be reached in practice at many of the farms.'* (Paragraph 50 and 51, page 18).

82. Dr Keeley's evidence noted the four steps used to determine the RIFL, the PSFL and the MCFL –

(i) Using DEPOMOD v2.2 model to predict the depositional footprints at each site for a range of scenarios (cage configurations and feed levels) based on measured site-specific physical properties;

(ii) Relating (predicted) depositional flux (measured in kilograms solids per square metre per year [**kg/m^2/yr**]) to observed ecological effects by modelling multiple historical scenarios for existing farms and comparing the predicted fluxes to the corresponding environmental monitoring results, which had resulted in empirical relationships between predicted depositional flux and (likely) ES;

(iii) Defining 'acceptable' levels of effects based on predefined criteria regarding the maximum size and magnitude of the predicted footprints; and

(iv) Predicting the sustainable, site-specific feed capabilities based on how much area was likely to be affected by a standardized range of depositional flux levels and therefore levels of effects; and using the results to identify the highest feed levels at which the seabed effects directly beneath the cages is likely to be no greater than ES 5.0.

83. Dr Keeley stated that at ES 5.0 the infauna population starts to collapse and organic material is likely to accumulate; but that the recommended maximum ES 5.0 beneath the cages takes into account other factors such as the optimum utilisation of the space and farming economics. He acknowledged that at high flow sites the spatial extent thresholds may be reached before the beneath cage ES 5.0 threshold and that in this case ES 5.0 would never be reached. He stated –

> '…*highly dispersive sites have the potential to affect relatively large areas before the maximum ES thresholds are triggered. So, although spatial limitations and the associated acceptable zone of effect (AZE) boundaries need to be tailored to suit the sites it was also considered appropriate to set a realistic footprint size constraint to use as a second factor in the capacity determining process.'* (Paragraph 55, page 20)

84. Table 10 of Dr Keeley's evidence showed the total predicted deposition area for the Waitata site was 21 ha with RIFL, 24 ha with PSFL and 28 ha with MCFL. He noted that the outer extent of the footprint was defined by the area predicted to be affected by farm sourced deposition >0.5 kg/m^2/yr or correspondingly ES ≥3.0. He stated that '…*this threshold was selected because it is the point at which effects can be clearly attributed to the farms, and because it can be predicted from the depositional modelling*

using the no-resuspension scenarios'. He noted this was considered to be a conservative measure and a precautionary approach given it is slightly lower that other published estimates of minimum levels of deposition required to induce measurable changes in the benthos.

85. Dr Keeley emphasised that model validation (equating predicted outputs to actual effects) and the experience of those that are implementing and interpreting the outputs were the key elements in obtaining meaningful outcomes throughout the staged development. He stated that progression to the next stage or feed level would be conditional on meeting the pre-specified EQS.

86. Dr Keeley stated that the Waitata footprint is predicted to extend up to 800-900 m away but that there remains some uncertainty over whether detectable levels of effects will actually manifest greater than 400-500 m. He noted that the farm-specific footprint dimensions incorporated into the consent conditions (representing the area permitted to be affected) was based on the PSFL rather than the MCFL. He acknowledged that there was potential for '…*low-level cumulative seabed enrichment in far-field locations through the process of resuspension, horizontal transport, and subsequent sedimentation in other locations*.' He stated he had constructed a simple model to depict the potential for far-field benthic effects, but that these potential effects are 'difficult to reliably assess' and are associated with a high degree of uncertainty. For this reason, he noted that a long term, far field monitoring programme was recommended as a precautionary measure.

87. Dr Keeley outlined that the three adaptive management approaches to be employed to ensure environmental effects remain within acceptable limits were:

    (i) staged development - with expansion contingent on compliance with EQS;

    (ii) tiered monitoring – with increased monitoring effort when sites approach or exceed EQS or in response to identified environmental issues; and

    (iii) ongoing adaptive management – with any exceedances of the EQS addressed and management responses implemented to ensure the farm becomes compliant with the EQS within the required timeframe by adapting management approaches.

88. Dr Keeley stated that under the monitoring zones concept seabed conditions are compared against pre-specified EQS that relate to both the magnitude (or 'severity') and spatial extent of effects. He noted that in Zone 4 (anywhere outside of Zones 1-3) the benthic conditions are required to be comparable to natural background conditions. He stated that the Zone 3/4 boundary (equivalent to the maximum acceptable zone of effect) was determined from the site-specific depositional model; and that this should be re-evaluated after three years of operation at the RIFL. He noted that this is provided for in the consent conditions and would involve a repeat baseline survey to evaluate the positioning of monitoring sites to ensure that they are appropriately located for long-term compliance monitoring. He stated that seabed monitoring results would be compared against some of the core EQS and that details pertaining to how the overall ES is calculated are provided in the example MEM-AMP provided.

89. Dr Keeley recommended that at least three years elapse at the specified feed levels (±15% over three years) to ensure the full effects of the activity had been expressed and evaluated before progressing. He noted feed increases would be considered appropriate if at least two years of annual monitoring results are considered to be comparable (i.e. no statistically significant degradation) and compliance with all the specified EQS. He stated that under the three-tiered monitoring approach, increased feed levels and/or managing at the upper limits of environmental thresholds would require higher intensity of monitoring. He noted that Type 3 monitoring constitutes a footprint mapping exercise to assess the spatial extent of effects after three years of

operation and would be repeated as required. He stated that this was akin to the baseline survey and would be used to determine the actual shape of the footprint (i.e. to validate the model predictions) and to ensure the appropriate positioning of monitoring stations for ongoing, long term monitoring.

90. Mr Schuckard noted that Dr Keeley had used model v2.2 which was not able to deal with organic deposition. He said that there are only two options in the model – with resuspension or no resuspension. He noted that only the modelling assuming no resuspension had resulted in the OLE footprint. He stated the modelling showed close to natural deposition beyond 600 metres, but now the Applicant is trying to justify higher deposition levels by saying deposition is good for the environment. He considered certainty of effects of organic deposition from resuspension was far from established and had largely been overlooked when the consent was granted. He considered this was why the modelling had under-predicted the spatial extent of deposition and the actual footprint is significantly larger than consented.

91. Mr Schuckard considered the monitoring data should encapsulate trigger levels of individual environmental parameters that are, at high levels, toxic or highly undesirable and should be avoided on their own merit. He strongly advised that sulphide trigger levels be maintained as a separate metric in line with the BMP guidelines given sulphide levels and low oxygen levels are prime drivers of changes in benthic conditions from oxic to hypoxic. He considered that maintaining biodiversity indexes and multidimensional analyses in combination with separate chemical triggers are an expression of the precautionary principle. He stated that use of a singular ES did not reflect the uncertainty about analysing benthic health in the Waitata Reach at this stage. He considered the use of 'conditions' should be clarified to refer to the BMP trigger levels for sulphide (Table 5). He questioned the status of the 2015 baseline monitoring report[8] and why changes measured were not compared to conditions before the farms were developed. He also highlighted the baseline monitoring report (section 8.2.2, page 118) recommended the establishment of permanent quadrats on shallow reefs at Waitata and Ngamahau farm sites and associated reference locations to identify changes in the abundance and size of colonies of organisms, changes in the compositions of encrusting assemblage and evidence of the accumulation of organic waste. He questioned why this had not been undertaken.

92. In relation to the Ngamahau application, Mr Schuckard noted significant declines in benthic conditions (sulphides, redox and macrofaunal abundance) under the cages as a result of relatively small increases of feed levels. He highlighted the importance of the location of the reference (control) sites and the recommendation in 2016 to add an addition far-field control site, which had not been implemented. He noted that TC-Ctl-1 and TC-Ctl-3 are located closer to operational marine farms than would be expected for appropriate far-field control sites; and noted that these had shown significant increases since the Ngamahau farm was developed. He highlighted the need for a statistical analysis comparing the OLE monitoring stations and the reference sites; and questioned why the Applicant had not done this given it was critical to assess effects and compliance with the current conditions.

93. Ms Kroon noted KCSRA supported the Council interpretation that compliance is required with the individual EQS conditions (components) as well as the overall ES. She noted that the deposition footprint clearly exceeded the consented 24 ha footprint and therefore did not meet the EQS for seabed deposition.

94. Dr Giles considered that changing 'conditions' to an overall ES may result in more adverse effects being permitted at the Zone 3/4 boundary compared to the Council's

[8] Morrisey, D., Anderson, T., Broekhuizen, N., Stenton-Dozey, J., Brown, S., Plew, D. 2015. Baseline monitoring report for new salmon farms, Marlborough Sounds. NIWA Client Report No: NEL1014-020. Prepared for New Zealand King Salmon

current interpretation. However, she considered the potential increase in adverse effects were likely to be '*acceptable for benthic soft-sediment environments, including infauna*'. She stated that the change sought would '*improve the effectiveness and ecological value of response to potential future non-compliances with the EQS because it reduces uncertainty in interpretation.'* However, she noted that she had been unable to assess the broader implications of permitting greater adverse effects at the Zone 3/4 boundary on epifauna, including sponges in nearby reef monitoring.

95. In response to questions regarding her stated 'inability to assess the broader effects', Dr Giles stated that this was because some of these effects were outside her specific expertise; and the current disconnect between the broader consent monitoring conditions on epifauna and reef habitat and benthic soft sediments. She noted her assessment in this regard had been 'narrow' and relied on the findings of the BOI. She acknowledged that there had been no holistic view of the assessment of environmental effects of the farms to support the applications, except for year by year reviews of the annual monitoring reports. She considered there was a need for a wider review of the consent conditions and an assessment of effects based on the five years of available monitoring information and deposition footprint mapping.

96. Dr Giles outline the following factors that are creating uncertainty:

    (a) The change from continuous feed discharge to a single year class farming model;

    (b) Unstable feed input over the initial years of farming;

    (c) Problems with the reference sites, including uncertainty regarding the appropriateness of some sites, uncertainty around the influence of seasonality, and changes to reference sites used in the 2020/2021 annual monitoring; and

    (d) Inconsistent responses in ES component indicators (e.g. sulphides) compared to the work of Dr Keeley which questions the ES approach (e.g., the appropriateness of the chosen ratio of the three component ES scores).

97. Dr Giles stated that the full context of the current situation was not anticipated by the BOI and that the conditions imposed only prescribed a process for addressing uncertainty relating to feed inputs and stability in the receiving environment. She considered the current conditions did not address the other areas of uncertainty. She noted that Mr Preece agreed the consent conditions are not fit for purpose with the current farming model and she agreed. She noted that changing the farming model and changes in the feed discharge had resulted in a range of 'in scope effects' that were challenging to address through the applications to change specific conditions.

98. Dr Giles considered the introduction of the BMP guidelines had created additional uncertainty and had delayed addressing risks to the benthic environment. She noted that annual monitoring reports (and various parties) referred to the BMP and consent conditions but that in her view only the consent conditions are relevant to assessment of the applications. She noted the BMP provides technical guidance but should not lead changes to consent conditions.

Findings

99. I have detailed the evidence of Dr Keeley to understand the background to the assessment of benthic effects for the grant of consent and the zone concept approach for ES and EQS. Much of this detail is also relevant to Change 3 below.

100. I assure the Applicant that I am not confused about the difference between ES and EQS, as suggested in reply. My questions throughout the hearing were focused on what existing consent limits or standards would be removed by changing the word 'conditions' in the EQS column of Table 3 to 'ES'.

101. Dr Keeley's evidence clearly states EQS relate to both the magnitude (or 'severity') and spatial extent of effects. Table 8 of Dr Keeley's evidence shows two bullet points under the EQS for Zone 4 with 'ES <3.0 **and** Conditions must remain statistically comparable with the relevant/appropriate reference Station(s)'. It limits the maximum permitted magnitude of enrichment effect at the Zone 3/4 boundary and requires benthic 'conditions' in Zone 4 to be similar to comparable to benthic conditions not impacted by marine farming activities (i.e. at control sites). While I accept it was clear that Dr Keeley intended use of an integrated multi-metric derived ES value, it is also clear that he acknowledged the potential for far-field cumulative effects and the difficulty in assessing these. He clearly stated that ES can be incorporated into the EQS, not that it should function as the EQS in Zone 4. He clearly considered the limits on the size of the deposition footprint was a 'second factor' in determining maximum sustainable feed levels.

102. I note Table 3 referred to in Condition 40 does not include the 'and' from Dr Keeley's Table 8, but I consider each EQS listed in Table 3 applies conjunctively. The change of 'conditions' to 'ES' removes the second EQS requirement in Zone 4 to have statistically comparable benthic conditions to natural conditions and leaves compliance to be based solely on the derived overall ES. In my view, this does not address the potential for cumulative effects outside of Zone 3 and the requirement for deposition rates to be near background levels.

103. I consider the intention was for benthic organic loadings, sediment chemistry and macrofauna 'conditions' outside of Zone 3 to remain comparable to appropriate control sites. I acknowledge epifauna changes are not included in Condition 40 and agree with Dr Giles that there is a disconnect between this condition and reef monitoring required by other conditions. I also agree that this a significant gap in the EQS, as any epifauna changes over time (in abundance and state) should be monitored, reported and compared over time to the conditions of the consent.

104. I agree with Dr Giles that there is considerable uncertainty regarding the effectiveness of the current monitoring to measure benthic effects given the change to the single year class farming regime. I agree that there should be an analysis of all the existing monitoring data to review the effectiveness of the monitoring approach and in particular the overall ES component and how this is derived in light of actual data collected. I agree that collating the data in the same way as Dr Keeley (in his 2012 paper), which underpins the ES approach would address some of the uncertainty identified. I consider the ES approach, and in particular the assumed ratio of the three components should be reviewed in light of the five years of data and the implications of changing to a single year class farming regime. I am mindful that the empirical relationships relied on in 2012 may have been pushed beyond their limits under the current farming regime given that these were based on monitoring data from 2005-2009 under historical salmon farming operations. This is critical given the significant reliance on the ES approach to limit benthic effects and consequently effects on the feeding habitat of king shag.

105. Of further concern is that it is clear that the annual benthic monitoring undertaken has not been well timed to coincided with peak feed discharges and has not measured the benthic response to maximum feed discharges reflecting Dr Keeley's adaptive management approach. In my view, this is a serious limitation of the monitoring data available and its usefulness in determining maximum sustainable feed levels.

106. I agree with Mr Schuckard that the monitoring data should be compared to the 2015 baseline report and that this is critical to the assessment of the benthic effects.

107. The evidence shows that exceedances in individual ES variables measured at the monitoring stations are not from 'random variation' in the natural environment, as suggested by Dr Newcombe. Rather, the changes in sediment chemistry (particularly sulphides) and increases in macrofaunal abundance measured in Zone 4 are likely to be early indications of measurable changes in the receiving environment up to 800 metres away from the salmon cages at Waitata.

108. For these reasons, I find that the word 'conditions' should not be replaced with 'ES', as proposed.

Change 3

109. Mr Davies submitted '*The environmental effects of salmon farming in the Marlborough Sounds is the most well understood aspect of the benthic environment in the Marlborough Sounds. The intensity of research coupled with the multiple factors which are analysed gives us a clear picture of what is occurring and why.'* (Paragraph 64, pg. 13).

110. Mr Davies submitted that it is NZKS's view that it was entitled to a feed increase after the 2019 monitoring year under the existing consent conditions but that the interpretation of the conditions by the Council did not allow this to happen. He submitted the evidence of Dr Newcombe supported the proposed feed increase, irrespective of the requirements of Condition 37. He suggested that the existing consent contemplated the feed increase sought by Change 3 and that the existing criteria would allow a feed increase.

111. Mr Davies submitted that feed discharge stability is not achievable with an 18-20 month salmon farming cycle used since 2018, as more feed is discharged in one year when compared to the next. He noted that Dr Newcombe's evidence is that the observed data has broadly validated the model used to consent the farm. He considered this gave confidence that the farms are being appropriately managed.

112. Mr Preece stated NZKS would be eligible for an increase in feed but for the inability to operate within 15% of the current maximum, as this will likely never be achieved under the farming model of growing a single age of fish for up to 18 months. For this reason, he considered the consent conditions are not fit for this model of farming.

113. Dr Newcombe stated that seabed conditions at Waitata had not exceeded EQS (when assessed as an overall ES) which shows that feed inputs can be increased from current actual feed inputs (which have been lower than the consented maxima) without breaching the EQS. Her Table 1 showed the predicted flux, and modelled and measured (2017-2018, 2020 and 2021) overall ES for monitoring stations around Waitata. She acknowledged that until 2021 the previous annual monitoring had tended to be undertaken within a number of months of a short fallow period, whereas the model used assumed annual feed input spread over a year. She noted that without data on recovery during fallowing periods and data on re-impact trajectories at high flow sites it is not possible to assess the predictive ability of the model under the new feed regimes. She highlighted that the feed inputs in 2020 and those projected for Waitata differ from the historical feed inputs because they are higher than in the past and are sustained over a longer period of time. She considered this could result in enrichment increasing in the future and affects the predictability of the model.

114. In response to questions, Dr Newcombe agreed that annual monitoring under the MEM-AMP for the first four years had not been well-timed to coincide with peak feed input given it was based on constant feed inputs. However, she noted that efforts had been made in the year five monitoring under the variable feed regime to coordinate it with when the environmental effects would be the greatest. She noted that the timing

of the annual survey was not set by the current consent conditions and is undertaken in accordance with the MEM-AMP in consultation with NZKS.

115. Dr Newcombe stated that an 'informal validation of the model' was conducted in 2020 with the data from the annual monitoring surveys in an attempt to predict whether the feed inputs of up to 4,600 tonnes (4,000 tonnes ±15%) would result in compliant seabed conditions. She noted the results suggested the modelled flux and the ability to predict maximum ES values were reasonably accurate. She acknowledged the predictions were subject to several sources of uncertainty and approximation but indicate that under 4,000 tonnes of feed input the EQS would be met, with little margin for error at the OLE. She noted the latest monitoring data were consistent with this, with higher feed levels resulting in '…*a slightly higher value at a 600 m station than previously recorded*'. She stated that –

> *'At the OLE, where environmental standards can be breached by the relatively low value of ES 3.0, a one-off breach is unlikely to cause environmental effects to an extent that would cause a substantial negative change. Breaches at the pens (where the environmental standard is higher) are probably less likely, and very high enrichment would be unlikely to occur over a large area.*
>
> *My expectation is that changes that caused a breach of environmental standards at the OLE (600 m) stations would be readily reversible.'* [9]

116. Dr Newcombe noted the 2020/2021 annual monitoring data somewhat mitigated concerns about the predictability of the model, as the change in the feed regime combined with higher than historical feed inputs had (at least in the first year of monitoring) not caused a large increase in ES values compared to the historical range.

117. Dr Newcombe stated that the Waitata reef monitoring surveys and imagery from soft sediment qualitative assessments showed no changes in community abundance or community structure that can be attributed to the presence of the farm; and that a summary of the qualitative information on epifauna present at the Zone 3/4 boundary (monitoring sites 600 south and 600 north) show 'little difference' between the two groups, including taxa diversity and abundance.

118. Dr Newcombe confirmed that the 'flux' footprint predicted by the 2011 modelling did not consider resuspension and subsequent redeposition, and the report recognised that the resuspension would distribute farm derived material further afield. She considered this was the likely cause of both the lower enrichment values immediately beneath the farms and the measurable levels of some parameters at the 600 m monitoring stations.

119. Dr Newcombe addressed concerns about the location of the monitoring reference (control) site near the Waitata farm by stating that the key point is that there was no consistent evidence of increasing enrichment at the Waitata control station when looking at the averages and not individual data points.

120. Dr Newcombe considered the monitoring data did not support claims that there are increasing trends in sediment chemistry at or near the Waitata farm. She noted submitters had focused on increases in species abundance at the OLE/600 m monitoring stations, which neglects a range of important aspects of macrofaunal community structure that are captured in the overall ES, such as species diversity and evenness.

121. Dr Newcombe noted that the Waitata annual report for 2018 indicated that total free sulphide concentrations at 800 metres north of the farm were at least two-fold higher than the reference stations. While she acknowledged this was a 'measurable effect'

[9] Evidence Summary of Dr Emma Newcombe (dated 29 June 2021, paragraphs 17 and 18, page 3))

she considered there was insufficient evidence to suggest this is an 'undesirable effect' as it may be neutral or even positive in terms of ecosystem functioning. She considered that concerns raised regarding increasing sulphides having a negative effect would be reflected in the biological community information. She noted that in the early stages of enrichment the abundance of some species increases which is a positive effect in terms of the ability to process farm derived material but acknowledged this is a change from the surrounding area.

122. Dr Newcombe considered the annual reef monitoring undertaken at Ngamahau indicated ecologically significant marine site 5.8 is not being adversely affected by the salmon farm.

123. Dr Newcombe stated that the recommendation in the 2016 annual monitoring report to add an additional control station in Tory Channel/Kura Te Au had not been enacted but appeared to be precautionary. She said she did not see any 'pressing need' at this point. In response to the recommended addition of a 150 metre station to the south of the Waitata farm, she noted that this is not required under the BMP guidelines and could potentially capture some patchiness in effects. While she acknowledged that this may be informative, she considered the main focus should be on the OLE boundary.

124. Dr Newcombe highlighted other human activities that are changing the seabed such as the extraction of target and non-target species, and the deposition of terrestrial sediments. She noted the importance of replication at different scales to allow separation of different kinds of variability and to make more robust assessment of whether averages in abundance inside the footprint are different to those outside.

125. In response to questions, Dr Newcombe did not consider there was any need to undertake a review of the five years of annual survey data for statistical analysis of trends because her Figure 4 showed there are no cumulative effects that would warrant further statistical analysis.

126. Mr Schuckard noted that in the first two years (when feed levels were compliant with Condition 37) monitoring data for macrofauna, total organic matter and redox from the zone of maximum effect (ZME) and the OLE showed an increase in enriched state around the Waitata farm. He considered no benthic equilibrium (steady state) was reached in response to the RIFL after two years of operation. He stated that the under the two years of nearly 3,000 tonnes of feed an area of 38 ha was affected, which is 58% more than the 24 ha consented and 200 metres further than the OLE boundary. He noted that total free sulphide levels under the cages had quickly deteriorated with the higher feed levels in 2020/2021, which indicated levels would be unlikely to be within the recommended BMP guideline condition of 2400 µM (micromoles) under the cages or 390 µM at the OLE (Table 5).

127. Mr Schuckard noted that the adaptive management approach of the conditions was to address uncertainty and that it relied on consistent feed levels over three years and demonstration of stability in the receiving environment. He emphasised that a number of variables showed no stability had been reached (his Figures 2 and 3). He also noted that total organic matter at the OLE was higher than the baseline survey but were similar to the control sites, which may indicate a general deterioration of environmental conditions. He noted increases in macrofaunal abundance recorded at the OLE were not recorded at the reference sites indicating conditions at the OLE were not statistically comparable with the reference sites. He considered higher feed levels would not improve the current non-compliant situation at the OLE and would create an even larger footprint than consented.

128. Mr Schuckard noted that over the 2018/2019 monitoring year sediment chemistry at the control sites had deteriorated significantly from about ES 2.5 to ES 3.5. He considered

this raised further uncertainty regarding the reference sites or indicated a general deterioration in the wider environment of Waitata Reach. He stated that reference sites PS-Ctl-6 and PS-Ctl-7 are located beside existing marine farms and that it is unclear whether the flow regimes at the control sites are comparable to the Waitata farm site.

129. Mr Schuckard concluded the benthic effects of the feed levels used up to 2021 were 'unknown'. He highlighted that this uncertainty related to the prime feeding habitat of the king shag and does not reflect the precaution that is required to mitigate anthropogenic activities on this vulnerable species. He estimated approximately 700 ha (12%) of king shag habitat is currently covered by marine farm deposits (mussel and salmon) and that the impact on the quality of king shag feeding area has only indirectly and marginally been studied. He highlighted the importance of denitrification and nitrification processes in maintaining ecosystem functionality and health, and the uncertainty relating to these rates beyond the consented boundaries.

130. Ms Kroon highlighted Dr Keeley's evidence that MCFL was the maximum 'conceivable' but that it may not be realistic. She noted that none of the requirements of Condition 37 had been met to allow a feed increase; and that even with low feed levels EQS conditions and the consented deposition footprint were exceeded. She noted exceedance of the consented deposition footprint was the main reason NZKS's application (U190357) to increase the number of cages was declined, despite the 2018/2019 annual monitoring report not being available at the time. She considered the Waitata farm should have to reduce its feed rate in order to shrink the benthic footprint and that operational requirements should not override complying with the consent conditions. She stated that it is certain that increase feed levels will result in additional adverse environmental effects and a significantly larger deposition footprint. She considered concerns relating to natural character (particularly of the seabed) and sea birds (particularly king shag) had been dismissed, but that an enlarged deposition footprint would have adverse effects on these values.

131. Dr Giles noted that the 2020 feed discharge was 94 percent of the feed increase sought and that the 2020/2021 annual monitoring results provide useful information on benthic conditions following a year of feed discharges in the order of the maximum sought. On this basis, she considered it likely the proposed increase to 4,000 tonnes per year will not breach the EQS at the current monitoring sites but may increase the spatial extent of benthic effects beyond the existing footprint. In response to questions, she stated that one year of monitoring data did not provide information on any potential cumulative effects and that at least three years would be needed to address this uncertainty. She also considered there was potential for the spatial extent to increase slightly given the maximum feed levels could be up to 4,600 tonnes (± 15%).

132. Dr Giles cautioned that the 2020/2021 annual monitoring report had not yet been reviewed by MDC and it is therefore not yet known whether it meets compliance requirements. However, she considered the findings were not critical given the changes to the reference sites and implications for meaningful interpretation of the results and comparisons of changes over time.

133. Dr Giles noted that there are 'considerable uncertainties' about the effectiveness of the current benthic monitoring regime for detecting effects under a single year class farming regime. She considered this is problematic because a continuation of the current programme may miss peak benthic enrichment and productivity, and result in inaccurate assessments of benthic effects by describing effects as less intense than they are. She recommended that, regardless of the medium to long term changes proposed by the Applicant, immediate changes should be made to the monitoring regime to reflect the change to a single year class farming system, including timing monitoring to coincide with peak productivity and introducing monitoring after fallowing

and before restocking to assess recovery following periods of high enrichment. She confirmed that without these additional changes to conditions there should be no increase in feed levels allowed.

134. Dr Giles strongly recommended adding a second monitoring site in Zone 3 to the south (at the Zone 2/3 boundary) to compliment the 150 metres north monitoring site, which would address uncertainty. She had no specific concerns regarding the effects on water quality but recommended requiring water quality monitoring in Tennyson Inlet, in line with the Applicant's intention to do so in the future.

135. Dr Giles concluded –

> *'Notwithstanding my conclusions on the likely ecological effects of the proposal, I have concerns about our ability to assess and manage future compliance with consent conditions robustly.*
>
> *In my opinion, there is a real risk that the level of information we will obtain from benthic monitoring of the effects of salmon farms operated under the single year class farming model will become less robust over time (potentially starting in 2022). I also see a risk that responses to potential exceedances of EQS may be ineffective or that effectiveness of responses may not be measurable.*
>
> *This is problematic because the predicted benthic impacts at 4,000 t feed input may reach EQS at the Zone 2/3 boundaries.'*[10]

136. Dr Giles highlighted that this was confirmed in evidence by Dr Newcombe where she stated there was little margin for error at the OLE and ES 4.0 is predicted to be reached at the 150 m north monitoring station (Zone 2/3 boundary). On this basis, she concluded that it is 'critical that future monitoring is robust'. In response to questions, she considered the monitoring undertaken to date had been useful but not robust, and had 'allowed for information to be qualified and rescribed'. She noted concern that previous monitoring had not been timed well to coincide with peak feed discharge or to address seasonality effects on benthic productivity and no information had been presented to address this. She considered the timing of monitoring was critical and should be set in the conditions and controlled by the Council, not through the MEM-AMP by NZKS.

Findings

137. The intention of the adaptive management approach in the conditions (based on Dr Keeley's zones of effect concept using ES and EQS limits) was to start at a conservative feed discharge level (RIFL) and monitor the benthic response during peak discharge levels at the zone boundaries for at least three year to allow for the benthic conditions to reach a new equilibrium or steady state. Once this is achieved, the consent conditions provide a pathway for staged feed increases based on the results of robust monitoring of the benthic response to peak discharges and the ability to demonstrate consistent compliance with the EQS and the predicted magnitude and scale of effects. The monitoring data collected is to ensure the measured actual benthic effects are within the scope of the predicted effects (i.e. validation of the modelling) and benthic EQS (consent limits) are complied with.

138. In exercising the consent, under a single year class farm regime, the Applicant has been unable to consistently operate within the RIFL (±15%) for three consecutive years and has had varying annual volumes (due to the 18-month cycle) and rates of discharge. The evidence suggests it will be unlikely to ever meet this requirement based on a calendar year, or even under the Applicant's recently devised 'alternative year period'.

[10] Key points and response to evidence present by Dr Hilke Giles (dated 30 June 2021), paragraphs 8-10, pages 4-5.

139. In addition, the monitoring data collection has not been undertaken at times of peak feed discharges and has occurred in different seasons. There are also instances where data from the monitoring sites has been collected at different times to data from reference sites. This affects the results and the ability to compare annual data over time. I share Dr Giles' concerns that the annual monitoring report confirms that monitoring approaches have changed over the five years, including changes to reference sites, the definition of a 'year' and reference to the BMP instead of conditions. There are many examples where results have been qualified or dismissed as not important and the Council interpretation of consent conditions has been ignored. Dr Newcombe's evidence clearly illustrates this approach to minimising measured effects and dismissing compliance matters.

140. Of even more concern, is that despite poorly timed monitoring and generally low or compliant feed discharge levels (RIFL), the monitoring reports indicate that the deposition footprint (OLE) is significantly larger than predicted and measurable changes in the benthic environment compared to background levels are occurring in Zone 4. The actual deposition footprint is significantly larger than what Dr Keeley predicted for MCFL as the worst-case scenario. This raises the question as to what management response will be required to reduce the benthic effects to within the maximum consented limits.

141. The annual monitoring data collected over five years shows benthic conditions in compliance Zones 1, 2 and 3 for the Waitata farm have not been stable. The information collected over five years does not provide any certainty as to what the maximum sustainable feed levels are for the site, as anticipated by Dr Keeley. However, the results suggest that the RIFL of 3,000 tonnes may not be 'conservative' and confirms that highly dispersive sites such as Waitata will be constrained by far-field limits and not ES limits beneath the cages, as noted by Dr Keeley. I do not agree that the modelling results have been 'broadly validated'. I do not share Mr Davies confidence that the results give assurance that the farm is being appropriately managed.

142. It is clear from Dr Keeley's evidence that there was significant uncertainty regarding the potential extent of effects (given the limitations of the modelling) and that this would be addressed by the three adaptive management approaches outlined in his evidence (see paragraph 83 above). However, all three approaches have not been implemented as anticipated in terms of consistent staged development, robust meaningful monitoring or implementation of management responses to address non-compliance. In my view, the adaptive management approach to address uncertainty and define maximum sustainable feed levels has failed.

143. Dr Giles' evidence outlines a significant number of problems with the consent conditions and a number of critical questions that need to be addressed in relation to monitoring and the adaptive management approach that in my view must be addressed before any increase in feed levels can be considered.

144. I conclude that the benthic effects of the feed levels used up to 2021 remain uncertain and that this uncertainty relates to the prime feeding habitat of the king shag where adverse effects must be avoided.

145. For these reasons, I find that the feed increase sought should not be granted.

Section 104(1)(ab) Offsets or Compensation

146. I am required to consider any measure proposed or agreed to by the Applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will arise from allowing the activity.

147. No offsets or compensation were proposed by the Applicant.

Section 104(1)(b) Relevant Statutory and Plan Provisions

148. An assessment of the application against the relevant planning provisions of the New Zealand Coastal Policy Statement (**NZCPS**), Marlborough Regional Policy Statement (**RPS**), the Marlborough Sounds Resource Management Plan (**MSRMP**), proposed Marlborough Environment Plan (**PMEP**) and Variation 1A to the PMEP was provided in the s42A Reports by Mr Johnson.

149. I agree with Mr Johnson that little weight should be given to the RPS and MSRMP given they pre-date the NZCPS.

150. I have had regard to the relevant objectives and policies of the NZCPS and Policies 3, 11 and 23. I find that given the uncertainty relating to the effectiveness of the current monitoring regime to measure the benthic effects of maximum discharge levels and the potential for significant adverse effects, a precautionary approach is warranted (Policy 3).

151. The adaptive management framework for graduated increases in feed discharges based on achieving consistent feed discharges over at least three years and robust monitoring of the environmental effects to demonstrate stability in the benthic receiving environment was imposed by the BOI to address uncertainty. However, despite five years of operation, significant uncertainty remains regarding sustainable feed levels due to changes in the farm operation and ineffective monitoring. I agree with Dr Giles that the changes sought will increase uncertainty in this regard. This is inconsistent with the NZCPS Policy 3.

152. NZCPS Policy 11 requires the avoidance of adverse effects on the habitat of the king shag. The existing conditions limit the magnitude and extent of benthic effects to ensure this requirement is met. Mr Johnson acknowledged it is uncertain whether the increase in feed levels would result in cumulative adverse effects on king shag feeding habitat. I find that there is insufficient evidence to demonstrate that the changes sought (Change 2 and 3) will sufficiently avoid adverse effects on the feeding habitat of king shag.

153. I agree with Mr Johnson that significant weight should be given to the PMEP. I consider the wording changes sought (Changes 1 and 2) to address interpretation, in the absence of a robust review of the effectiveness of the current monitoring regime for managing adverse effects outside the OLE from operating a single year class farm regime, will not improve the management of adverse effects. This is inconsistent with PMEP Objective 13.22 and Policy 13.22.10.

154. Change 2 would allow for an increase in the magnitude and extent of adverse effects from the existing consent by removing the EQS of requiring benthic conditions to be comparable to natural benthic conditions outside of the OLE. Change 3 would also result in an increase in the magnitude and extent of adverse benthic effects. I find these changes would be inconsistent with PMEP Objective 8.1 and Policies 8.2.10, 8.3.1 and 8.3.5.

155. I agree with Mr Davies and Mr Johnson that little weight should be given to Variation 1 and 1A to the PMEP (notified 26 May 2021) which propose the creation of ten aquaculture management areas for finfish farming (AMA) given the early stages of their development.

Section 104(1)(c) Other Matters

156. The s42A Report (16 October 2020) outlined the previous changes to conditions for the Waitata and Ngamahau farm sites that have been granted by the Council. I have had regard to these changes in making this determination.

157. Mr Davies submitted that any issues of non-compliance are not relevant to the applications. He noted it is NZKS's view that both farms have been compliant with the conditions of the existing consents. I consider issues of non-compliance are relevant matters and I have had regard to compliance with the existing conditions.

Part 2 of the RMA

158. All my considerations of the application are subject to Part 2 of the Act, which contains the purpose and principles of sustainable management. I accept that the provisions of the NZCPS and PMEP give effect to the purpose and principles of the RMA within the context of the coastal environment.

159. Overall, I find that the applications are inconsistent with Part 2 of the Act and the promotion of sustainable management, as defined in section 5, for the reasons outlined above.

Conclusion

160. The change to single year class farming (since the consents were granted) has caused interpretation issues because it has changed the rate of feed discharge over a year. There is no 'ambiguity' in the definition of what constitutes 'a year' as claimed in the 2020-2021 annual monitoring, it is simply that it is now the rate of feed over an 18-20 month period that is important. The modelling undertaken by Dr Keeley used historical monitoring data (2005-2009) from salmon farms operating under relatively constant annual feed levels. The conditions imposed were designed for relatively constant feed discharges year after year and repeated annually monitoring. Monitoring annually at a similar time each year and at peak feed levels is not possible with a single year class 18-20 month cycle. It is highly unlikely the Applicant can meet the requirement to have consistent annual feed levels for three years or three years of stability in the receiving environment.

161. The reference site benthic 'conditions' are critical for assessing compliance at the Zone 3/4 boundary (OLE). The selection and timing of monitoring of reference sites is uncertain. The reference sites must be appropriately located to represent background environmental conditions in sites with comparable flow regime and should not be located in sites where they may be affected by other marine farm sites. It appears that some of the reference sites are located in close proximity to other marine farm sites and it is questionable whether these are appropriate. Furthermore, it is critical that reference sites are sampled at the same time as the other monitoring sites. In my view, such critical matters should be set by the conditions of consent and not left to the MEM-AMP, which may be subject to change.

162. It is extremely concerning that the 2020/2021 annual monitoring report changed the references sites used to assess compliance with the EQS and that data collection from the reference sites was not at the same time as the other monitoring stations. This significantly undermines the effectiveness of the latest monitoring results and the ability to compare the results over time with previous monitoring years. It also prevents any assessment of compliance with the EQS at the Zone 3/4 boundary. This illustrates to me the importance of setting these critical factors in the conditions of consent and not allowing changes to the monitoring through the MEM-AMP process without the certification of the Council. This is a significant gap in the current conditions and warrants the Council's urgent attention.

163. The focus of attention needs to be on reviewing the conditions to ensure effective, robust and consistent monitoring of environmental effects is occurring (for the term of the consent) and not on arguments of interpretation to enable compliance with EQS to enable feed increases. I consider the existing conditions are not fit for purpose given the change to single class farming and the failure of the conditions to require effective monitoring of environmental effects.

164. I agree with Dr Giles that there is a very real risk of ongoing non-compliances with the current conditions and potential for alternating between compliance and non-compliance (the 'yo-yo scenario') under the single class farming model. In my view, the effects of such variability in feed inputs must be assessed and addressed through specifically designed monitoring and not by trying to change conditions drafted for historical operations.

165. I find the significant uncertainties and shortcomings of the conditions and monitoring programme for the current farming operation will not be addressed by changing the conditions as proposed. There is no certainty of a future consent holder initiated wider review of conditions to address these concerns and I consider this to be irrelevant to my decision here.

166. Dr Giles' assessment of the benthic effects was limited to reviewing the information contained in the annual monitoring reports, which does not include information held by the Applicant on exact feed discharges in relation the timing of monitoring. She was therefore unable to carry out any statistical analyses of trends or a robust assessment of the likely effects of the proposed feed increase. I agree that there is a critical need to better understand the relationship between short-term feed discharges and ES responses to determine appropriate monitoring timing in order to assess maximum benthic effects. There is also a need for better understanding of the benthic response to the practice of fallowing and recovery of benthic conditions.

167. I consider that there is a high risk that granting the condition changes sought will further decrease the effectiveness of the current monitoring conditions and allow for greater adverse benthic effects both in magnitude and extent. It is also likely that the changes sought will have other unforeseen consequences for other conditions. While I tried to address this risk during the hearing, it is clear that the focus of the applications and the assessment of effects are too narrow to address the fact that the conditions were simply not drafted for operating single year class farming and are therefore not fit for purpose.

168. I do not share Mr Johnson's confidence that these concerns will be addressed by a future consent wide review initiated by the consent holder and disagree that granting these applications would be an interim measure. I consider the development of the BMP guidelines is useful for providing guidance for monitoring effects, but it is a tool for assessing compliance with the conditions of consent. The consent conditions must set the appropriate limits and standards to be met. I consider the BMP guidelines are a distraction from ensuring the consent conditions are appropriate, effective, complied with and enforced by the Council.

169. I agree with Dr Giles and the submitters that there is an urgent need for the Council to undertake a review of all of the conditions to ensure they are fit for purpose and that the actual effects are within the scope of the activity, as consented. The Applicant has ignored the fact that the depositional footprint is greater than predicted and subsequently consented, and that any increase in feed inputs is dependent on demonstrating stability in the receiving environment and compliance with the limits and standards of the consent. There is a concerning attitude that feed increases were

anticipated when this is clearly dependent on the ability to determine maximum sustainable feed levels and demonstrate compliance with the consent limits.

170. In my view, there is clear evidence of non-compliance with the conditions that should not be addressed by changing the conditions. The deposition footprint significantly exceeds the consented deposition footprint at RIFL and is resulting in measurable changes in the benthic environment beyond the Zone 3/4 boundary (OLE). The intention of the BOI was clearly that outside of Zone 3, deposition levels would be close to background levels and that benthic conditions would be comparable to appropriate control sites. This is clearly not the case and measurable changes have occurred up to 800 m from the cages.

171. The Applicant has exceeded Waitata feed discharge levels allowed under the consent in 2020/2021 without complying with the conditions of consent that would enable an increase. This has further increased the extent and magnitude of effects beyond the consented deposition footprint. In addition, the Applicant has changed the monitoring programme in this period which has undermined the Council's ability to consistently and robustly determine compliance with EQS. In my view, these are serious breaches of the conditions of consent which should not and cannot be remedied by granting the changes sought.

172. It is up to the Council, as the Consent Authority, to determine whether a consent holder is compliant with the conditions of consent. It is not for the consent holder to determine this or to decide it has met the conditions to allow any feed increases.

173. I agree with submitters that adaptive management is about changing the scale of the activity to meet the limits and standards of the consent, not changing the conditions of consent to meet the desired scale of activity.

Determination

174. For the reasons outlined in this decision, the Marlborough District Council **REFUSES** all three section 127 applications by New Zealand King Salmon Company Limited to changes Conditions 36 and 40 of Coastal Permit U140294 ('the Waitata application') and Condition 40 of Coastal Permit U140296 ('the Ngamahau application').

Sharon McGarry
Independent Hearings Commissioner
Date this 7 September 2021

ANNOTATION HISTORY

Date	Reason for Amendment/Alteration

IN THE MATTER: Sections 104 and 127 of the

Resource Management Act 1991

RESOURCE CONSENT: U190357

U140294

Applicant: The New Zealand King Salmon Company Limited

Location: Waitata Reach, Pelorus Sound/Te Hoiere

THIS IS THE DECISION ON THE APPLICATION FOR RESOURCE CONSENT:

To increase the maximum area of net pen surface structures at the existing Waitata salmon farm (site 8632) from 1.5 hectares to 2.25 hectares, by installing four additional net pens, 10 additional anchors and 10 additional surface floats, and changing the associated consent conditions 2 and 14 on existing resource consent U140294.

DECISION: **Declined**

Proposal

This is the report and decision of hearings Commissioner John Mills. I was appointed by the Marlborough District Council (**MDC)** and delegated powers and functions under Section 34A(1) of then Resource Management Act 1991 (**RMA**) to hear and decide the application by New Zealand King Salmon described below.

1. The New Zealand King Salmon Company Limited (**NZKS**) seeks resource consent to expand its existing farming operation at the Waitata salmon farm in Pelorus Sound/Te Hoiere.

2. The key elements of the proposal can be summarised as follows:[1]

    a. four additional net pens each having surface dimensions of approximately 40 metres x 40 metres;

    b. the farming of king salmon (*Onchorynchus tshawystcha*) within the additional net pens, including all associated discharges;

    c. 10 additional anchor warps and screw anchors to secure the additional net pens;

[1] Section 42A Report, paragraph 7.

d. 10 additional surface floats (taking the total to 100) to support the anchoring system;

e. operation of the additional net pens is proposed to accord with all existing conditions of resource consent U140294 for the existing farm; and

f. an expiry date of 12 December 2049, to align with the consent expiry date of the existing farm at the site.

3. As part of the proposal, NZKS seeks to change two consent conditions of the existing resource consent U140294 for the farm. These two conditions are numbered 2 and 14, and concern the approved layout of the farm and the maximum area of net pen surface structures, respectively.

4. NZKS does not presently seek consent to increase the quantity of feed able to be discharged at the existing or proposed extended farm.

Activity status

5. The proposed extension to the salmon farm constitutes a non-complying activity in terms of the relevant definitions and rules of the Marlborough Sounds Resource Management Plan. Both the Marlborough District Council (**MDC**) and the applicant agree that this proposal should be assessed as a non-complying activity because the proposed net pen area of 2.25 hectares exceeds the standard maximum salmon farm cages area of 1.5 hectares (Rule 35.4.2.10.1(d)).

Site Visit

6. I conducted a site visit on 25 November 2019. I was accompanied by the following MDC officers.

- Mr Alex Moore - Maritime Officer and vessel skipper
- Ms Sue Bulfield-Johnson - RMA Hearings Facilitator
- Ms Sharan Mavi - Regulatory advisor

7. The weather was fine and visibility good for the duration of the site visit.

The hearing and appearances

8. The hearing was held in Blenheim on Tuesday and Wednesday, 26 and 27 November 2019.

9. Mr Quentin Davies, who presented the applicant's case with Mr Joshua Marshall, provided detailed submissions. He described the increase in sea level temperatures, both historic and the increases that could be expected in the future. It was his submission that the application represents NZKS's response to climate change. In particular that response involves the change to single year-class farming. Mr Davies explained single year-class farming and the resulting reduction in risk of disease transfer between generations of fish that are on site under a multiyear-class farming system.

10. Mr Davies submitted that in this case (a non-complying activity application) the correct approach is to assess the effects of the difference between the current scenario and the four proposed additional pens.

11. Mr Davies summarised the evidence of the witnesses he was calling - Ms Strachan on landscape and natural character; Dr Newcombe - benthic; Dr McClellan on king shag; and Mr Lovell - NZKS's Production Manager.

12. Mr Davies addressed many of the issues raised by submitters and paid particular attention to the matter of whether NZKS had complied with its conditions of consent.

Dr Emma Newcombe

13. A coastal ecologist from Cawthron Institute, Dr Newcombe provided an assessment of the environmental effects associated with the proposal. She considered both the effects on the soft sediment seabed and on the water column, and any implications for the monitoring program - in particular whether the changes to farm layout would devalue the usefulness of the monitoring program to date.

14. In response to the Section 42A Report she considered the effects of farm-derived waste on rocky reef communities, the monitoring of those communities, and the effects of submerged underwater lighting.

15. Dr Newcombe expects that the extension of salmon pens would cause some increase in the total footprint of the farm. However, she did not expect this to be a large increase relative to the area already affected.

16. In the absence of feed increases, Dr Newcombe did not expect the pen expansions to have a measurable effect on reef communities. Her evidence was that the current reef monitoring program would not be compromised by the changes in pen configuration.

Water column effects

17. Dr Newcombe stated that there have been no breaches of water quality standards. Nutrient concentrations show little relationship to proximity to the farm, likely due to a high degree of mixing by relatively strong currents. She noted some occasional reduction in dissolved oxygen concentration downstream.

18. She expects water column effects within and very near the farm to be diluted if fish are farmed at a lower density. It was Dr Newcombe's evidence that neither the water column monitoring programme nor the objectives of the monitoring would be compromised by the proposed extensions, and no changes to the current monitoring protocols would be required to account for the change in water column effects from the proposed extensions.

19. Effects of submerged lighting are small, highly localised, and there is low risk of ecological effects as a result of the pen extensions.

20. Dr Newcombe's evidence discussed whether or not the farm is compliant with regard to seabed organic enrichment. She was clear that it is not the role of Cawthron to make decisions as to compliance or otherwise, but to provide independent information on which decisions on compliance can be made. These decisions require interpretation of the data - this interpretation differed between the parties to this hearing, particularly whether the ES is taken as the only parameter.[2]

21. Dr Newcombe (and Cawthron) expressed uncertainty regarding farm compliance at 600 metres - not at pen stations or 150 metre stations. She questioned the suitability of the 600 metre monitoring stations for assessing compliance.

Dr Rachel McClellan

22. An avifauna ecologist from Wildland Consultants Limited (**Wildlands**), Dr McClellan was engaged by NZKS to assess the effects of the proposed increase in the number of pens on king shag (*Leucocarbo carunculatus*). Her evidence summarised what is known about king shag ecology and population trends.

23. Dr McClellan described some recent surveys of foraging habitats of king shag.

Sophie Elizabeth Strachan

24. Ms Strachan recognised that Waitata Reach has high amenity values with minimal terrestrial modifications and relatively unmodified terrestrial coastal environment. Overall, she found the existing level of visual amenity to be high.

25. Her evidence was that the adverse effects on natural character values will be negligible, and because the elements which form the natural character of the site will remain the same, she concluded that the proposal will have low adverse effects on the existing natural character and landscape values of the site.

26. She also assessed the effects on visual amenity arising from the proposal as low due to the relatively small scale of the development.

27. Likewise, the proposal will have very low potential cumulative adverse landscape effects and that a very high level of perceived naturalness will be maintained because the proposal will be seen simultaneously with the existing salmon farm and difficult to visually separate from existing components. The proposal is likely to have negligible potential adverse visual effects.

28. Attached to Ms Strachan's evidence was a set of graphic attachments as follows:

- a location map showing the context and location of various viewpoints from where photographs had been taken;
- a coastal permits map which, in particular, shows the site in relation to other marine farms, subdivisions and water permits in the vicinity;

[2] ES Enrichment Score 1-7 where 1 is the lowest is calculated from a range of variables including sediment chemistry variables, sediment macrofauna composition variables, and organic content. ES is calculated as a weighted average of these variables.

- marine farms in the vicinity;
- environmental overlay showing natural character rating and landscape ratings;
- detailed plan of the existing farm and proposed extensions; (which is appended as Appendix 1 to this decision).
- a series of photographs from a range of locations and varied distances from the farm.

Grant Lovell

29. Mr Lovell is the Seawater and Aquaculture Production Manager for NZKS. His evidence explained that the purpose of the extension was to spread its fish stock over a wider area. The resulting reduction in fish density would allow *the usage of the consented feed discharge in a sensible manner with appropriate fish welfare considerations*.[3]

30. Mr Lovell explained that fish mortalities had been higher than anticipated over recent summers which he attributed to higher than usual seawater temperatures.

31. Mr Lovell's evidence was that while the farm at Waitata Reach was viable and productive at present, with a permanent 2 degree increase in water temperature, farming using present technologies and farming methodologies is likely to become more difficult. He explained that an increase in pen numbers would facilitate a shift to single year-class farming. All pens would be stocked with smolt at the same time and these would be grown through to harvest. The farm would be then fallowed for one month when nets would be removed, repaired (or replaced), and disinfected before the cycle would start again.

32. Mr Lovell concluded the proposal will result in a reduction in fish stocking density on the farm over the crucial summer period. This should improve fish health, biosecurity and farm management.

The submitters

Mr Julian Ironside

33. Mr Julian Ironside, counsel for Friends of Nelson Haven and Tasman Bay Inc ('Friends') presented submissions (initial observations dated 26 November 2019).

34. The thrust of these submissions was that the applicant had not complied with resource consent conditions, specifically the depositional footprint is greater than predicted and exceeds the maximum compliance zone area for zones 1, 2 and 3 of the site.

35. Mr Ironside submitted that before any further extensions of the Waitata salmon farm can be authorised, the existing non-compliance (with condition 39) should be addressed.

[3] Lovell, Evidence in Chief, paragraph 21.

Mr Schuckard

36. Mr Schuckard is an ornithologist and gave evidence on behalf of Friends. His evidence lists the feed levels discharged at the farm for the 2016-17, 2017-18 and 2018-19 years and noted a significant reduction (28%) in feed discharged for the 2018-19 year, which he attributes to significant fish mortality.

37. Mr Schuckard's submission also detailed the depositional footprint non-compliance. He noted a 58% increase of area of impact from the default values of the modelling. He finds this surprising. He noted that similar differences between modelled and observed depositional footprints were seen at Clay Point in Tory Channel which has similar water current to Waitata Reach. Mr Schuckard concluded:

> *This comparison between the two farms shows the uncertainty of the modelling at dispersive farms and the association between current flow, sediment resuspension, and ecological impact is more complex than presently encapsulated within DEPOMOD.*[4] *This uncertainty supports a multi-metric approach for the analysis of compliance instead of a single ES calculation.*[5]

38. Mr Schuckard suggests a recalibration of DEPOMOD modelling for fast flow sites is likely required. He also suggested that the initial feed levels of this consent under adaptive management may have been set too high.

> *Condition 37 requires that before increase to Predicted Sustainable Feed Levels ('PSFL') can be considered, the marine farm should have operated at or near (plus or minus 15%) of its current maximum feed discharge level for at least three years. A need for such a period of at least three years is highlighted by the discrepancies in the model and observed depositional footprint.*[6]

39. Mr Schuckard questioned whether it is good practice to locate salmon farms in high flow exposed sites: *Consequently, impacts will be more significant in areas with inherently high diversity and the assumption that developing farms in more exposed locations thereby reducing the environmental impact of organic enrichment by spreading the effects, may in fact be unfounded.*[7]

King shag

40. Mr Schuckard's evidence also addressed the issue of king shag. He disagreed with the applicant's evidence suggesting that, based on the depth of the farm in Waitata Reach, the farm and footprint is unlikely to be of importance for foraging king shag. Mr Schuckard states that this is incorrect and *Waitata Reach is the most important feeding area for the biggest colony of the species.*[8]

[4] DEPOMOD - the model used to predict the depositional footprint expected at a new marine farm
[5] Schuckard, Evidence in Chief, paragraph 23.
[6] Ibid, paragraph 26.
[7] Ibid, paragraph 28.
[8] Ibid, paragraph 34.

41. Mr Schuckard stated that king shag are one of the rarest seabirds in the world.

The criteria for the IUCN for threatened species have identified king shag with 32 other New Zealand birds as VULNERABLE where the species is facing a high risk of extinction in the wild in the medium term future. The status of this bird is based on the latest 2000 criteria of IUCN: Area of occupancy estimated to be less than 2000 square kilometres. In New Zealand the conservation status of king shags is Nationally Endangered based on its small population of between 250 and 1000 individuals.[9]

42. Mr Schuckard explained that the implications of slow creep from marine farm development, including salmon farms, on the quality of king shag feeding area has only been indirectly and marginally studied.

All prey of king shags are benthic species and these may well be affected by small but significant cumulative changes in the marine farmed areas. To accommodate this uncertainty the Board of Inquiry allowed two more salmon farms in the Waitata Reach to be established through adaptive management with a defined surface and footprint area.[10]

43. Mr Schuckard states that an expansion of the Waitata farm will create a wider depositional footprint with unknown boundaries. This was not anticipated when the Board of Inquiry granted two farms in this prime feeding habitat of king shag. He says:

Certain monitoring parameters indicate that the initial farm feed levels of about 3000 tonnes are already close or beyond consent constraints on benthic parameters and footprint area. The farm is technically non-compliant during the regime of initial feed levels. In my view, expansions of pens is not a solution for the problems associated with the increased depositional footprint. It will add to the existing uncertainties concerning impact on an important feeding habitat of the king shag.[11]

Claire Pinder - Guardians of the Sounds

44. Ms Pinder spoke to her submission in which she referred to the Cawthron report (3323) which shows *an emerging picture of the cumulative effects from the operation of NZKS even though feed levels were reduced by 30%.*

45. Her submission also referred to a 'Jarden' report. Ms Pinder talked of a 25 June market update - however, the Jarden report she provided was dated 30 August. The report discussed the high mortality of fish in increased water temperatures, particularly at low flow sites. The submission suggests this application for an increase in pens on Waitata Reach is to make up for the White Horse Rock farm application being declined. It is the Guardians' submission that NZKS should manage fish health within the parameters set down by the Board of Inquiry (BOI) and upheld by the Supreme Court.

[9] Ibid, paragraph 37.
[10] Ibid, paragraph 58.
[11] Ibid, paragraph 68.

46. In respect of the depositional footprint, the Guardians say:

The extent and impact of this breach needs to be understood and monitored for the environmental impact on the ecosystem before any expansion can be considered.

47. The Guardians state that even when using 30% less feed, NZKS were on the threshold of triggering an amber alert on dissolved oxygen.

48. The Guardians believe an increase in pen size would lead to an increase in overall productivity. This would not align with the adaptive management approach consented by the Board of Inquiry.

Marlborough Environment Centre

49. Ms Bev Doole submitted on behalf of Marlborough Environment Centre (**MEC**). She listed four reasons why MEC is opposed to this application:

- lack of evidence for an informed decision;
- uncertainty around the relocation of farms proposal;
- lack of consideration of alternatives;
- Board of Inquiry decision limiting number of farms in Waitata Reach and declining White Horse Rock farm.

50. Her submission focused on two of these: (1) the lack of evidence for an informed decision; and (2) the Board of Inquiry decision to limit the number of farms in Waitata Reach and decline White Horse Rock.

51. MEC questioned the lack of evidence on the number of fish dying and why, when NZKS is using that as a reason to exceed its current resource consent conditions.

52. MEC submits that NZKS should reduce fish stock numbers, not increase water space.

53. MEC stated that the Board of Inquiry and the Supreme Court very deliberately declined the White Horse Rock farm application because of their concern over cumulative effects and the impact on Marlborough's tangata whenua iwi. The current application is for an additional 0.75 hectares which is 50% more than the White Horse Rock proposal that sought 0.5 hectares and was rejected by the Board of Inquiry.

54. MEC concluded that the limit for salmon farming in Waitata Reach was set by the Board of Inquiry and Supreme Court, and they specifically declined the White Horse Rock farm - a smaller site than the expansion proposed by this current application - because of concerns about the impact on natural character.

Kenepuru and Central Sounds Residents Association (KCSRA)

55. Mr Andrew Caddie submitted on behalf of KCSRA. Mr Caddie makes the point that until 2019 the Waitata Reach farm was using only four or five pens of the eight that were consented, and that NZKS has not disclosed, or does not have the data, as to how the increase to eight pens has affected fish health and stress and fish mortality.

56. Linked to this, Mr Caddie further noted that the biosecurity risks associated with stressed fish - two hitherto unknown to New Zealand pathogens discovered in dead fish - go back to 2012.

57. KCSRA has calculated a 40% mortality rate last monitoring year at the Waitata Reach farm, and submit that this is not sustainable management.

58. Further, it noted that the adverse environmental results (ES) are occurring and accumulating at historically low feed levels. It says that should feed levels increase, then these benthic and monitoring indicators will get worse.

59. Relying on the evidence of Dr Giles, KCSRA said there is a lack of information and uncertainty in many areas, and for that reason this application should be declined.

60. The submission describes how the ES scoring of the seabed - the 'overall ES' - for a location is given by a weighted average of three groups of variables: organic loading, sediment chemistry, and aquafauna composition.

61. This submission notes that both Dr Giles and Mr Schuckard submitted that the individual variables (that make up the ES score) should be looked at individually when the ES scores become 'borderline'.

62. A further area of concern for KCSRA is the structural integrity of the proposed expanded structures. It quotes the Harbourmaster's report attached to the MDC Section 42A Report.

63. KCSRA appended two documents to its submission and referred to them during the hearing: (1) MPI Intelligence Report Fish Mortality and the Presence of Bacteria; (2) Report on Technical Advisory Group meeting of 30 November through to 2 December 2015 which discusses the two bacterial diseases associated with the high mortality of the caged salmon.

McGuinness Institute

64. Ms Wendy McGuinness submitted on behalf of the McGuinness Institute.

65. The thrust of the submission was that the farm has only been operating at full capacity for less than a year which is insufficient time to establish the impacts of this operation, at full capacity, on the environment.

66. Ms McGuinness stated the proposed increase in scale and nature of operation at Waitata Reach is significant and should not be treated as minor.[12] Ms McGuinness discussed fish mortality and suggested that salmon farming at Waitata Reach may not be sustainable, and further, it is her opinion that the high mortality rate cannot be explained by high water temperature alone. She cites poor farm management and in particular *overcrowding of pens*. She states that these mortality rates also illustrate that the farm has not been managed using the adaptive management approach to protect fish health and prevent biosecurity and environmental hazards.

67. Ms McGuinness stated:

> *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 1000 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.*[13]

68. Ms McGuinness also listed the following as reasons why this application should be declined:

- lack of economic benefit;
- failure to consult Ngati Koata;
- reduction of public access;
- lack of detailed information on the ecological impacts of an increase in the scale of farming operation at Waitata;
- potential effects on the king shag;
- potential effects on marine mammals - the application fails to address how an expansion of this size and scale will impact marine mammals such as dolphins and seals;
- structural safety and navigation issues;
- natural character and landscape and visual amenity.[14]

69. The McGuinness Institute disagreed with the applicant's landscape expert particularly when she said the application will not significantly increase the impacts on natural character, landscape and visual amenity.

[12] McGuinness Institute submission, page 10, paragraph 3.2.
[13] Ibid, page 11.
[14] Ibid, pages 14-19.

MDC

70. Mr Peter Johnson, Senior Resource Management Officer at MDC, provided a detailed Section 42A Report. This report:

- described the proposal;
- determined the proposal should be assessed as a non-complying activity;
- provides a summary of submissions;
- listed the relevant assessment criteria from the Marlborough Sounds Resource Management Plan (**Sounds plan**) and assesses the proposal against them;
- assessed the proposal against the relevant planning provisions.

71. In his report, Mr Johnson concluded he had insufficient information to make a recommendation on the proposal. In particular, the information he required concerned the ecological effects of the proposal, the structural safety of the proposal, and the raft of appropriate consent conditions which would take into account the knowledge gained about the site, the consent conditions and the effects of salmon farming at the site since the Board of Inquiry decision in 2014.[15]

72. Mr Johnson also provided an update to his report which he named *Concluding Comments of Peter Johnson - 27 November 2019.* In this he listed the additional material he had received from the various experts and submitters since he wrote his Section 42A Report. He stated that having reviewed his [Section 42A] report, in the light of the new material, he is comfortable that he has properly identified the relevant assessment criteria of the Sounds plan and the relevant objectives and policies of the applicable planning documents. He concluded that while he is satisfied many of the minor matters he identified have been adequately addressed, such as underwater lighting, odour discharges and use of coastal water, he is still uncertain regarding the important areas of structural safety, ecological effects and appropriate consent conditions.[16]

73. He describes as a recurring failure in the application the over reliance on evidence given and conclusions reached at the Board of Inquiry process between 2011 and 2014.

    Mr Johnson described another recurring failure of the application that the applicant seeks to operate the proposed new net pens in accordance with the consent conditions for the existing farm. He states that this approach is “inappropriate” when it comes to managing the effects of the proposed discharge on the marine ecology of the area.

[15] Section 42A Report, paragraph 54.
[16] *Concluding Comments of Peter Johnson - 27 November 2019*, paragraph 1.

74. Mr Johnson concluded:

> *Where all of this leads me to is the same fundamental conclusion expressed in my report of 4 November - that the consent authority has inadequate information to determine the proposal. It might well turn out that the effects of the proposal are entirely acceptable, but we presently don't know. Conceivably, resource consent can be granted where there is insufficient information, but such a consent would need to be accompanied by an appropriately comprehensive adaptive management regime which has been informed by the currently best available information. Such a regime has not been proposed by the applicant. Nor have I proposed one because the necessary scientific work outlined by Drs Newcombe and Giles has yet to be done.*[17]

Dr Hilke Giles

75. Dr Giles of Pisces Consulting prepared a comprehensive report for MDC on the ecological effects of the proposal. She concluded that the information provided did not enable her to assess the level of [benthic] effects and so she could not agree that these effects are less than minor.

76. Dr Giles states that there is current non-compliance relating to depositional footprint and she believes that this needs to be addressed before consideration can be given to transferring the established EQS to this proposal. Equally, in her opinion, uncertainties relating to the current adaptive management and monitoring processes need to be addressed before consideration can be given to transferring it to this proposal.[18]

Ms Liz Gavin - Canopy

77. MDC engaged Canopy Landscape Architects to undertake a technical review of the Rough and Milne Landscape Architects report on behalf of the applicant. The author, Liz Gavin, disagrees with Rough and Milne that marine farms are a feature within Waitata Reach. Ms Gavin refers to Figure 4 of her graphic attachments to illustrate that Waitata Reach is relatively free of marine farms in comparison to the bays north and south of the reach (excluding Richmond and Ketu Bays).

78. Overall, Ms Gavin considered the level of adverse effects of the proposed extension to be higher than described in the Rough and Milne report. She stated that the proposal is a 50% increase in site coverage and a 30% increase in overall length, and will extend an unnatural pattern of textures and materials into an otherwise natural environment. She assesses the visual effects of this to be dominant within 50 metres of the farm, and most noticeable within 250 metres of the farm.

79. Ms Gavin assessed the visual effects from within 250 metres as moderate-high, extending to moderate between 250 and 500 metres. She assessed the natural character effects as moderate-low. However, she said the full extent of the effects is hard to determine due to the lack of certainty over feed levels, fish stocks, and the depositional footprint resulting from these two variables.

[17] Ibid, paragraph 8.
[18] Pisces Consultancy report, page 23, paragraph 8.

Harbourmaster report

80. Captain Luke Grogan prepared a report that was part of the MDC bundle, and also a summary of comments document dated 27 November 2019.

81. In his initial report Captain Grogan outlined his concerns in relation to the potential for cage structures and associated farm equipment to break free and become a navigational hazard. He stated that the cage structures experienced significant structural failure in April 2016. Following this incident, the cage manufacturer suggested a revised mooring arrangement. To date, this revised mooring arrangement has not been fully implemented. Only one of the recommended two buoys per anchor warp has been installed. Captain Grogan is unsure if the cage manufacturer supports this reduction, or whether a chartered professional engineer has signed off on the mooring arrangement.

82. Captain Grogan has been seeking assurances from NZKS since 2017 as to the security of the moorings at the Waitata farm. Such assurance relates to two main requirements, specifically:

- that the farm structures are moored as per a mooring plan approved by a suitably qualified engineer;
- that the farm moorings are maintained as per the Mooring Monitoring and Maintenance Policy and the Navigational Risk Reduction and Management Plan.

83. It is clear from Captain Grogan's report that neither of these requirements have been complied with, and as a consequence Captain Grogan concluded:

Given the above, I am not satisfied that the present cage and mooring arrangements at the Waitata site are safe and secure, and this creates navigational safety concern with regard to the proposed expansion.[19]

Principal Issues of Contention

84. These are:

- Ecological effects - depositional footprint
- Landscape and visual amenity
- Natural character
- Effects on king shag
- Navigational safety
- Fish mortality
- Effects on Marlborough's tangata whenua iwi

[19] MDC, U190357 Harbourmaster Summary Comments, page 1.

Activity Status

85. The proposed extension is a non-complying activity.

86. The proposal was publicly notified and attracted seven submissions. I have summarised these submissions at paragraphs 33 to 69 above.

Ecological effects

87. The thrust of all the submissions and the evidence for Council on ecological effects is that NZKS has not contained its depositional footprint within the anticipated area which was written into the conditions of resource consent. In fact, despite occupying only five pens in a single row (and at 72% of the maximum initial feed discharge), the overall area experiencing minor to moderate enrichment at Waitata Reach is at least 14 hectares greater than the consented depositional footprint.

88. Dr Giles stated that granting consent for this application is expected to further enlarge the spatial extent of the farm footprint. She went on to say:

We do not have a good understanding of the size and shape of the current depositional footprint of the Waitata farm nor of the farm footprint predicted under this application.[20]

89. I find it troubling that not only has the applicant failed to satisfactorily explain and address the reasons for the existing non-compliance, but has also applied to farm additional cages that are expected to further extend the depositional footprint.

90. I find that the existing depositional footprint of the Waitata farm already exceeds (in area) its conditions of consent and if this application were to be granted, this area of non-compliance would likely increase.

91. The Cawthron report[21] details the elevated and total free sulphides, increased macrofaunal abundance, and community compositional changes, by comparison with relevant reference stations. I acknowledge the applicant's stated position[22] that conditions of resource consent refer to footprint to mean zones 1, 2 and 3, and because the presence of the farm is measurable outside, the footprint has not resulted in a breach of consent.

92. Although I make no finding on whether or not (as a matter of law) NZKS has breached its consent conditions, I do accept the evidence contained in the Cawthron report (monitoring farming 2019) and that of Dr Giles (quoted above).

93. It would be imprudent in the extreme to grant consent to any proposal that would further enlarge the spatial depositional footprint - already 14 hectares beyond consented limits - when neither the reasons for the existing exceedance nor the composition and likely area (of the new depositional footprint) arising from the proposal have been addressed.

[20] Pisces Consulting report, Summary of Key Points in response to evidence and submissions, paragraph 23, first bullet point.
[21] Cawthron Institute Report No 3323.
[22] Applicant's response to Commissioner's minute 11 February 2020, paragraphs 8-10.

Navigational safety

94. I find the evidence of Captain Grogan, that MDC has been seeking (but has yet to receive) assurances from the applicant (since mid - 2017), as to the security of the moorings at the Waitata farm, equally troubling. As noted above such assurances relate to two main requirements:

- that the farm structures are moored as per a mooring plan approved by a suitably qualified engineer;
- that the farm moorings are maintained as per the Mooring Monitoring and Maintenance Policy and the Navigational Risk Reduction and Management Plan.

95. The witness (Captain Grogan) also lists a number of improvements/additions to the farm prior to any expansion.

96. Given the time MDC has been seeking (but has yet to receive) *verified* assurances concerning the navigational safety of the farm, it is my opinion that these improvements (listed below) should have been in place prior to the application for further pens:

- signoff by a qualified engineer;
- data loggers deployed;
- Navigational Risk Reduction and Management Plan revised in conjunction with the Harbourmaster.

97. Given the strong tidal flows, strong winds and rough seas often experienced at this site, the fact that the Waitata Reach is well utilised by a range of vessels, and that there has already been (April 2016) a significant structural failure of the cage structures at the farm, it is essential to ensure that the cage structures are fit to be deployed in the environment and properly moored so as to mitigate the risk of a breakaway.

98. Captain Grogan concluded:

Given the above, I am not satisfied that the present cage and mooring arrangements at the Waitata site are safe and secure, and this creates navigation safety concern with regard to the proposed expansion.[23]

99. I find it would be imprudent to grant consent to any expansion of this farm while these navigational concerns remain.

[23] MDC, U190357 Harbourmaster Summary Comments, page 1.

Landscape and natural character

100. I accept (broadly) the evidence of Ms Gavin that the adverse visual amenity and landscape effects would be greater than those assessed in the Rough and Milne report. However, the major adverse effects of the farm are already in place, and despite a 50% increase in site coverage and a 30% increase in the length of the farm, I expect, as does Ms Gavin, that the most severe adverse effects would be experienced close to the farm.

101. As one moves further away from the farm, the adverse visual effects associated with the new structures would become more difficult to differentiate from those associated with the existing structures.

102. The natural character effects associated with the proposal are more difficult to quantify as they are closely associated with the quantity of feed that is discharged. Some of the natural character effects are included in my discussion on ecological effects (above).

103. Overall, I find the landscape and visual amenity effects of the proposal are moderate. Taken on their own, and provided the application can pass through the "statutory gateway" I do not consider them fatal to the application.

Tangata whenua issues

104. Te Rūnanga a Rangitāne o Wairau submitted in opposition to the proposal. They cited a lack of opportunity to thoroughly engage in discussion with the applicant regarding the application. Rangitāne did not speak to the submission at the hearing.

105. Te Rūnanga o Ngāti Kuia Trust also submitted in opposition to the proposal for the following reasons:

- exclusion of tangata whenua iwi from traditional fishing grounds;
- increased distribution of waste products and adverse effects on the seabed.

106. The Section 42A Report also notes the uncertainty of the depositional footprint and the consequential effect on the king shag habitat. All these matters are covered under different headings. I find any further exclusion resulting from the proposed new pens of tangata whenua iwi from their traditional fishing grounds would be minor. They are effectively excluded from the farm area as a result of the existing farm pens.

Fish mortality

107. One of the reasons given[24] for the additional pen space was to enable the applicant to reduce the higher than predicted fish mortality. KCSRA submissions and attached documents discuss fish density and sea level temperature as factors associated with higher than expected fish mortality.

108. By its calculation, mortality at Waitata Reach in the last monitoring year was 40%.

[24] NZKS application, page 1, paragraph 2.

109. The applicant does not offer a figure.

110. A high mortality of fish (whatever the actual number) is of concern from an animal (fish) welfare perspective but that is not an RMA issue. However high fish mortality is certainly not "efficient" in RMA terms. Evidence of pathogens (new to New Zealand) contributing to mortality is of further concern to the wider ecosystem.

111. The applicant's response is to achieve a lower stocking rate by adding pen capacity.

112. This is not a response that furthers the philosophy of adaptive management - a cornerstone of the conditions of the parent consent and also the set of conditions the applicant wishes to attach to this application, should it be granted.

113. A response that aligns with both adaptive management and sustainable development of resources would be for the applicant to reduce the stock on the present farm to achieve a stocking rate that results in a more acceptable mortality rate.

Effects on king shag

114. I accept Mr Schuckard's evidence that Waitata Reach is the most important feeding area for the biggest colony of the species. King shag is under severe threat - this is recognised nationally and internationally. Little is known about the effects of marine farming (including salmon farming) on the quality of the king shag feeding areas. Partly because of that uncertainty the Board of Inquiry took a very conservative approach to allowing salmon farms in the Waitata Reach.

115. The work described in the evidence of Dr McClellan fitting GPS loggers to king shags is going to add greatly to the knowledge of where king shags feed and how, and how often they move between feeding grounds.

116. The depositional footprint from the salmon farms may result in a reduction in the benthic species on which king shags feed. This proposal will result in a larger depositional footprint with unknown boundaries. Allowing this expansion and enlarged depositional footprint to occur is not a precautionary or conservative approach. Nor does it adhere to the adaptive management approach embodied in the conditions.

Relevant Statutory Provisions

117. Section 104(1)(b) RMA requires me to have regard to any relevant provisions of the New Zealand Coastal Policy Statement (NZCPS), Marlborough Regional Policy Statement (MRPS), the Marlborough Sounds Resource Management Plan (MSRMP), and the Proposed Marlborough Environmental Plan (PMEP).

118. Mr Johnson and the applicant set out the relevant policy considerations. There is general agreement on what the provisions of relevance are. However, there is not the same level of agreement on the conclusions reached on the assessment of the proposal against individual provisions.

119. I intend to focus only on the provisions that I consider are relevant to the determination of this application. These relate to the lists of principal issues noted in paragraph 84 of this decision.

120. For completeness, I list as Appendix 2 to this decision all the provisions identified by the parties.

Zoning

121. The application site falls within the Coastal Marine Zone 3 (CMZ 3) as defined by Map 19 of Volume 3 of the Sounds plan. The privately owned land backing nearby White Horse Rock is zoned Rural 1 with a 20 metre band of paper road abutting the shoreline zoned Conservation. The nearest area of outstanding landscape value as defined by the Sounds plan is located approximately 2 kilometres to the southwest, at Yellow Cliffs.

122. There are several nearby areas having ecology overlays denoting feeding, breeding and/or roosting habitat of New Zealand king shag; the nearest such overlay being at the southwest corner of the farm site.[25]

123. Mr Johnson in his Section 42A Report notes that chapter 35 of the Sounds plan sets out at 35.4. 2.10.2 assessment criteria for marine farming within CMZ 3. He states that these criteria were inserted into the Sounds plan on 11 September 2014 following approval of Plan Change 24 by the Board of Inquiry decision which also created the subject Waitata Reach farm.

35.4.2.10.2 Assessment Criteria

a) Consideration of the social, cultural, economic and environmental benefits from the development and operation of the marine farm and marine farming;

b) Assessment of effects on values in the coastal environment that are of significance to Tangata Whenua;

c) Consideration of the layout and positioning of the marine farm structures to ensure continued reasonable public access (including recreational access) in the vicinity of the marine farm;

d) Consideration of the specific location, extent and nature of disturbance to the foreshore and seabed from the anchoring systems, and the management of the effects of that disturbance;

e) Consideration of the structural safety and security of the proposed structures and anchoring systems;

[25] Section 42A Report, page 4, paragraph 17.

f) Assessment of any adverse effects from the proposed structures, nets, vessels, anchoring systems and lighting systems on the following:

- *navigational safety, including the layout and positioning of the marine farm structures and the provision of navigation warning devices and signs;*
- *natural character, landscape and visual amenity values, including the colour, reflectivity and external finish of buildings and structures, and the size, design and location of the buildings;*
- *marine mammals, pelagic fish and seabirds.*

g) Assessment of any adverse effects from the discharges to coastal water, including:

- *The effects from seabed deposition and changes to water quality;*
- *Ecological effects, including cumulative effects, relating to the proximity of ecologically important marine habitats;*
- *Environmental standards against which the ecological, water quality and bed deposition effects of the discharges are monitored and evaluated;*
- *Provision for staged increases in the scale of feed discharges and for monitoring of the effects of each stage against environmental standards;*
- *Adaptive management approaches to the management of effects from seabed deposition and changes to water quality;*

h) Assessment of biosecurity and disease risks;

i) Assessment of any adverse effects from the use of submerged artificial lighting within the marine farm;

j) Consideration of best management practices in relation to:

- *Shark, marine mammal and seabird interactions with the marine farm and surrounding area;*
- *waste materials and debris from the marine farm;*
- *the storage and use of fuels and oils on the marine farm;*

k) Consideration of the management of the emission of noise from the marine farm in order to ensure that the noise limits are achieved;

l) Consideration of the management of any adverse effects from discharges to air from diesel- and petrol-powered generators and equipment;

m) Consideration of the management of any adverse effects of odour discharges from marine farming.

n) Consideration of the management of any adverse effects from the taking, use and discharge of coastal water necessary for undertaking the marine farming activity.

Positive effects

- NZCPS Policy 6(2)(a) and Policy 8

124. The applicant is not claiming significant positive economic effects for the community. However the proposal would (if it goes ahead) contribute to some degree to the economic well being of people and communities.

Effects on natural character

- NZCPS Policy 13(1)(b)
- MRPS Policy 8.1.6
- Sounds plan Objective 2.2.1
- PMEP Policy 6.2.2

125. I have found that the increase in area of the depositional footprint generated by the increased pens would cause an adverse effect on natural character. The degree of this adverse effect is uncertain because it is not clear what the increase in footprint would be.

Effects of the proposal on notable habitats and related species

- NZCPS Policy 11
- MRPS Policy 5.3.11
- Sounds plan Policy 4.3.1.2 and 9.3.2.1.1
- PMEP Policy 8.2.9

126. I accept that there will be a potential adverse effect on the quality and area of king shag habitat. As above, because the increase in depositional footprint is unknown, the scale of potential adverse effects caused by the increase in footprint is unknown.

Adverse visual effects

- NZCPS Policy 6(1)(h) and 15(b)
- Sounds plan Objective 5.3.1

127. I have found there will be an adverse visual effect from the proposal when viewed close up (less than 250 metres). Beyond that distance it will be difficult to differentiate between the existing visual effects and those related to the increase in pen area.

Navigational safety

- MSRMP Policy 19.3.1.1

128. I have found navigational safety to be a major area of concern.

Precautionary approach

- NZCPS Policy 3(1)
- Sounds plan Policy 2.2.1.7

129. I have found with respect to king shag and the effects of the unknown increase in depositional footprint that a precautionary approach has not been taken. Further the uncertainties related to the structural integrity of the existing farm and that of the proposed extensions and the consequential implications for navigational safety do not demonstrate a precautionary approach.

Amenity values

- MRPS Policy 7.1.7
- PMEP Objective 7.2

130. I have found that there will be some adverse effects on amenity values - particularly visual amenity when viewed close to the farm.

131. Section 104D RMA requires me to apply the *gateway* test to the proposal.

132. Consent can only be granted to a non-complying activity if:

a. the adverse effects of the activity on the environment will be minor; or

b. the application is for an activity that will not be contrary to the relevant objectives and policies of the relevant planning documents.

133. With respect to (a) I find that the benthic effects cannot be said to be minor, nor are the potential adverse effects on navigational safety minor.

134. With respect to (b), the proposal is consistent with some of the relevant planning provisions, and inconsistent with others. Overall, I cannot determine that the proposal is contrary to the relevant provisions, so the proposal passes the s 104D test and falls to be considered under s 104.

Part 2 RMA

135. Following the Court of Appeal in Davidson[26] I am only required to undertake a Part 2 assessment in the event I consider the operative plans contain invalidity, incomplete coverage or uncertainty of meaning. I find no such deficiency. However, in case I am incorrect in this finding I provide a brief Part 2 assessment.

[26] *R J Davidson Family Trust v Marlborough District Council* [2018] NZCA 316

Section 5 RMA

136. I find the proposal to be inconsistent with sustainable management. There are some adverse effects (such as depositional footprint) which are unable to be quantified, and navigational safety issues that have not been addressed to my satisfaction.

Section 6(a) RMA

137. Preservation of the natural character of the coastal environment is a matter of national importance which must be recognised and provided for. The increase in depositional footprint will adversely affect natural character and there is a 50% increase in pen area which cannot be considered as minor.

Section 6(c) RMA

138. There will be a potential adverse effect on the feeding habit of king shag as a result of an increase in depositional footprint.

Section 6(d) RMA

139. Access to the shore will not be affected. Public access to the new pens will be restricted. I consider this effect to be minor.

Section 6(e) RMA

140. As noted, two iwi groups have submitted in opposition to this proposal. However, my understanding is the matters raised in these submissions are:

- a lack of consultation;
- exclusion of tangata whenua iwi from traditional fishing grounds;
- an increased distribution of waste products from the farm.

141. I consider the adverse effects on tangata whenua iwi by a reduction of access to their traditional fishing grounds created by the proposed new pens to be minor - the existing pens already restrict access to the immediate - - the additional effect created by the new pens will be minor. The increase in waste (depositional footprint) has been discussed elsewhere in this decision and has been found to be a major obstacle for the applicant. The existing footprint is 14 hectares greater than that allowed by consent conditions, and this proposal will increase that by an unknown amount.

Section 7 RMA

142. There are a number of *other matters* that this proposal conflicts with, or potentially conflicts with, namely:

- 7(c) the maintenance and enhancement of amenity values - 50% increase in pen size and 30% increase in length of the farm will not maintain or enhance the amenity of any persons navigating in Waitata Reach when they are within 250 metres of the farm;
- 7(f) the maintenance and enhancement of the quality of the environment.

Conclusion

143. I have considered all the evidence presented to the hearing and the submissions that I have received since. I conclude that the applicant has failed to show that this proposal meets the purpose of the RMA: in particular, the failure to address the existing depositional footprint already covering 14 hectares beyond consented maximum and the applicant's failure to profile the expected footprint from the increase in pen area.

144. Further, the applicant has failed to satisfy me that the existing farm is *safe* in navigational terms, or that the increase in pen size will result in a farm which is safe in terms of navigation.

145. These two matters alone leave me no option but to decline the application.

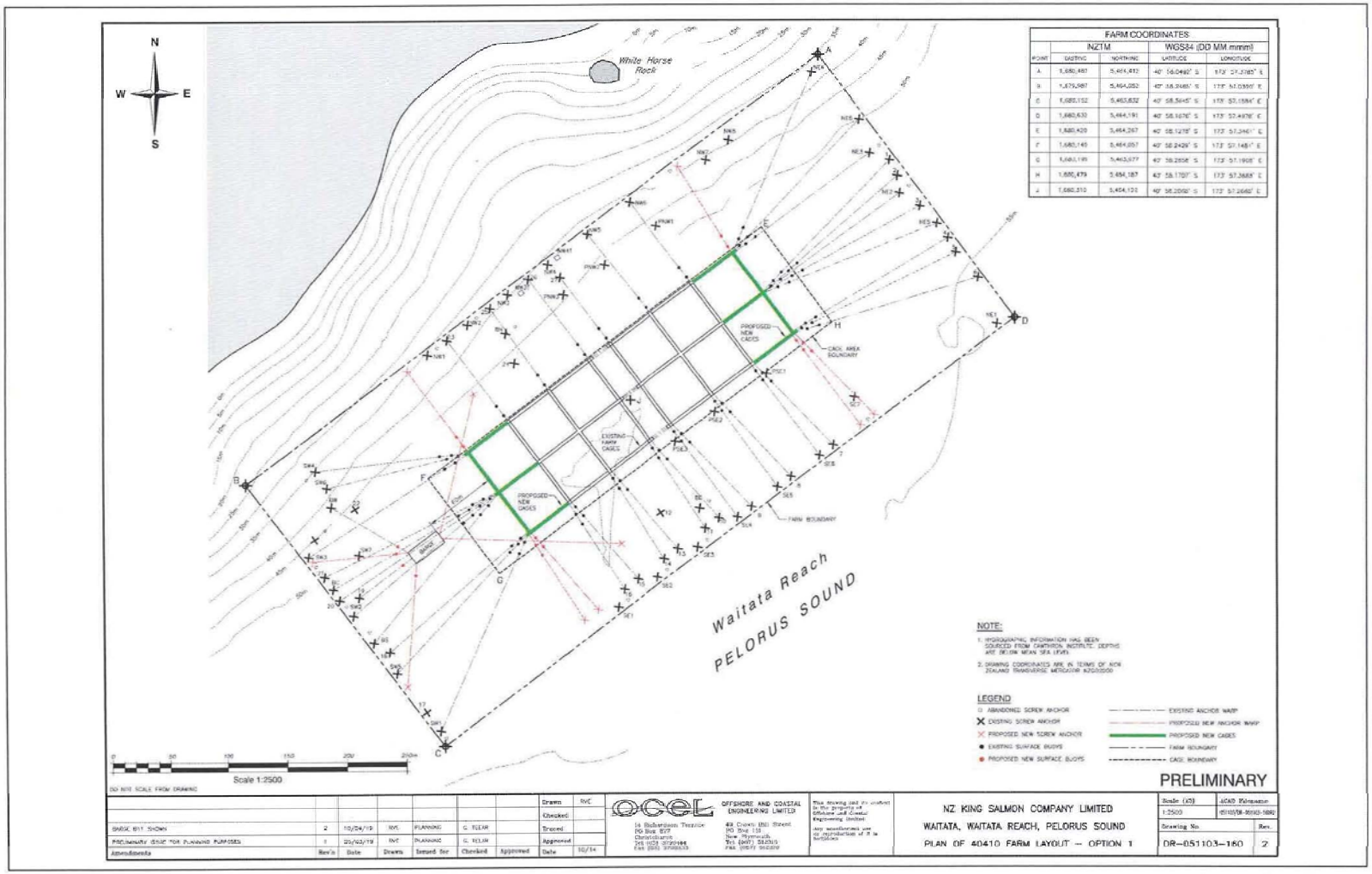
146. Because I have declined the s 88 application, I have no need to consider the application under s 127 to amend the conditions of resource consent.

13 March 2020

……. …….

Hearing Commissioner Date

Appendix 1 Detailed plan of the existing farm and proposed extensions



Proposed Waitata Pens

rough & milne landscape architects

Source: Supplied by Client
NB Plans not to scale (downsized to fit, refer to scale bar)

WAITATA PENS EXPANSION | PELORUS SOUND
November 2019

SHEET 7

Appendix 2 List of Relevant Policy Provisions

New Zealand Coastal Policy Statement 2010	
Policy 3(1)	Adopt a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse.
Policy 6(1)h)	In relation to the coastal environment: consider how adverse visual impacts of development can be avoided in areas sensitive to such effects, such as headlands and prominent ridgelines, and as far as practicable and reasonable apply controls or conditions to avoid those effects.
Policy 6(2)(a)	Recognise potential contributions to the social, economic and cultural wellbeing of people and communities from use and development of the coastal marine area.
Policy 6(2)(b)	Recognise the need to maintain and enhance the public open space and recreation qualities and values of the coastal marine area.
Policy 6(2)(c)	Recognise that there are activities that have a functional need to be located in the coastal marine area, and provide for those activities in appropriate places.
Policy 6(2)(e)(ii)	Promote the efficient use of occupied space, including by requiring the removal of any abandoned or redundant structure that has no heritage, amenity or reuse value.
Policy 8	Recognise the significant existing and potential contribution of aquaculture to the social, economic and cultural well-being of people and communities by: (b) taking account of the social and economic benefits of aquaculture, including any available assessments of national and regional economic benefits; and (c) ensuring that development in the coastal environment does not make water quality unfit for aquaculture activities in areas approved for that purpose.
Policy 11	To protect indigenous biological diversity in the coastal environment: (a) avoid adverse effects of activities on: (i) indigenous taxa that are listed as threatened or at risk in the New Zealand Threat Classification System lists (iv) habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare; (b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on: (iii) indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands, intertidal zones, rocky reef systems, eelgrass and saltmarsh.
Policy 12	(1) Provide in regional policy statements and in plans, as far as practicable, for the control of activities in or near the coastal marine area that could have adverse effects on the coastal environment by causing harmful aquatic organisms to be released or otherwise spread, and include conditions in resource consents,

	where relevant, to assist with managing the risk of such effects occurring. (2) Recognise that activities relevant to (1) include: a. the introduction of structures likely to be contaminated with harmful aquatic organisms; b. the discharge or disposal of organic material from dredging, or from vessels and structures, whether during maintenance, cleaning or otherwise; and whether in the coastal marine area or on land; c. the provision and ongoing maintenance of moorings, marina berths, jetties and wharves; and d. the establishment and relocation of equipment and stock required for or associated with aquaculture.
Policy 13(1)	To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use and development: (a) avoid adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character; and (b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on natural character in all other areas of the coastal environment; …
Policy 15	To protect the natural features and natural landscapes (including seascapes) of the coastal environment from inappropriate subdivision, use and development: (a) avoid adverse effects of activities on outstanding natural features and outstanding natural landscapes in the coastal environment; and (b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on other natural features and natural landscapes in the coastal environment;…
Policy 23(1)	In managing discharges to water in the coastal environment, have particular regard to: a. the sensitivity of the receiving environment; b. the nature of the contaminants to be discharged, the particular concentration of contaminants needed to achieve the required water quality in the receiving environment, and the risks if that concentration of contaminants is exceeded; and c. the capacity of the receiving environment to assimilate the contaminants; and: d. avoid significant adverse effects on ecosystems and habitats after reasonable mixing; e. use the smallest mixing zone necessary to achieve the required water quality in the receiving environment; and f. minimise adverse effects on the life-supporting capacity of water within a mixing zone.

Marlborough Regional Policy Statement	
Objective 5.3.10	The natural species diversity and integrity of marine habitats be maintained or enhanced.
Policy 5.3.11	Avoid, remedy or mitigate habitat disruption arising from activities occurring within the coastal marine area.
Objective 7.1.2	To maintain and enhance the quality of life of people of Marlborough while ensuring that activities do not adversely affect the environment.
Policy 7.1.7	Promote the enhancement of the amenity values provided by the unique character of Marlborough settlements and locations.
Objective 7.1.9	To enable present and future generations to provide for their wellbeing by allowing use, development and protection of resources provided any adverse effects of activities are avoided, remedied or mitigated.
Policy 7.1.10	To enable appropriate type, scale and location of activities by: clustering activities with similar effects; ensuring activities reflect the character and facilities available in the communities in which they are located; promoting the creation and maintenance of buffer zones (such as stream banks or greenbelts); locating activities with noxious elements in areas where adverse environmental effects can be avoided, remedied or mitigated.
Objective 7.2.7	The subdivision, use and development of the coastal environment in a sustainable way.
Policy 7.2.8	Ensure the appropriate subdivision, use and development of the coastal environment.
Policy 7.2.10	(b) Public access and recreational use will be considered when assessing all proposals for development of the coastal marine area. (c) Access to or along the coastal marine area will only be restricted for reasons of public safety, defence purposes, security, or matters of national importance including the protection of natural values and Maori cultural values. (d) Developments proposed in the coastal marine area may be allowed where they provide for public use/benefit. (e) Allocation of space for aquaculture in the coastal marine area will be based on marine habitat sustainability, habitat protection, landscape protection, navigation and safety, and compatibility with other adjoining activities.
Objective 8.1.2	The maintenance and enhancement of the visual character of indigenous, working and built landscapes.
Policy 8.1.5	Promote enhancement of the nature and character of indigenous, working and built landscapes by all activities which use land and water.
Policy 8.1.6	Preserve the natural character of the coastal environment.

Marlborough Sounds Resource Management Plan	
Chapter 2 - Natural Character	
Part 2.2	
Objective 1	The preservation of the natural character of the coastal environment, wetlands, lakes and rivers and their margins and the protection of them from inappropriate subdivision, use and development.
Policy 1.1	Avoid the adverse effects of subdivision, use or development within those areas of the coastal environment and fresh-water bodies which are predominantly in their natural state and have natural character which has not been compromised.
Policy 1.2	Appropriate use and development will be encouraged in areas where the natural character of the coastal environment has already been compromised, and where the adverse effects of such activities can be avoided, remedied or mitigated.
Policy 1.6	In assessing the appropriateness of subdivision, use or development in coastal and freshwater environments regard shall be had to the ability to restore or rehabilitate natural character in the area subject to the proposal.
Policy 1.7	To adopt a precautionary approach in making decisions where the effects on the natural character of the coastal environment, wetlands, lakes and rivers (and their margins) are unknown.
Chapter 4 - Indigenous Vegetation and Habitats of Indigenous Fauna	
Part 4.3	
Objective 1	The protection of significant indigenous flora and fauna (and trout and salmon) and their habitats from the adverse effects of use and development.
Policy 1.2	Avoid, remedy or mitigate the adverse effects of land and water use on areas of significant ecological value.
Chapter 5 - Landscape	
Part 5.3	
Objective 1	Management of the visual quality of the Sounds and protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.
Chapter 6 - Tangata Whenua and Heritage	
Part 6.1.2	
Objective 1	Recognition and provision for the relationship of Marlborough's Maori to their culture and traditions with their ancestral lands, waters, sites, waahi tapu and other taonga.
Policy 1.2	Recognise values important to tangata whenua, including the concepts of mauri, effects on the mana of iwi or hapu, and the ability of tangata whenua to provide manaakitanga.
Chapter 8 - Public Access	
Part 8.3	
Objective 1	That public access to and along the coastal marine area be maintained and enhanced.

Policy 1.2	Adverse effects on public access caused by the erection of structures, marine farms, works or activities in or along the coastal marine area should as far as practicable be avoided. Where complete avoidance is not practicable, the adverse effects should be mitigated and provision made for remedying those effects, to the extent practicable.
Chapter 9 - Coastal Marine	
Part 9.2.1	
Objective 1	The accommodation of appropriate activities in the coastal marine area whilst avoiding, remedying or mitigating the adverse effects of those activities.
Policy 1.1	Avoid, remedy and mitigate the adverse effects of use and development of resources in the coastal marine area on any of the following: a) Conservation and ecological values; b) Cultural and iwi values; c) Heritage and amenity values; d) Landscape, seascape and aesthetic values; e) Marine habitats and sustainability; f) Natural character of the coastal environment; g) Navigational safety; h) Other activities, including those on land; i) Public access to and along the coast; j) Public health and safety; k) Recreation values; and l) Water quality.
Policy 1.2	Adverse effects of use or development in the coastal environment should as far as practicable be avoided. Where complete avoidance is not practicable, the adverse effects should be mitigated and provision made for remedying those effects to the extent practicable.
Part 9.3.2	
Objective 1	Management of the effects of activities so that water quality in the coastal marine area is at a level which enables the gathering or cultivating of shellfish for human consumption (Class SG).
Policy 1.1	Avoid the discharge of contaminants into the coastal marine area where it will modify, damage or destroy any significant ecological value.
Policy 1.2	Avoid the discharge of contaminants into the coastal marine area where it will adversely affect: a) Areas identified by iwi as being of special spiritual, cultural or historical significance; or b) Areas identified as outstanding landscape.
Policy 1.3	No discharge, after reasonable mixing, (either by itself or in combination with other discharges) should limit the consumption of seafood from the coastal marine area.
Policy 1.4	Recognise and provide for the need to: a) Preserve the natural character of the coastal environment; b) Protect public health; c) Protect the visual aesthetics of the area; d) Protect the olfactory aesthetics of the area; e) Protect sites of spiritual, historical or cultural significance to Maori identified in accordance with tikanga Maori, including waahi

	tapu, tauranga waka, maataitai and taonga raranga; f) Avoid, remedy or mitigate adverse effects on ecological systems including natural movement and productivity of biota, natural biodiversity and adverse effects on: • shellfish areas; • fish spawning and nursery areas; • bird-breeding and nursery areas; • fish and bird migration through estuaries; • feeding patterns; • habitats important to the continued survival of any indigenous species; • wildlife and marine biota; and • the intrinsic value of ecosystems. g) Avoid, remedy or mitigate adverse effects on existing lawful activities, particularly marine farming, fishing, recreation and tourism activities when assessing a permit to discharge water or contaminants into the coastal marine area.
Policy 1.6	Ensure that every coastal permit to discharge contaminants into the coastal marine area contains conditions requiring the discharger to monitor the effects of the discharge and compliance with the water quality classification (SG).
Part 9.4.1	
Objective 1	Protection of the coastal environment by avoiding, remedying or mitigating any adverse effects of activities that alter the foreshore or seabed.
Policy 1.1	Avoid, remedy and mitigate the adverse effects of activities that disturb or alter the foreshore and/or seabed on any of the following: a) Conservation and ecological values; b) Cultural and iwi values; c) Heritage and amenity values; d) Landscape, seascape and aesthetic values; e) Marine habitats and sustainability; f) Natural character of the coastal environment; g) Navigational safety; h) Other activities, including those on land; i) Public access to and along the coast; j) Public health and safety; k) Recreation values; and l) Water quality
Policy 1.9	Enable the adverse visual or ecological effects of particular farms to be addressed when the rules expressly provide for that.
Policy 1.11	Recognising (by way of discretionary activity status in the Coastal Marine Zone 3) provision for salmon farming at three appropriate sites.
Chapter 19 - Water Transportation	
Part 19.3	
Objective 1	Safe, efficient and sustainably managed water transport systems in a manner that avoids, remedies and mitigates adverse effects.
Policy 1.1	Avoid, remedy or mitigate the adverse effects of activities and structures on navigation and safety, within the coastal marine area.

Proposed Marlborough Environment Plan	
Chapter 3 - Marlborough's Tangata Whenua Iwi	
Objective 3.2	Natural and physical resources are managed in a manner that takes into account the spiritual and cultural values of Marlborough's tangata whenua iwi and respects and accommodates tikanga Māori.
Objective 3.3	The cultural and traditional relationship of Marlborough's tangata whenua iwi with their ancestral lands, water, air, coastal environment, waahi tapu and other sites and taonga are recognised and provided for.
Policy 3.1.3	Where an application for resource consent or plan change is likely to affect the relationship of Marlborough's tangata whenua iwi and their culture and traditions, decision makers shall ensure: (a) the ability for tangata whenua to exercise kaitiakitanga is maintained; (b) mauri is maintained or improved where degraded, particularly in relation to fresh and coastal waters, land and air; (c) mahinga kai and natural resources used for customary purposes are maintained or enhanced and that these resources are healthy and accessible to tangata whenua; (d) for waterbodies, the elements of physical health to be assessed are: i. aesthetic and sensory qualities, e.g. clarity, colour, natural character, smell and sustenance for indigenous flora and fauna; ii. life-supporting capacity, ecosystem robustness and habitat richness; iii. depth and velocity of flow (reflecting the life force of the river through its changing character, flows and fluctuations); iv. continuity of flow from the sources of a river to its mouth at the sea; v. wilderness and natural character; vi. productive capacity; and vii. fitness to support human use, including cultural uses. (e) how traditional Māori uses and practices relating to natural and physical resources such as mahinga maataitai, waahi tapu, papakāinga and taonga raranga are to be recognised and provided for.
Policy 3.1.5	Ensure iwi management plans are taken into account in resource management decision making processes.
Chapter 5 - Allocation of Public Resources	
Objective 5.10	Equitable and sustainable allocation of public space within Marlborough's coastal marine area.
Policy 5.10.3	Where a right to occupy the coastal marine area is sought, the area of exclusive occupation should be minimised to that necessary and reasonable to undertake the activity, having regard to the public interest.
Chapter 6 - Natural Character	
Objective 6.2	Preserve the natural character of the coastal environment, and lakes and rivers and their margins, and protect them from inappropriate subdivision, use and development.

Policy 6.2.2	Avoid significant adverse effects of subdivision, use or development on coastal natural character, having regard to the significance criteria in Appendix 4.
Policy 6.2.7	In assessing the cumulative effects of activities on the natural character of the coastal environment, or in or near lakes or rivers, consideration shall be given to: (a) the effect of allowing more of the same or similar activity; (b) the result of allowing more of a particular effect, whether from the same activity or from other activities causing the same or similar effect; and (c) the combined effects from all activities in the coastal or freshwater environment in the locality.
Chapter 7 - Landscape	
Objective 7.2	Protect outstanding natural features and landscapes from inappropriate subdivision, use and development and maintain and enhance landscapes with high amenity value.
Policy 7.2.4	Where resource consent is required to undertake an activity within an outstanding natural feature and landscape or a landscape with high amenity value, regard will be had to the potential adverse effects of the proposal on the values that contribute to the landscape.
Policy 7.2.7	Protect the values of outstanding natural features and landscapes and the high amenity values of the Wairau Dry Hills and the Marlborough Sounds Coastal Landscapes by: (a) In respect of structures: (i) avoiding visual intrusion on skylines, particularly when viewed from public places; (ii) avoiding new dwellings in close proximity to the foreshore; (iii) using reflectivity levels and building materials that complement the colours in the surrounding landscape; (iv) limiting the scale, height and placement of structures to minimise intrusion of built form into the landscape;…
Chapter 8 - Indigenous Biodiversity	
Objective 8.1	Marlborough's remaining indigenous biodiversity in terrestrial, freshwater and coastal environments is protected.
Policy 8.2.9	Maintain, enhance or restore ecosystems, habitats and areas of indigenous biodiversity even where these are not identified as significant in terms of the criteria in Policy 8.1.1, but are important for: (a) the continued functioning of ecological processes; (b) providing connections within or corridors between habitats of indigenous flora and fauna; (c) cultural purposes; (d) providing buffers or filters between land uses and wetlands, lakes or rivers and the coastal marine area; (e) botanical, wildlife, fishery and amenity values; (f) biological and genetic diversity; and (g) water quality, levels and flows.
Policy 8.3.1	Manage the effects of subdivision, use or development in the coastal environment by: (a) avoiding adverse effects where the areas, habitats or ecosystems are those set out in Policy 11(a) of the New Zealand Coastal Policy Statement 2010;…

	(c) avoiding significant adverse effects and avoiding, remedying or mitigating other adverse effects where the areas, habitats or ecosystems are those set out in Policy 11(b) of the New Zealand Coastal Policy Statement 2010 or are not identified as significant in terms of Policy 8.1.1 of the Marlborough Environment Plan.
Policy 8.3.2	Where subdivision, use or development requires resource consent, the adverse effects on areas, habitats or ecosystems with indigenous biodiversity value shall be: (a) avoided remedied or mitigated where indigenous biodiversity values have not been assessed as being significant in terms of Policy 8.1.1.
Policy 8.3.5	In the context of Policy 8.3.1 and Policy 8.3.2, adverse effects to be avoided or otherwise remedied or mitigated may include: (a) fragmentation of or a reduction in the size and extent of indigenous ecosystems and habitats; (b) fragmentation or disruption of connections or buffer zones between and around ecosystems or habitats; (c) changes that result in increased threats from pests (both plant and animal) on indigenous biodiversity and ecosystems; (d) the loss of a rare or threatened species or its habitat; (e) loss or degradation of wetlands, dune systems or coastal forests; (f) loss of mauri or taonga species; (g) impacts on habitats important as breeding, nursery or feeding areas, including for birds; (h) impacts on habitats for fish spawning or the obstruction of the migration of fish species; (i) impacts on any marine mammal sanctuary, marine mammal migration route or breeding, feeding or haul out area; (j) a reduction in the abundance or natural diversity of indigenous vegetation and habitats of indigenous fauna; (k) loss of ecosystem services; (l) effects that contribute to a cumulative loss or degradation of habitats and ecosystems; (m) loss of or damage to ecological mosaics, sequences, processes or integrity; (n) effects on the functioning of estuaries, coastal wetlands and their margins; (o) downstream effects on significant wetlands, rivers, streams and lakes from hydrological changes higher up the catchment; (p) natural flows altered to such an extent that it affects the life supporting capacity of waterbodies; (q) a modification of the viability or value of indigenous vegetation and habitats of indigenous fauna as a result of the use or development of other land, freshwater or coastal resources; (r) a reduction in the value of the historical, cultural and spiritual association with significant indigenous biodiversity held by Marlborough's tangata whenua iwi; (s) a reduction in the value of the historical, cultural and spiritual association with significant indigenous biodiversity held by the wider community; and (t) the destruction of or significant reduction in educational, scientific, amenity, historical, cultural, landscape or natural character values.

Chapter 9 - Public Access and Open Space	
Objective 9.1	The public are able to enjoy the amenity and recreational opportunities of Marlborough's coastal environment, rivers, lakes, high country and areas of historic interest.
Policy 9.1.1	The following areas are identified as having a high degree of importance for public access and the Marlborough District Council will as a priority focus on enhancing access to and within these areas:… (b) coastal marine area,…
Policy 9.1.13	When considering resource consent applications for activities, subdivision or structures in or adjacent to the coastal marine area, lakes or rivers, the impact on public access shall be assessed against the following: (a) whether the application is in an area identified as having a high degree of importance for public access, as set out in Policy 9.1.1; (b) the need for the activity/structure to be located in the coastal marine area and why it cannot be located elsewhere; (c) the need for the activity/structure to be located in a river bed and why it cannot be located elsewhere; (d) the extent to which the activity/subdivision/structure would benefit or adversely affect public access, customary access and recreational use, irrespective of its intended purpose; (e) in the coastal marine area, whether exclusive rights of occupation are being sought as part of the application; (f) for the Marlborough Sounds, whether there is practical road access to the site of the application; (g) how public access around or over any structure sought as part of an application is to be provided for; (h) whether the impact on public access is temporary or permanent and whether there is any alternative public access available; and (i) whether public access is able to be restricted in accordance with Policies 9.2.1 and 9.2.2.
Chapter 15 - Resource Quality	
Objective 15.1a	Maintain and where necessary enhance water quality in Marlborough's rivers, lakes, wetlands, aquifers and coastal waters, so that: (a) the mauri of wai is protected; (b) water quality at beaches is suitable for contact recreation; (c) people can use the coast, rivers, lakes and wetlands for food gathering, cultural, commercial and other purposes; (d) groundwater quality is suitable for drinking; (e) the quality of surface water utilised for community drinking water supply remains suitable for drinking after existing treatment; and (f) coastal waters support healthy ecosystems.
Policy 15.1.1	As a minimum, the quality of freshwater and coastal waters will be managed so that they are suitable for the following purposes: (a) Coastal waters: protection of marine ecosystems; potential for contact recreation and food gathering/marine farming; and for cultural and aesthetic purposes;…

	Enable point source discharge of contaminants or water to water where the discharge will not result: (a) in any of the following adverse effects beyond the zone of reasonable mixing: i. the production of conspicuous oil or grease films, scums, foams or floatable or suspended materials; ii. any conspicuous Policy 15.1.9 change in the colour or significant decrease in the clarity of the receiving waters; iii. the rendering of freshwater unsuitable for consumption by farm animals; iv. any significant adverse effect on the growth, reproduction or movement of aquatic life; or…

MARLBOROUGH DISTRICT COUNCIL

ISO 9001
Document Number:
RAD0142-CI1929

RESOURCE MANAGEMENT ACT 1991

Decision of Marlborough District Council Change of Resource Consent Conditions

RESOURCE CONSENT:	U140294
APPLICANT:	The New Zealand King Salmon Company Limited
LOCATION:	Waitata Reach, Pelorus Sound/Te Hoiere

THIS IS THE DECISION ON THE APPLICATION TO CHANGE RESOURCE CONSENT CONDITIONS:

To change Condition 2 to enable an alternative net pen layout on the existing Waitata salmon farm.

DECISION: **Granted**

MARLBOROUGH DISTRICT COUNCIL
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BLENHEIM 7240
NEW ZEALAND

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Decision

Pursuant to section 127 and after having regard to Part 2 matters and sections 88 to 121 of the Resource Management Act 1991, the Marlborough District Council hereby **changes** Condition 2 of Resource Consent U140294 for marine farm site 8632 as follows:

- **Condition 2 now reads:**

  The occupancy and activity shall be limited to the area shown on Figure 1 or Figure 1A attached to this consent. The marine farm layout shall be generally in accordance with the layout shown on Figure 1 or Figure 1A.

  Advice Note: While the occupancy and activity associated with the marine farm and marine farming will occur within the area specified in Condition 2, some effects arising from the activities may be experienced beyond the boundary of this area. For example, the marine farm will be able to be seen and heard from beyond the boundary of the area, and some waste material will travel beyond the boundary.

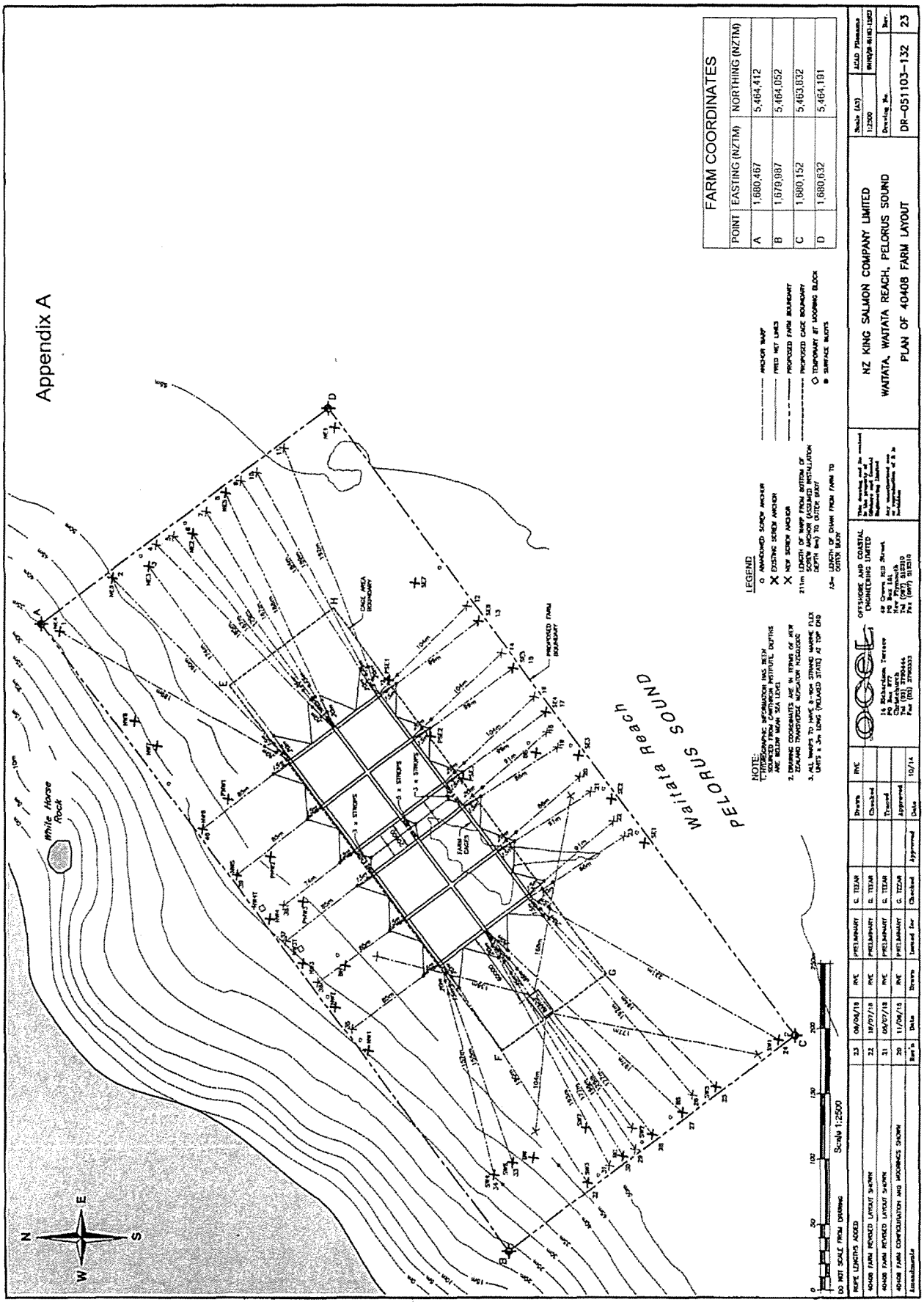
Advice Note

Figure 1A is appended to this decision.

This decision is to be read in conjunction with the original decision dated 17 April 2014.

Initial

FIGURE 1A of CONDITION 2 of U140294



Reasons

Proposal

1. The consent holder seeks to change Condition 2 to enable an alternative net pen layout. The alternative layout comprises the insertion of a 20 metre wide gap between two blocks of four net pens. The two blocks of net pens would remain connected by approximately 11 strops. The net pens would remain entirely within the consented net pen area boundary.

Background

2. The existing marine farm has the benefit of Resource Consent U140294, granted on 17 April 2014 and due to expire on 10 December 2049. The farm was approved following a Board of Inquiry process which commenced in 2011.

3. The net pen layout as originally approved comprises 2 contiguous rows of 4 net pens, with combined outside dimensions of 85 metres by 170 metres.

Activity Status

4. Section 127 of the Resource Management Act 1991 requires any application for a change of conditions to be assessed as a discretionary activity.

Notification and Affected Persons

5. The application was processed without public or limited notification.

Assessment of Effects

6. In terms of the considerations required by section 104(1)(a) of the Resource Management Act 1991 it is concluded that the approved change of condition would not result in any greater adverse effects on the environment than those arising from the consent as originally granted. In reaching this conclusion it is assessed that the proposed 20 metre wide gap is sufficiently small so as to not result in additional adverse visual effects and, with regard to benthic effects, falls within the spatial tolerance for net pen movements in the applicable Best Management Practice Guidelines.

Relevant Statutory and Plan Provisions

7. In terms of the considerations required by section 104(1)(b) of the Resource Management Act 1991, Policies 6, 8, 11, 13, 15 and 18 of the New Zealand Coastal Policy Statement 2010; Objectives 5.3.2, 5.3.10, 7.1.2, 7.1.9, 7.2.7 and 8.1.2 and Policies 5.3.5, 5.3.11, 7.1.7, 7.2.8, 7.2.10 and 8.1.6 of the Marlborough Regional Policy Statement; Policies 2.2.1.2, 4.3.1.2, 6.1.2.1.4, 8.3.1.2, 9.2.1.1.1, 9.3.2.1.4, 9.4.1.1.1 and 19.3.1.1 of the Marlborough Sounds Resource Management Plan; and Policies 3.1.3, 5.10.3, 6.2.2, 6.2.5, 6.2.7, 7.2.4, 8.2.9, 8.3.1, 8.3.2, 8.3.5, 9.1.13, 13.2.1, 13.2.2, 13.2.5, 13.2.6, 13.10.5, 13.10.6, 13.10.7, 13.10.9, 13.10.10, 13.15.2, 15.1.1 and 15.1.9 of the proposed Marlborough Environment Plan are of relevance to an evaluation of the proposal. On the basis of the submitted application it is concluded that the change of Condition 2 is consistent with the identified provisions.

NRE

Part 2 Resource Management Act 1991

8. Having considered the matters of national importance, other matters and principles of the Treaty of Waitangi as required by Part 2 of the Resource Management Act 1991, it is concluded that the sole purpose of the Act would be better achieved through approving the proposed change of consent condition.

Recommended for approval:

.....

Peter Johnson
Senior Resource Management Officer

Approved:

Anna L. Eatherley.....

Anna Eatherley
Marlborough District Council Manager Resource Consents

16th November 2018
Date

Additional Important Information for Resource Consent Holders

The following information provided in this information sheet is a guide to the legal rights of applicants and submitters.

If you want to discuss matters raised in this information sheet you are welcome to contact Council. However, if you require specific advice you should contact an independent professional and refer to the relevant sections of the Resource Management Act 1991.

Change or Cancellation of Conditions of Resource Consent

Refer to section 127 of the Resource Management Act 1991

- The consent holder may apply to the Council to change or cancel conditions of the consent, except a condition specifying duration.

Monitoring Fees

Refer to section 36 of the Resource Management Act 1991 and the Council's Schedule of Fees

- The consent holder will be charged for actual and reasonable costs associated with the monitoring of this consent.

Objections

Refer to section 357 of the Resource Management Act 1991

- In certain circumstances the applicant has the right to object to the Council's decision.
- Any objection shall be made in **writing** and will need to outline the reasons for the objection.
- An objection needs to be lodged with the Council within **15 working days** of the Council's decision being received by you or your agent.

Appeals

Refer to Form 16 and sections 120 and 121 of the Resource Management Act 1991

- The applicant and any submitters have the right to appeal the whole or any part of the Council's decision, however there is no right of appeal against the whole or any part of the decision to the extent that the decision relates to one or more of the following, but no other, activities:
  - a) a boundary activity, unless the boundary activity is a non-complying activity;
  - b) a subdivision, unless the subdivision is a non-complying activity;
  - c) a residential activity as defined in section 95A(6), unless the residential activity is a non-complying activity.
- A submitter can only appeal to the Environment Court if their appeal is related to a matter raised in their submission and their submission, or the part of their submission to which the appeal relates, has not been struck out under section 41D of the Resource Management Act 1991.
- A notice of appeal must be lodged with the Environment Court and the Council, within **15 working days** of the Council's decision being received (or received by your agent on your behalf). A copy also needs to be served on the applicant and submitters to the application within 5 working days of the notice being lodged with the Environment Court.

Before lodging an objection or an appeal it is recommended that you seek professional advice.

MARLBOROUGH DISTRICT COUNCIL

ISO 9001
Document Number:
RAD0142 CI1020

RESOURCE MANAGEMENT ACT 1991

Decision of Marlborough District Council Change of Resource Consent Conditions

RESOURCE CONSENT:	U140294
APPLICANT:	The New Zealand King Salmon Company Limited
LOCATION:	Waitata Reach, Pelorus Sound/Te Hoiere

THIS IS THE DECISION ON THE APPLICATION TO CHANGE RESOURCE CONSENT CONDITIONS:

To change Condition 37 by adding the following sentence:

However during the 2019 monitoring and discharge year, the requirements of Conditions 37(a) and (b) need not be met, provided that the requirements of Condition 37(c) are met.

DECISION: **Granted**

MARLBOROUGH DISTRICT COUNCIL
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Decision

Pursuant to section 127 and after having regard to Part 2 matters and sections 88 to 121 of the Resource Management Act 1991, the Marlborough District Council hereby **changes** Condition 37 of Resource Consent U140294 for marine farm site 8632 as follows:

- **Condition 37 now reads:**

  There shall be no increase in the annual tonnage of feed discharged to the marine farm unless the following requirements are met:

  (a) The marine farm shall have operated at or near (±15%) its current maximum annual feed discharge level for at least 3 years; and

  (b) Annual monitoring results of the Enrichment Stage (ES) from the most recent two successive years shall be comparable, based on the monitoring undertaken in Condition 66, assessed as follows. The Enrichment Stage (ES) from the annual monitoring, assessed in accordance with Condition 40, shall statistically not be significantly more than the ES from the previous year, based on the average result for all sampling stations (Figure 3) within each compliance Zone. The requirement must be met for each of the Environmental Quality Standards (EQS) compliance Zones for which ES are specified in Condition 40; and

  (c) The marine farm complies with all the EQS specified in Condition 40 and is less than the relevant maximum EQS for each Zone;

  However during the 2019 monitoring and discharge year, the requirements of Conditions 37(a) and (b) need not be met, provided that the requirements of Condition 37(c) are met.

Advice Note

This decision is to be read in conjunction with the original decision dated 17 April 2014.

Reasons

Proposal

1. The consent holder seeks to change Condition 37 by adding the following sentence to the end of the existing condition:

   "However during the 2019 monitoring and discharge year, the requirements of Conditions 37(a) and (b) need not be met, provided that the requirements of Condition 37(c) are met."

2. The effect of the proposed change is to enable the maximum feed discharge to be increased by 1,000 tonnes during the 2019 calendar year, taking the maximum to 4,000 tonnes. However, other consent conditions (and other factors) would still control whether or not the increase in feed discharge can in fact be realised. The applicant has confirmed that all such consent conditions will still be complied with.

Initial

Background

3. The existing marine farm has the benefit of Resource Consent U140294, granted on 17 April 2014 and due to expire on 10 December 2049. The farm was approved following a Board of Inquiry process which commenced in 2011.

4. Condition 37 as originally granted appears to take a precautionary approach in requiring the feed level to be at or near 3,000 tonnes for the first three years before an increase in the feed level can be considered. For various reasons the feed level has dropped to an estimated 2,300 tonnes for 2018, hence the current application to change Condition 37.

Activity Status

5. Section 127 of the Resource Management Act 1991 requires any application for a change of conditions to be assessed as a discretionary activity.

Notification and Affected Persons

6. The application was processed without public or limited notification.

Assessment of Effects

7. In terms of the considerations required by section 104(1)(a) of the Resource Management Act 1991, from the submitted application and the available monitoring records it is concluded that the approved change of condition would not result in any greater adverse effects on the environment than those arising from the consent as originally granted. In reaching this conclusion it is assessed that the original consent clearly allowed for the additional feed and, more importantly, on the basis of the annual monitoring and scientific evaluations carried out to date it is highly unlikely that the additional feed would result in a breach of the applicable Environmental Quality Standards or other such limitations in the consent.

8. Further, it is assessed that the approved change to Condition 37 would not by itself enable an increase in the discharge level; the web of other relevant consent conditions would remain unchanged by the current proposal. Notably, those conditions require favourable 2018-2019 and 2019-2020 Marine Environmental Monitoring - Adaptive Management Plans and a favourable 2018-2019 Environmental Monitoring Report, the latter of which will include the results of more detailed (Type-3) monitoring to be carried out in early 2019. Such reports require review by the Peer Review Panel and Council and therefore the approved change to Condition 37 only removes one minor hurdle to increasing the feed discharge at the site.

Relevant Statutory and Plan Provisions

9. In terms of the considerations required by section 104(1)(b) of the Resource Management Act 1991, Policies 8, 11, 22 and 23 of the New Zealand Coastal Policy Statement 2010; Objectives 5.3.2, 5.3.10, 7.1.2, 7.1.9 and 7.2.7 and Policies 5.3.5, 5.3.11, 7.1.7 and 7.2.8 of the Marlborough Regional Policy Statement; Policies 2.2.1.2, 4.3.1.2, 9.2.1.1.1, 9.3.2.1.4 and 9.4.1.1.1 of the Marlborough Sounds Resource Management Plan; and Policies 6.2.2, 8.2.9, 8.3.1, 8.3.2, 8.3.5, 13.2.1, 13.2.2, 15.1.1 and 15.1.9 of the proposed Marlborough Environment Plan are of relevance to an evaluation of the proposal. On the basis of the submitted application and the available monitoring records to date, it is concluded that the change of Condition 37 is consistent with the identified provisions.

Part 2 Resource Management Act 1991

10. Having considered the matters of national importance, other matters and principles of the Treaty of Waitangi as required by Part 2 of the Resource Management Act 1991, it is concluded that the sole purpose of the Act would be better achieved through approving the proposed change of consent condition.

Recommended for approval:

.....

Peter Johnson
Senior Resource Management Officer

Approved:

.....

Anna Eatherley
Marlborough District Council Manager Resource Consents

4th October 2018

Date

Additional Important Information for Resource Consent Holders

The following information provided in this information sheet is a guide to the legal rights of applicants and submitters.

If you want to discuss matters raised in this information sheet you are welcome to contact Council. However, if you require specific advice you should contact an independent professional and refer to the relevant sections of the Resource Management Act 1991.

Change or Cancellation of Conditions of Resource Consent

Refer to section 127 of the Resource Management Act 1991

- The consent holder may apply to the Council to change or cancel conditions of the consent, except a condition specifying duration.

Monitoring Fees

Refer to section 36 of the Resource Management Act 1991 and the Council's Schedule of Fees

- The consent holder will be charged for actual and reasonable costs associated with the monitoring of this consent.

Objections

Refer to section 357 of the Resource Management Act 1991

- In certain circumstances the applicant has the right to object to the Council's decision.
- Any objection shall be made in **writing** and will need to outline the reasons for the objection.
- An objection needs to be lodged with the Council within **15 working days** of the Council's decision being received by you or your agent.

Appeals

Refer to Form 16 and sections 120 and 121 of the Resource Management Act 1991

- The applicant and any submitters have the right to appeal the whole or any part of the Council's decision, however there is no right of appeal against the whole or any part of the decision to the extent that the decision relates to one or more of the following, but no other, activities:
  - a) a boundary activity, unless the boundary activity is a non-complying activity;
  - b) a subdivision, unless the subdivision is a non-complying activity;
  - c) a residential activity as defined in section 95A(6), unless the residential activity is a non-complying activity.
- A submitter can only appeal to the Environment Court if their appeal is related to a matter raised in their submission and their submission, or the part of their submission to which the appeal relates, has not been struck out under section 41D of the Resource Management Act 1991.
- A notice of appeal must be lodged with the Environment Court and the Council, within **15 working days** of the Council's decision being received (or received by your agent on your behalf). A copy also needs to be served on the applicant and submitters to the application within 5 working days of the notice being lodged with the Environment Court.

Before lodging an objection or an appeal it is recommended that you seek professional advice.

MARLBOROUGH
DISTRICT COUNCIL

RESOURCE MANAGEMENT ACT 1991

Decision of Marlborough District Council Change of Resource Consent Conditions

RESOURCE CONSENT: U140294

APPLICANT: The New Zealand King Salmon Company Limited

LOCATION: Waitata Reach, Pelorus Sound

THIS IS THE DECISION ON THE APPLICATION TO CHANGE AND CANCEL RESOURCE CONSENT CONDITIONS:

To change condition 66(e) to enable the monitoring approach to water quality to be adjusted in accordance with recommendations of the Peer Review Panel.

DECISION: **Granted**

MARLBOROUGH DISTRICT COUNCIL
PO BOX 443
BLENHEIM 7240
NEW ZEALAND

TELEPHONE (0064) 3 520 7400
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WEB www.marlborough.govt.nz

Decision

Pursuant to section 127 and after having regard to Part 2 matters and sections 88 to 121 of the Resource Management Act 1991, the Marlborough District Council hereby **changes** Condition 66(e) of Resource Consent U140294 for marine farm site 8632 as follows:

- **Condition 66(e) now reads:**

  66. The MEM-AMP shall include the following monitoring:

  e. Targeted water column surveys to quantify the localised effect of the marine farm on surrounding water quality, for the purpose of obtaining information regarding marine farm-specific, near-farm mixing properties in order to provide a context for evaluating compliance with the EQS – WQS in condition 44. This shall involve a series of fine-scale surveys in the vicinity of the marine farm (within 1km from the net pens) measuring: salinity, clarity, temperature, chlorophyll *a*, turbidity, dissolved oxygen (DO), nutrient concentrations (NH4-N, NO3-N, NO2-N, DRP, Si, TN and TP), phytoplankton composition and biomass along transects that move away from the marine farm and span potential nutrient gradients. The surveys shall be undertaken at least twice per year and continued for at least two years after the marine farm has reached stable maximum feed discharge levels and no future increases are proposed. With respect to the monitoring objective, the monitoring approach may be adjusted over time in accordance with the written recommendation of the Peer Review Panel.

Advice Notes

1. This decision is to be read in conjunction with the original decision dated 17 April 2014.

Reasons

Proposal

1. The applicant seeks to change one of the adaptive management conditions applying to the existing 1.5 hectare salmon farm site number 8632 in Waitata Reach, in Pelorus Sound. The proposed change is the insertion of the following sentence at the end of condition 66(e): "With respect to the monitoring objective, the monitoring approach may be adjusted over time in accordance with the written recommendation of the Peer Review Panel." The effect of this additional sentence would be to allow water quality monitoring methodology to be adapted in light of new data, technology or methods. No change is proposed to the consented salmon farming activity.

Background

2. Application U140294 was granted by the Environmental Protection Authority on 17 April 2014 for a new 1.5 hectare salmon farm near White Horse Rock, in the Waitata Reach of Pelorus Sound. A suite of conditions were imposed on the consent in order to, amongst other things, monitor and respond to the effects of the farm on water quality.

Activity Status

3. Section 127 of the Resource Management Act 1991 requires any application for a change or cancellation of conditions to be assessed as a discretionary activity.

Initial

Notification and Affected Persons

4. Council processed the application without public or limited notification.

Assessment of Effects

5. In terms of the considerations required by section 104(1)(a) of the Resource Management Act 1991, based on the submitted application it is concluded that the proposed change of condition would have no adverse environmental effects and would be likely to result in improved water quality monitoring and related management outcomes for the salmon farm.

Relevant Statutory and Plan Provisions

6. In terms of the considerations required by section 104(1)(b) of the Resource Management Act 1991, based on the submitted application it is concluded that the proposed change of condition would be consistent with the relevant provisions of the New Zealand Coastal Policy Statement 2010, including Policies 8, 11, 12, 22 and 23; the Marlborough Regional Policy Statement, including Objective 5.3.2 and Policy 5.3.5; the Marlborough Sounds Resource Management Plan, including Policies 4.3.1.2, 9.2.1.1.1, 9.3.2.1.4 and 9.3.2.1.6; and the proposed Marlborough Environment Plan, including Policies 15.1.1 and 15.1.9.

Part 2 Resource Management Act 1991

7. Having considered the matters of national importance and other matters, including subsections 6(a), 6(c), 6(e), 7(a), 7(f) and 7(h), along with the relevant principles of the Treaty of Waitangi as required by Part 2 of the Resource Management Act 1991, it is concluded that the sole purpose of the Act would be better achieved through changing the condition as set out in this decision.

Recommended for approval:

.....
Peter Johnson
Resource Management Officer

Approved:

.....
Anna Eatherley
Marlborough District Council Manager Resource Consents

5th September 2017
Date

Additional Important Information for Resource Consent Holders

The following information provided in this information sheet is a guide to the legal rights of applicants and submitters.

If you want to discuss matters raised in this information sheet you are welcome to contact Council. However, if you require specific advice you should contact an independent professional and refer to the relevant sections of the Resource Management Act 1991.

Change or Cancellation of Conditions of Resource Consent

Refer to section 127 of the Resource Management Act 1991

- The consent holder may apply to the Council to change or cancel conditions of the consent, except a condition specifying duration.

Monitoring Fees

Refer to section 36 of the Resource Management Act 1991 and the Council's Schedule of Fees

- The consent holder will be charged for actual and reasonable costs associated with the monitoring of this consent.

Objections

Refer to section 357 of the Resource Management Act 1991

- In certain circumstances the applicant has the right to object to the Council's decision.
- Any objection shall be made in **writing** and will need to outline the reasons for the objection.
- An objection needs to be lodged with the Council within **15 working days** of the Council's decision being received by you or your agent.

Appeals

Refer to Form 16 and sections 120 and 121 of the Resource Management Act 1991

- The applicant and any submitters have the right to appeal the whole or any part of the Council's decision.
- A notice of appeal must be lodged with the Environment Court and the Council, within **15 working days** of the Council's decision being received (or received by your agent on your behalf). A copy also needs to be served on the applicant and submitters to the application within 5 working days of the notice being lodged with the Environment Court.

Before lodging an objection or an appeal it is recommended that you seek professional advice.

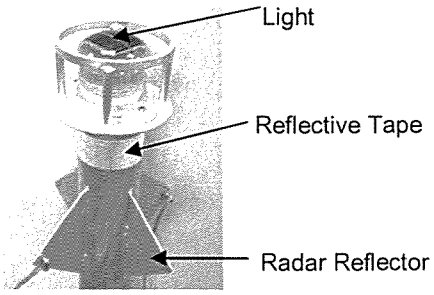
MARLBOROUGH DISTRICT COUNCIL

Marine Farm Lighting and Marking Plan – U140294 (Site no.8632)

I, Alexander van Wijngaarden, Harbourmaster of Marlborough District Council, hereby approve, under Maritime Delegation from the Director of Maritime New Zealand pursuant to Sections 200, 444(2) and 444(4) of the Maritime Transport Act 1994, the lighting and marking associated with coastal permit U140294, (Site no.8632), located in Waitata Bay, Outer Pelorus, as follows:

1. **That each end of each longline display an orange buoy, as shall the middle of each of the seawardmost and landwardmost longlines.**

2. **That a yellow light, radar reflector and a band of reflective tape 50 millimetres in width be displayed in the positions marked 'A' on the attached structures plan. The lights shall be solar powered and shall have the following characteristics: F1 (5) Y (20 secs) 1m 1M.**



3. **That radar reflectors and a band of reflective tape be displayed in the positions marked 'B' on the attached structures plan.**

4. **That a band of reflective tape 50 millimetres in width be displayed in the positions marked 'C' on the attached structures plan.**

Interpretation:

Light - **a yellow light, group flash 5 every 20 seconds (minimum flash length not less than 0.5 seconds), height of light not less than 1 metre above the water, range at least 1 nautical mile.**

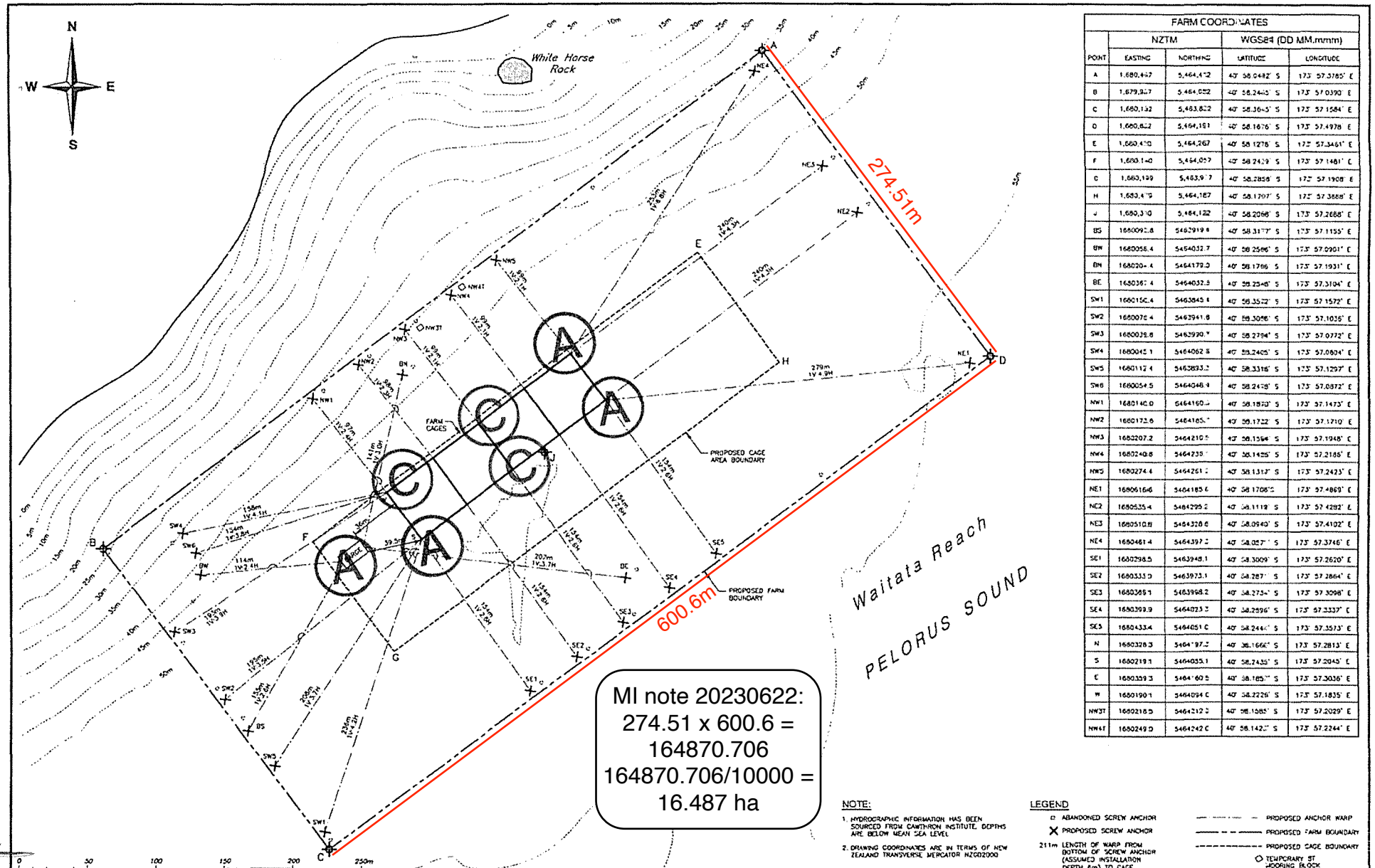
Radar reflector – **to be set at not less than 1 metre above the waterline with a band of reflective tape set above this. The radar reflector should be visible on radar at a range of at least 500 metres.**

Reflective tape – **should be at least 50 millimetres in width and placed around the circumference of the support tube; the tape should be visible by torchlight at a range of at least 50 metres. Alternative reflectors may be substituted for reflective tape, provided that they are mounted where they are visible by torchlight from at least 50 metres all round.**

5. **Each end of the most landward and most seaward longlines shall carry the name of the consent holder, and the site number issued by Marlborough District Council (e.g. #8405), displayed in bold clear letters in such a manner that they can be clearly read from a distance of 10 metres.**

Given under my hand this 13th day of April 2016

ALEXANDER VAN WIJNGAARDEN



FARM COORDINATES				
	NZTM		WGS84 (DD MM.mmm)	
POINT	EASTING	NORTHING	LATITUDE	LONGITUDE
A	1,680,447	5,464,472	40° 58.0482' S	173° 57.3785' E
B	1,679,947	5,464,032	40° 58.2445' S	173° 57.0390' E
C	1,680,132	5,463,822	40° 58.36-5' S	173° 57.1584' E
D	1,680,622	5,464,161	40° 58.1676' S	173° 57.4978' E
E	1,680,470	5,464,267	40° 58.1278' S	173° 57.3461' E
F	1,680,140	5,464,057	40° 58.2439' S	173° 57.1481' E
G	1,680,199	5,463,9[illegible]7	40° 58.2856' S	173° 57.1908' E
H	1,680,479	5,464,167	40° 58.1797' S	173° 57.3888' E
J	1,680,310	5,464,122	40° 58.2066' S	173° 57.2688' E
BS	1680092.8	5462919.8	40° 58.3177' S	173° 57.1155' E
BW	1680058.4	5464032.7	40° 58.2586' S	173° 57.0901' E
BN	1680204.4	5464179.0	40° 58.1796' S	173° 57.1931' E
BE	1680367.4	5464032.8	40° 58.2548' S	173° 57.3104' E
SW1	1680156.4	5463845.8	40° 58.3522' S	173° 57.1572' E
SW2	1680076.4	5463941.8	40° 58.3086' S	173° 57.1035' E
SW3	1680036.8	5462990.*	40° 58.2794' S	173° 57.0772' E
SW4	1680045.1	5464062.8	40° 58.2405' S	173° 57.0804' E
SW5	1680112.4	5462893.2	40° 58.3316' S	173° 57.1297' E
SW6	1680054.5	5464048.9	40° 58.2478' S	173° 57.0872' E
NW1	1680140.0	5464160.[illegible]	40° 58.1870' S	173° 57.1473' E
NW2	1680172.6	5464165.*	40° 58.1722' S	173° 57.1710' E
NW3	1680207.2	5464210.5	40° 58.1564' S	173° 57.1948' E
NW4	1680240.8	5464255.*	40° 58.1425' S	173° 57.2186' E
NW5	1680274.4	5464261.[illegible]	40° 58.1317' S	173° 57.2423' E
NE1	16806166	5464185.6	40° 58.1706'S	173° 57.4869' E
NE2	1680535.4	5464295.2	40° 58.1119' S	173° 57.4282' E
NE3	1680510.8	5464328.6	40° 58.0940' S	173° 57.4102' E
NE4	1680481.4	5464397.2	40° 58.057[illegible]' S	173° 57.3746' E
SE1	1680298.5	5463948.1	40° 58.3009' S	173° 57.2620' E
SE2	1680333.0	5463973.1	40° 58.287[illegible]' S	173° 57.2864' E
SE3	1680368.1	5463998.2	40° 58.273[illegible]' S	173° 57.3098' E
SE4	1680399.9	5464023.2	40° 58.2596' S	173° 57.3337' E
SE5	1680433.4	5464051.0	40° 58.2446' S	173° 57.3573' E
N	1680328.3	5464197.2	40° 58.1666' S	173° 57.2813' E
S	1680219.1	5464035.1	40° 58.2435' S	173° 57.2045' E
E	1680359.3	5464160.5	40° 58.185[illegible]' S	173° 57.3036' E
W	1680190.1	5464094.0	40° 58.2226' S	173° 57.1835' E
NW3T	1680218.5	5464212.0	40° 58.1085' S	173° 57.2029' E
NW4T	1680249.0	5464242.0	40° 58.142[illegible]' S	173° 57.2244' E

MI note 20230622:
274.51 x 600.6 =
164870.706
164870.706/10000 =
16.487 ha

NOTE:
1. HYDROGRAPHIC INFORMATION HAS BEEN SOURCED FROM CAWTHRON INSTITUTE. DEPTHS ARE BELOW MEAN SEA LEVEL
2. DRAWING COORDINATES ARE IN TERMS OF NEW ZEALAND TRANSVERSE MERCATOR NZG02000

LEGEND
- ABANDONED SCREW ANCHOR
- PROPOSED SCREW ANCHOR
- 211m LENGTH OF WARP FROM BOTTOM OF SCREW ANCHOR (ASSUMED INSTALLATION DEPTH 6m) TO CAGE
- 1V:3.6H SLOPE OF ANCHOR WARP
- PROPOSED ANCHOR WARP
- PROPOSED FARM BOUNDARY
- PROPOSED CAGE BOUNDARY
- TEMPORARY ST MOORING BLOCK

CONSTRUCTION

0 50 100 150 200 250m
DO NOT SCALE FROM DRAWING Scale 1:2500

PLAN OF PROPOSED FARM
Scale 1:5000

Amendments	Rev'n	Date	Drawn	Issued for	Checked	Approved	Date
AS BUILT FARM COORDS ADDED	8	11/03/16	RVE	AS BUILT	G. TEEAR		
ANCHORS SW1A + SW4A ADDED	7	02/02/16	RVE	CONSTRUCTION	G. TEEAR		
TEMPORARY 8T CONCRETE BLOCK ANCHORS NW3T + NW4T ADDED	6	23/12/15	RVE	CONSTRUCTION	G. TEEAR		
ANCHORS SE7 + NW7 REMOVED, SE5 + NW5 REINSTATED	5	10/12/15	RVE	CONSTRUCTION	G. TEEAR		
							10/14

Drawn RVE
Checked
Traced
Approved
Date 10/14

CONSULTANTS NZ LIMITED
272-278 Antigua Street, PO Box 877, Christchurch, Tel (03) 3790444, Fax (03) 3790333
49 Crown Hill Street, PO Box 151, New Plymouth, Tel (067) 512310, Fax (067) 512310

NZ KING SALMON COMPANY LIMITED
WAITATA, WAITATA REACH, PELORUS SOUND
PLAN OF PROPOSED 40404 FARM LAYOUT

Scale (A3)	ACAD Filename
1:2500	051103/DR-051103-1328
Drawing No	Rev
DR-051103-132	8

1344/16

Appendix C

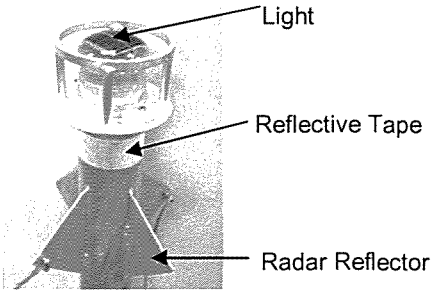
MARLBOROUGH DISTRICT COUNCIL

Marine Farm Lighting and Marking Plan – U140294 (Site no.8632)

I, Alexander van Wijngaarden, Harbourmaster of Marlborough District Council, hereby approve, under Maritime Delegation from the Director of Maritime New Zealand pursuant to Sections 200, 444(2) and 444(4) of the Maritime Transport Act 1994, the lighting and marking associated with coastal permit U140294 (Site no.8632), located in Waitata Bay, Outer Pelorus, as follows:

1. **That each end of each longline display an orange buoy, as shall the middle of each of the seawardmost and landwardmost longlines.**

2. **That a yellow light, radar reflector and a band of reflective tape 50 millimetres in width be displayed in the positions marked 'A' on the attached structures plan. The lights shall be solar powered and shall have the following characteristics: F1 (5) Y (20 secs) 1m 1M.**



3. **That radar reflectors and a band of reflective tape be displayed in the positions marked 'B' on the attached structures plan.**

4. **That a band of reflective tape 50 millimetres in width be displayed in the positions marked 'C' on the attached structures plan.**

Interpretation:

Light - **a yellow light, group flash 5 every 20 seconds (minimum flash length not less than 0.5 seconds), height of light not less than 1 metre above the water, range at least 1 nautical mile.**

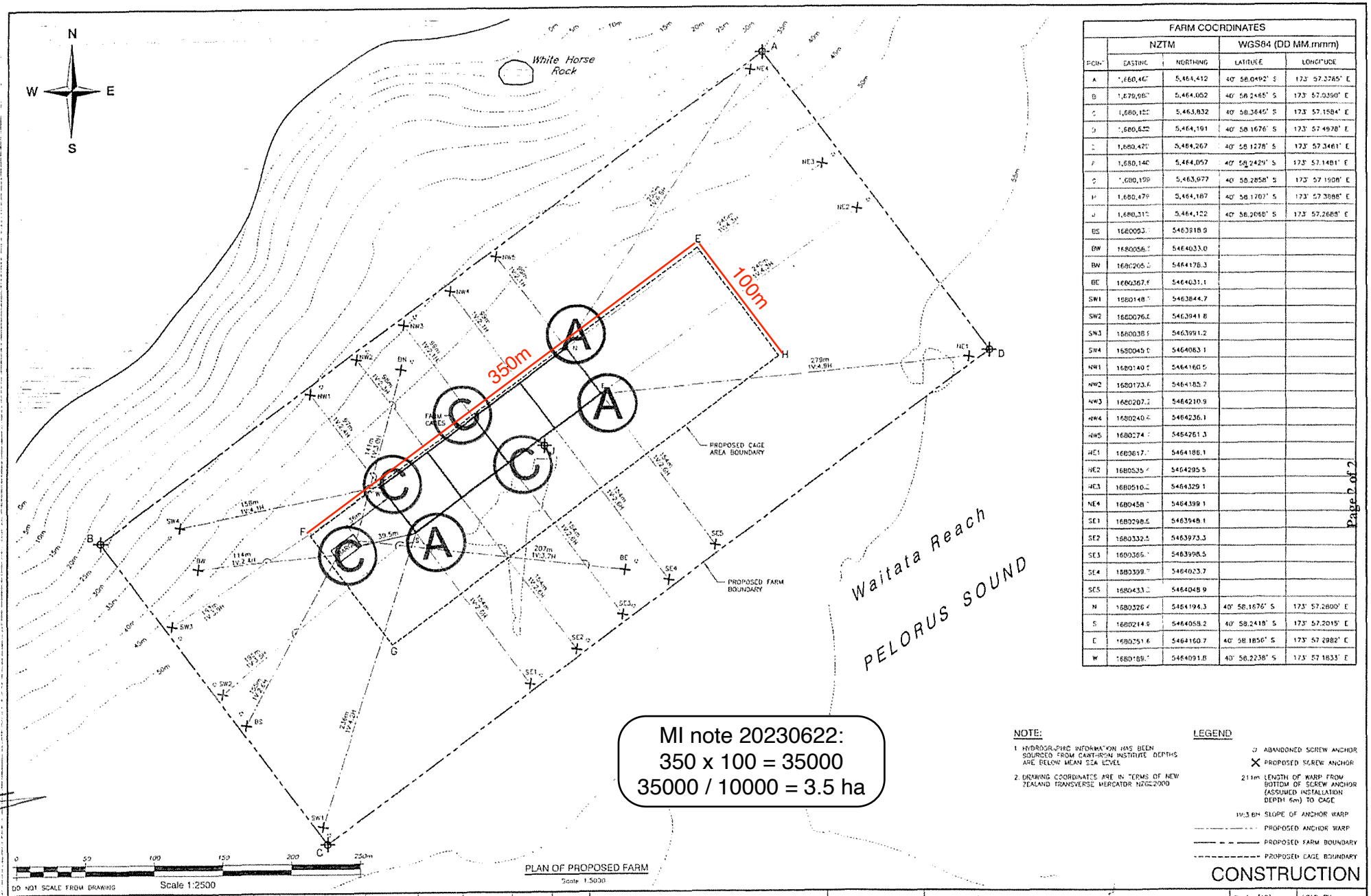
Radar reflector – **to be set at not less than 1 metre above the waterline with a band of reflective tape set above this. The radar reflector should be visible on radar at a range of at least 500 metres.**

Reflective tape – **should be at least 50 millimetres in width and placed around the circumference of the support tube; the tape should be visible by torchlight at a range of at least 50 metres. Alternative reflectors may be substituted for reflective tape, provided that they are mounted where they are visible by torchlight from at least 50 metres all round.**

5. **Each end of the most landward and most seaward longlines shall carry the name of the consent holder, and the site number issued by Marlborough District Council (e.g. #8405), displayed in bold clear letters in such a manner that they can be clearly read from a distance of 10 metres.**

Given under my hand this 18th day of DECEMBER 2015

ALEXANDER VAN WIJNGAARDEN



PLAN OF PROPOSED FARM

Scale 1:5000

DO NOT SCALE FROM DRAWING

Scale 1:2500

FARM COORDINATES				
	NZTM		WGS84 (DD MM.mmm)	
POINT	EASTING	NORTHING	LATITUDE	LONGITUDE
A	1,680,467	5,464,412	40° 58.0492' S	173° 57.3765' E
B	1,679,987	5,464,052	40° 58.2465' S	173° 57.0390' E
C	1,680,122	5,463,832	40° 58.3645' S	173° 57.1584' E
D	1,680,602	5,464,191	40° 58.1676' S	173° 57.4978' E
E	1,680,420	5,464,267	40° 58.1278' S	173° 57.3461' E
F	1,680,140	5,464,057	40° 58.2429' S	173° 57.1481' E
G	1,680,199	5,463,977	40° 58.2858' S	173° 57.1906' E
H	1,680,479	5,464,187	40° 58.1707' S	173° 57.3888' E
J	1,680,319	5,464,122	40° 58.2058' S	173° 57.2688' E
BS	1680093.[illegible]	5463918.9		
BW	1680056.[illegible]	5464033.0		
BW	1680205.[illegible]	5464176.3		
BE	1680367.[illegible]	5464031.1		
SW1	1680148.[illegible]	5463844.7		
SW2	1680076.[illegible]	5463941.8		
SW3	1680038.[illegible]	5463991.2		
SW4	1680045.[illegible]	5464063.1		
NW1	1680140.[illegible]	5464160.5		
NW2	1680173.[illegible]	5464185.2		
NW3	1680207.[illegible]	5464210.9		
NW4	1680240.[illegible]	5464236.1		
NW5	1680274.[illegible]	5464261.3		
NE1	1680617.[illegible]	5464186.1		
NE2	1680535.[illegible]	5464295.5		
NE3	1680510.[illegible]	5464329.1		
NE4	1680458.[illegible]	5464399.1		
SE1	1680298.6	5463948.1		
SE2	1680332.5	5463973.3		
SE3	1680366.[illegible]	5463998.5		
SE4	1680399.[illegible]	5464023.7		
SE5	1680433.[illegible]	5464048.9		
N	1680326.4	5464194.3	40° 58.1676' S	173° 57.2800' E
S	1680214.9	5464058.2	40° 58.2418' S	173° 57.2015' E
E	1680251.6	5464160.7	40° 58.1856' S	173° 57.2982' E
W	1680189.[illegible]	5464091.8	40° 58.2238' S	173° 57.1833' E

MI note 20230622:
350 x 100 = 35000
35000 / 10000 = 3.5 ha

NOTE:

1. HYDROGRAPHIC INFORMATION HAS BEEN SOURCED FROM CANTERBURY INSTITUTE DEPTHS ARE BELOW MEAN SEA LEVEL
2. DRAWING COORDINATES ARE IN TERMS OF NEW ZEALAND TRANSVERSE MERCATOR NZGD2000

LEGEND

- ○ ABANDONED SCREW ANCHOR
- ✕ PROPOSED SCREW ANCHOR
- 21m LENGTH OF WARP FROM BOTTOM OF SCREW ANCHOR (ASSUMED INSTALLATION DEPTH 6m) TO CAGE
- 1V:3.8H SLOPE OF ANCHOR WARP
- PROPOSED ANCHOR WARP
- PROPOSED FARM BOUNDARY
- PROPOSED CAGE BOUNDARY

CONSTRUCTION

Amendments	Rev'n	Date	Drawn	Issued for	Checked	Approved	Date
ANCHORS SE7 + NW7 REMOVED	4	10/12/15	RVE	CONSTRUCTION	G TEEAR		10/14
FARM MOVED 10m SW AND ANCHORS RELOCATED	3	01/12/15	RVE	CONSTRUCTION	G TEEAR		
CAGES MOVED TO INSHORE SIDE	2	12/10/15	RVE	PRELIMINARY	G TEEAR		
PRELIMINARY ISSUE	1	20/10/14	RVE	PRELIMINARY	G TEEAR		

Drawn RVE
Checked
Traced
Approved

oceL CONSULTANTS NZ LIMITED
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NZ KING SALMON COMPANY LIMITED

WAITATA, WAITATA REACH, PELORUS SOUND

PLAN OF PROPOSED 4C4C4 FARM LAYOUT

Scale (A3)	ACAD Filename
1:2500	051103\29-051103-132\4
Drawing No	Rev
DR–051103–132	4

Page 2 of 2

18/12/15.

IN THE SUPREME COURT OF NEW ZEALAND

SC 82/2013
[2014] NZSC 41

BETWEEN	ENVIRONMENT DEFENCE SOCIETY INCORPORATED Appellant
AND	THE NEW ZEALAND KING SALMON COMPANY LIMITED First Respondent
	SUSTAIN OUR SOUNDS INCORPORATED Second Respondent
	MARLBOROUGH DISTRICT COUNCIL Third Respondent
	MINISTER OF CONSERVATION AND DIRECTOR-GENERAL OF MINISTRY FOR PRIMARY INDUSTRIES Fourth Respondents

SC 84/2013

BETWEEN	SUSTAIN OUR SOUNDS INCORPORATED Appellant
AND	THE NEW ZEALAND KING SALMON COMPANY LIMITED First Respondent
	ENVIRONMENTAL DEFENCE SOCIETY INCORPORATED Second Respondent
	MARLBOROUGH DISTRICT COUNCIL Third Respondent
	MINISTER OF CONSERVATION AND DIRECTOR-GENERAL OF MINISTRY FOR PRIMARY INDUSTRIES Fourth Respondents

Hearing:	16 October 2013
Court:	Elias CJ, McGrath, William Young, Glazebrook and Arnold JJ
Counsel:	D A Kirkpatrick, R B Enright and N M de Wit for Environmental Defence Society Incorporated D A Nolan, A S Butler and D J Minhinnick for The New Zealand King Salmon Company Limited M S R Palmer and K R M Littlejohn for Sustain Our Sounds Incorporated P A McCarthy for Minister of Conservation and Director-General of Ministry for Primary Industries S F Quinn for Marlborough District Council P T Beverley and D G Allen for the Board of Inquiry
Judgment:	17 April 2014

JUDGMENT OF THE COURT

A. The application under s 149V of the Resource Management Act 1991 by the Environmental Defence Society for leave to appeal the decision of the High Court dated 8 August 2013 is granted. The questions of law for determination on the appeal are:

(a) Was the Board of Inquiry's approval of the Papatua plan change one made contrary to ss 66 and 67 of the Act through misinterpretation and misapplication of Policies 8, 13, and 15 of the New Zealand Coastal Policy Statement? This turns on:

(i) Whether, on its proper interpretation, the New Zealand Coastal Policy Statement has standards which must be complied with in relation to outstanding coastal landscape and natural character areas and, if so, whether the Papatua Plan Change complied with s 67(3)(b) of the Act because it did not give effect to Policies 13 and 15 of the New Zealand Coastal Policy Statement.

(ii) Whether the Board properly applied the provisions of the Act and the need to give effect to the New Zealand Coastal Policy Statement under s 67(3)(b) of the Act in coming to a "balanced judgment" or assessment "in the round" in considering conflicting policies.

(b) **Was the Board obliged to consider alternative sites or methods when determining a private plan change that is located in, or results in significant adverse effects on, an outstanding natural landscape or feature or outstanding natural character area within the coastal environment? This question raises the correctness of the approach taken by the High Court in *Brown v Dunedin City Council* [2003] NZRMA 420 and whether, if sound, the present case should properly have been treated as an exception to the general approach. Whether any error in approach was material to the decision made will need to be addressed if necessary.**

B. The application under s 149V of the Resource Management Act 1991 by Sustain Our Sounds Incorporated for leave to appeal the decision of the High Court dated 8 August 2013 is granted. The question of law for determination on the appeal is:

> **Was the conclusion of the Board of Inquiry that the key environmental effects of the plan change in issue would be adequately managed by the maximum feed discharge levels set in the plan and the consent conditions it proposed to impose in granting the resource consent to King Salmon one made in accordance with the Act and open to it?**

REASONS

[1] On 18 October 2013, this Court granted leave to appeal against a judgment of Dobson J[1] to the Environment Defence Society Inc (EDS) in SC 82/2013 and to Sustain Our Sounds Inc (SOS) in SC 84/2013.[2] Dobson J had dismissed an appeal on questions of law from a decision of a Board of Inquiry, which had granted plan changes and resource consents to the New Zealand King Salmon Company Ltd in relation to four salmon farms in the Marlborough Sounds.[3] The questions on which leave to appeal to this Court were granted are set out above.

[2] The appeals were heard together from 19 to 22 November 2013 and judgments have been issued today in *Environmental Defence Society Inc v The New*

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1 *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2013] NZHC 1992, [2013] NZRMA 371.

2 *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2013] NZSC 101.

3 Board of Inquiry *New Zealand King Salmon Requests for Plan Changes and Applications for Resource Consents*, 22 February 2013.

Zealand King Salmon Co Ltd[4] (the "EDS appeal") and *Sustain our Sounds Inc v The New Zealand King Salmon Company*[5] (the "SOS appeal").

[3] As indicated in our judgment on the EDS appeal,[6] this judgment deals with:

(a) the reasons leave was granted; and

(b) why the Court did not hear oral submissions from the Board of Inquiry and took no account of its written submissions.

Reason for grant of leave

[4] Leave to this Court was granted after applications were made by EDS and SOS under s 149V of the Resource Management Act 1991 (RMA) to appeal against the decision of the High Court. The relevant parts of s 149V are as follows:

> **149V Appeal from decisions only on question of law**
>
> ...
>
> (5) No appeal may be made to the Court of Appeal from a determination of the High Court under this section.
>
> (6) However, a party may apply to the Supreme Court for leave to bring an appeal to that court against a determination of the High Court and, for this purpose, sections 12 to 15 of the Supreme Court Act 2003 apply with any necessary modifications.
>
> (7) If the Supreme Court refuses to give leave for an appeal (on the grounds that exceptional circumstances have not been established under section 14 of the Supreme Court Act 2003), but considers that a further appeal from the determination of the High Court is justified, the court may remit the proposed appeal to the Court of Appeal.
>
> ...
>
> (9) Despite any enactment to the contrary,—
>
> ...

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4 *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38.

5 *Sustain Our Sounds Inc v The New Zealand King Salmon Company Co Ltd* [2014] NZSC 40.

6 *Environmental Defence Society Inc v New Zealand King Salmon Co Ltd* above n 4, at [4] and [6].

(b) the Supreme Court or the Court of Appeal, as the case may be, must determine an application for leave, or an appeal, to which this section applies as a matter of priority and urgency.

[5] As indicated s 149V(6) provides that ss 12 to 15 of the Supreme Court Act 2003 apply with any necessary modifications. Section 12(1) of the Supreme Court Act provides that appeals to this Court are to be heard only with the Court's leave. Under s 13(1), this Court must not give leave unless it is satisfied that it is necessary in the interests of justice for the Court to hear and determine the proposed appeal. Section 13(2) provides that it is in the interests of justice for this Court to hear an appeal if it involves a matter of general or public importance[7] or a matter of general commercial significance.[8]

[6] Section 14 provides that, where an appeal is to be made directly against a decision of a Court other than the Court of Appeal, in addition to being satisfied that it is necessary in the interests of justice to hear the appeal, the Court must be satisfied that there are exceptional circumstances justifying the direct appeal.

[7] In the context of s 149V, we consider that ss 13 and 14 of the Supreme Court Act mean that, where this Court is satisfied that it is in the interests of justice to hear a proposed appeal, it would normally remit the proposed appeal to the Court of Appeal unless satisfied that exceptional circumstances exist that mean this Court should hear the appeal.

[8] In both the EDS and the SOS appeals, leave was granted to appeal to this Court, rather than remitting the issue to the Court of Appeal under s 149V(7). In both cases, the appeals concerned a major aquaculture development that had been determined by the Minister of Conservation to involve matters of national significance and referred to a Board of Inquiry.

[9] In relation to the EDS appeal, the proposed appeal concerned an important issue as to the relationship between Part 2 of the RMA, (and s 5 in particular) and the hierarchy of instruments provided for in the RMA, including the New Zealand

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7 Section 13(2)(a).
8 Section 13(2)(b).

Coastal Policy Statement.[9] This issue has not been previously considered by this Court and it has the potential to affect all decisions under the RMA.

[10] In terms of the SOS application, the proposed appeal concerned the appropriate response of decision-making bodies when presented with scientific uncertainty and the interrelationship between the precautionary principle (as recognised in Policy 3 of the New Zealand Coastal Policy Statement) and an adaptive management approach. This also was a matter of major significance and one that has not been considered before by this Court.

[11] The above factors satisfied us that leave to appeal should be granted and that exceptional circumstances existed to require that appeal to be heard by this Court.

The Board's submissions

[12] The Board of Inquiry filed submissions covering both the EDS and SOS appeals. A decision maker cannot appear before this Court as of right[10] and generally, any assistance that could be rendered by a decision maker will be of little value. This is because all the issues will be adequately developed by the respective parties.

[13] In rare cases a decision maker may be of assistance, for example, where there is a need for a contradictor or where it is important that the Court have a wider perspective than the parties may be able to provide. If a decision maker does appear, it should as far as possible act in a non-partisan fashion.[11]

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9 Department of Conservation *New Zealand Coastal Policy Statement 2010* (issued by notice in the New Zealand Gazette on 4 November 2010 and taking effect on 3 December 2010).

10 Under r 20.17 of the High Court Rules, the decision maker is entitled to be represented and heard at the hearing of an appeal on all matters (unless the decision maker is a District Court, or the Court directs otherwise). Under r 1.4(2)(b), that rule does not apply to appeals to this Court. Even in the High Court, the authorities indicate that the right of a decision maker to take active steps in an appeal should be exercised sparingly: for example, see *Fonterra Co-operative Group Ltd v Grate Kiwi Cheese Co Ltd* (2009) 19 PRNZ 824 (HC) and *Attorney-General v Howard* [2010] NZCA 58, [2011] 1 NZLR 58.

11 *Attorney-General v Howard*, above n 10, at [145]; *NZ Paper Mills Ltd v Otago Acclimatisation Soc* [1992] 1 NZLR 400 (CA) at 403.

[14] With regard to the current case, we did not call on counsel for the Board to be heard orally and we did not take its submissions into account.[12] All issues were fully argued by the respective parties to the two appeals. Further, while the Board claimed that its submissions were non-partisan and there merely to assist the Court, numerous parts of the Board's submissions appeared to be entering the fray.

Solicitors:
DLA Phillips Fox, Auckland for Environmental Defence Society Incorporated
DLA Phillips Fox, Wellington for Marlborough District Council
Russell McVeagh, Wellington for The New Zealand King Salmon Company Limited
Dyhrberg Drayton, Wellington for Sustain Our Sounds Incorporated
Crown Law Office, Wellington for Minister of Conservation and Director-General of Ministry for Primary Industries
Buddle Findlay, Wellington for Board of Inquiry

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[12] However, we do acknowledge that the Board in one respect provided helpful submissions pointing out a statutory provision on its function to which the Court's attention had not been directed (s 149J(2) of the Resource Management Act 1991, as amended by s 25 of the Resource Management Amendment Act 2013).

IN THE SUPREME COURT OF NEW ZEALAND

SC 84/2013
[2014] NZSC 40

BETWEEN	SUSTAIN OUR SOUNDS INCORPORATED Appellant
AND	THE NEW ZEALAND KING SALMON COMPANY LIMITED First Respondent
	ENVIRONMENTAL DEFENCE SOCIETY INCORPORATED Second Respondent
	MARLBOROUGH DISTRICT COUNCIL Third Respondent
	MINISTER OF CONSERVATION AND DIRECTOR-GENERAL OF MINISTRY FOR PRIMARY INDUSTRIES Fourth Respondents

Hearing:	19, 20, 21 and 22 November 2013
Court:	Elias CJ, McGrath, William Young, Glazebrook and Arnold JJ
Counsel:	M S R Palmer and K R M Littlejohn for Appellant D A Nolan, J D K Gardner-Hopkins, D J Minhinnick and A S Butler for First Respondent D A Kirkpatrick, R B Enright and N M de Wit for Second Respondent C R Gwyn and E M Jamieson for Fourth Respondents P T Beverley and D G Allen for the Board of Enquiry
Judgment:	17 April 2014

JUDGMENT OF THE COURT

A **The appeal with regard to the Waitata, Richmond and Ngamahau sites is dismissed.**

B **Costs are reserved.**

REASONS

(Given by Glazebrook J)

Table of Contents

Introduction

[1] New Zealand King Salmon applied to establish nine new salmon farms in the Marlborough Sounds. Under the Marlborough District Council's combined Regional, District and Coastal Plan (the "Sounds Plan"),[1] the Coastal Marine Area in the Marlborough Sounds is divided into two zones: Coastal Marine Zone 1 where marine farms are prohibited and Coastal Marine Zone 2 where marine farming is usually a discretionary activity. With regard to eight of the sites, the application asked for a plan change so that these sites would be re-zoned to a new zone, Coastal Marine Zone 3, where the farming of salmon would be a discretionary (rather than prohibited) activity. Resource consents for the salmon farms at those eight sites were also sought. In addition, there was a separate resource consent application for the White Horse Rock site, which was situated in Zone 2.

[2] King Salmon's requested sites for spot zoning changes were in three different areas of the Sounds. Four were in Waitata Reach in Pelorus Sound: Waitata, Kaitira, Tapipi and Richmond. The White Horse Rock site was also in Waitata Reach. King Salmon requested its largest site, referred to as Papatua, in Port Gore in the outer Sounds. In Queen Charlotte Sound, the requested sites were at Kaitapeha and Ruaomoko. The final site was on the western shores of the Tory Channel, at Ngamahau.[2]

[3] The applications for the plan changes and the consents were referred by the Minister of Conservation[3] to a Board of Inquiry chaired by retired Environment Court Judge Whiting on 3 November 2011[4] and were heard and considered at the same time.[5] The Board granted plan changes in relation to four of the proposed sites

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1 Marlborough District Council *Marlborough Sounds Resource Management Plan* (2003).

2 For further details, see *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2013] NZHC 1992, [2013] NZRMA 371 [*King Salmon* (HC)] at [21].

3 The Minister of Conservation deals with proposals of national significance relating to the coastal marine area, the Minister of the Environment with other proposals of national significance: see Resource Management Act 1991 (RMA), s 148.

4 Pursuant to ss 147(1)(a) and 147(2) of the RMA. The Minister considered the proposals to be of "national significance".

5 This is allowed through an application under the RMA, s 165ZN. This section, and the other sections under subpart 4 of Part 7A of the RMA were introduced by the Resource Management Amendment Act (No 2) 2011. The purpose of these changes was to streamline planning and consent processes in relation to, among other things, aquaculture activities. For a full description of the background to this legislation, see Derek Nolan (ed) *Environmental and*

(Papatua, Ngamahau, Waitata and Richmond). This meant that salmon farming became a discretionary rather than prohibited activity at those sites.[6] Resource consents were also granted for those four sites, subject to detailed conditions of consent that were designed to monitor and address adverse effects under an adaptive management approach.[7] The application for consent for the White Horse Rock site was declined.

[4] Sustain Our Sounds Inc (SOS) appealed to the High Court[8] against the Board's decision on all four sites, primarily on issues relating to water quality. That appeal, and an appeal by the Environmental Defence Society (EDS) in relation to the Papatua and Waitata sites only, was dismissed by Dobson J on 8 August 2013.[9] Both SOS and EDS were granted leave to appeal to this Court[10] against Dobson J's decision[11] and the appeals were heard together. In a judgment on the EDS appeal, released at the same time as this judgment, the EDS appeal with regard to the Papatua site in Port Gore has been allowed.[12] In practical terms, this means that the SOS appeal now relates to the three remaining sites.[13]

[5] As indicated, SOS challenges the Board's decision with regard to all four sites. This is on the basis that there was inadequate information on water quality issues before the Board to enable it to grant the applications for plan changes at all

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Resource Management Law (looseleaf ed, LexisNexis) at [5.71] and following.

6 Board of Inquiry *New Zealand King Salmon Requests for Plan Changes and Applications for Resource Consents*, 22 February 2013 [*King Salmon* (Board)].

7 At [1341]. A map showing the location of the sites that were approved and those that were not is set out in *King Salmon* (HC), above n 2, at Appendix A.

8 An appeal from a Board of Inquiry to the High Court is available as of right, but only on a question of law: RMA, s 149V.

9 *King Salmon* (HC), above n 2.

10 Section 149V(6) of the RMA gives the ability for a party to apply to the Supreme Court for leave to bring an appeal on a question of law against a determination of the High Court. In terms of s 149V(7), if the Supreme Court refuses to give leave, but considers that an appeal against the High Court determination is necessary, it may remit the proposed appeal to the Court of Appeal. If remitted to the Court of Appeal, in terms of s149V(8), that decision cannot be appealed to the Supreme Court.

11 *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2013] NZSC 101. We have contemporaneously issued a separate judgment (*Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 41) setting out our reasons for granting leave. That judgment also deals with the submissions made by the Board, which have not been considered.

12 *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38. In this Court, only the Papatua site was challenged by EDS.

13 Although this Court's judgment in the EDS appeal renders the SOS appeal with regard to Papatua unnecessary, we still include discussion on that site in this judgment as the Board's comments on that site are relevant to its approach to water quality issues.

and particularly at the maximum feed levels. Although there had been modelling of the effects on water quality at the maximum initial feed levels, there had been none at the maximum feed levels. (The application envisaged a process whereby feed levels could be raised over time up to a ceiling maximum feed level.) Even at the initial feed levels, however, it is submitted that there was insufficient baseline information to rely on the modelling of the maximum initial feed levels, without rectifying the information deficit. In addition, SOS submits that the Board was wrongly influenced by the adaptive management measures contained in the resource consents in deciding to make the plan changes and that, even if an adaptive management approach was available, the parameters of that approach should have been in the plan and not the resource consents.

[6] The SOS submissions therefore raise three broad issues:

(a) whether the adaptive management approach that the Board took was available;

(b) whether the Board's decision on the plan changes was wrongly predicated on the consent conditions; and

(c) if an adaptive management approach was available, whether that should have been contained in the plan as against the consents.

[7] In order to put these issues and the SOS submissions in context, we first explain the water quality issue in more detail and then set out the statutory framework applicable to this appeal, including the relevant provisions of the New Zealand Coastal Policy Statement, the Marlborough Regional Policy Statement and the Sounds Plan. After this, we give more detail on the plan change approved by the Board, outline the evidence before and the findings of the Board on water quality and summarise the Board's approach to the plan change. We then summarise the decision on the consent applications, set out the conditions of consent for the four sites that were approved and discuss the modifications made in the course of the hearing to the consent conditions as originally proposed by King Salmon.

The water quality issue

[8] The trophic state of bodies of water is indicative of their biological productivity (that is, water quality). The quantities of particular nutrients in water, including nitrogen, are the primary determinants of a body of water's trophic state. The five trophic states are microtrophic (least productive), oligotrophic, mesotrophic, eutrophic and hypertrophic.[14] Typical water column characteristics for the different trophic states, as measured by total nitrogen, total phosphorus, water clarity and chlorophyll-*a*, were set out by the Board in its decision.[15]

[9] The classifications of trophic level are broad and there had been discussion among the expert witnesses as to the proper classification of the Sounds as a whole.[16] The concentrations of nitrogen in the Sounds are currently at the oligotrophic end of the spectrum, while chlorophyll-*a* levels are within the levels indicative of a mesotrophic state. It appears, too, that there may be seasonal variations in trophic levels, due to natural fluctuations in nutrient inputs and flushing.[17]

[10] It was accepted by the Board that a change from the current trophic state of the Sounds from a oligotrophic/mesotrophic to an eutrophic state "would represent an ecological disaster with significant implications for recreation and tourism, natural character, cultural values and other primary production operators within the Sounds".[18]

[11] The issue with the proposed salmon farms is that the feed given to salmon introduces a new nutrient source to the water, mostly through fish waste. The salmon process fish pellets and excrete ammonia/nitrogen and faeces into the receiving waters.[19] The concentration of nutrients is higher in close proximity to salmon farms but there is also a cumulative effect from all farms in the Sounds.

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14 Lake Ecosystem Restoration New Zealand "Trophic State" <www.lernz.co.nz>. The Trophic Level Index is the recommended index for trophic level assessments by the Ministry for the Environment and has been adopted for the New Zealand Lakes Water Quality Monitoring Programme. The scale referred to by the Board in its decision contained only four trophic states (oligotrophic to hypertrophic): *King Salmon* (Board), above n 6, at [361].

15 *King Salmon* (Board), above n 6, at [361].

16 At [427].

17 At [362].

18 At [456].

19 At [1311].

Increased nutrient concentration can lead to enhanced growth of phytoplankton and, potentially, an increase in harmful algal blooms.[20]

[12] The main concern with regard to the Sounds and the proposed salmon farms is nitrogen level increases.[21] In this regard, salmon farming is not the sole source of nitrogen. Nitrogen additions also occur naturally from ocean exchange and from land runoff from farming and forestry.[22] By contrast, nitrogen is removed through mussel farming.[23] The estimated sources and sinks of nitrogen are set out by the Board for the three regions where the plan changes were sought.[24]

[13] The Board considered that the salmon farms "could very well become the dominant source of 'new' nitrogen into the Sounds".[25] It said that the "oceanic exchange of nitrogen can be regarded as part of the natural background" and considered that the inputs from rivers are "almost certainly significantly elevated due to farming and forestry operations" but are mitigated to a large extent by the mussel farms which remove nutrients.[26]

The statutory framework

[14] We have discussed the statutory framework and the hierarchy of instruments in the principal judgment under the EDS appeal. We do not repeat that analysis here but merely summarise the relevant sections of the RMA.

[15] Under ss 67(3)(b) and (c), a regional plan must give effect to any New Zealand coastal policy statement and any regional policy statement. Under s 66(1), a regional council,[27] when changing any regional plan, must do so in accordance with its functions under s 30, the provisions of Part 2, any direction given under s 25A(1),

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20 At [353]. The danger of increased algal blooms is that some algal species can cause mass mortalities of marine flora and fauna, contaminate shellfish and kill fish in sea cages. Degraded coastal water quality can promote the development and persistence of such blooms: see [413].

21 At [375].

22 At [378].

23 At [377] and [378].

24 At [377].

25 At [384].

26 At [384].

27 The Board, under s 149P(6)(c) of the RMA, in exercising its functions to change any regional plan must act as if it were a regional council.

its duties under s 32 and any regulations. It must also have regard, among other things, to the Crown's interests in the coastal marine area.[28]

[16] In addition to the matters required under ss 66 and 67, s 32, as it was at the relevant time,[29] sets out the framework for evaluations required to be carried out for changes to regional plans. The evaluation framework, according to the heading of the section, is to ensure the consideration of alternatives, benefits and costs by the relevant decision-maker. Under s 32(3), the evaluation must consider the extent to which the objectives of the proposals are the most appropriate way to achieve the purpose of the RMA and whether, having regard to their efficiency and effectiveness, the policies, rules or other methods are the most appropriate for achieving the objectives. The evaluation must also take into account the benefits and costs of policies, rules or other methods[30] and the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules or other methods.[31]

[17] Section 87A sets out various classes of activities. For the purposes of this appeal, the relevant classifications are discretionary activities and prohibited activities. Discretionary activities require resource consent.[32] A consent authority may decline the consent or grant the consent with or without conditions.[33] The activity "must comply with the requirements, conditions, and permissions, if any, specified in the [RMA], regulations, plan or proposed plan".[34] Where an activity is prohibited, no application for a resource consent may be made for the activity and the consent authority must not grant a consent for it.[35]

[18] When considering an application for a resource consent under s 104(1), the consent authority must, subject to Part 2, have regard to any actual and potential effects on the environment of allowing the activity, to any relevant provisions of a

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28 Section 66(2)(b).
29 Section 32 was replaced on 3 December 2013 by s 70 of the Resource Management Amendment Act 2013.
30 RMA, s 32(4)(a).
31 Section 32(4)(b).
32 Section 87A(4).
33 Section 87A(4)(a).
34 Section 87A(4)(b).
35 Section 87A(6).

New Zealand coastal policy statement, a regional policy statement or plan and to any other relevant matter.

[19] Finally, s 15(1)(a) of the RMA allows the discharge of contaminants into water as long as the discharge is expressly allowed by either a national environmental standard or other regulations, a rule in a regional plan[36] or a resource consent.[37] Salmon feed meets the statutory definition of a "contaminant".[38]

The New Zealand Coastal Policy Statement

[20] Objective 1 of the Coastal Policy Statement is to "safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems" by, among other things, "maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural condition".[39]

[21] Objective 6 relates to enabling "people and communities to provide for their social, economic and cultural wellbeing and their health and safety, through subdivision, use, and development", recognising, among other things, that the "protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits".

[22] Turning now to the policies of particular relevance to this appeal, Policy 3 requires the adoption of "a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse".[40] In particular, a precautionary

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36 As well as a rule in a proposed regional plan for the same region (if there is one).

37 The Board also discussed s 107 of the RMA in its decision and rejected the submission that it was engaged: see *King Salmon* (Board), above n 6, at [1300]–[1325]. That finding is not challenged before us.

38 Under s 2 of the RMA a "contaminant" is defined as a substance that, when discharged into water, changes or is likely to change the physical, chemical, or biological condition of the water. Salmon feed and resultant waste was treated as a contaminant by the Environment Court in *New Zealand King Salmon Co Ltd v Marlborough District Council* [2011] NZEnvC 346.

39 Department of Conservation *New Zealand Coastal Policy Statement 2010* (issued by notice in the New Zealand Gazette on 4 November 2010 and taking effect on 3 December 2010).

40 Policy 3(1).

approach must be adopted to the use and management of coastal resources vulnerable to climate change.[41]

[23] Policy 8 recognises "the significant existing and potential contribution of aquaculture to the social, economic and cultural well-being of people and communities". Regional policy statements and regional plans are required to provide for aquaculture in appropriate places, recognising that relevant considerations may include the need for high water quality for those activities.[42] Policy 8 also requires that the social and economic benefits, both national and regional where assessments exist, of aquaculture are taken into account.[43] It also requires ensuring that development in the coastal environment does not make water quality unfit for aquaculture in areas that are approved for that purpose.[44]

[24] Policy 12 relates to the control of activities that could have adverse effects on the environment through the release or spread of harmful aquatic organisms.[45] Policy 21 relates to the enhancement of water quality. This requires priority to be given to the enhancement of water quality where it has deteriorated to the extent that "it is having a significant adverse effect on ecosystems, natural habitats or water based recreational activities or where it is restricting existing uses".

[25] The management of the discharge of contaminants into water is required under Policy 23. Particular regard must be had to the sensitivity of the receiving environment, the risks if the concentration of contaminants is exceeded and the capacity of the receiving environment to assimilate the contaminants.[46]

The Marlborough Regional Policy Statement

[26] The Marlborough Regional Policy Statement,[47] after a discussion of the statutory framework, sets out a number of principles. These are stated to be "an

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41 Policy 3(2).
42 Policy 8(a).
43 Policy 8(b).
44 Policy 8(c).
45 Policy 12(1).
46 Policy 23(1)(a), (b) and (c).
47 Marlborough District Council *Marlborough Regional Policy Statement* (1995). This was promulgated in 1995 before the Coastal Policy Statement.

attitude of the Council rather than an achievable target with supporting policies and methods".[48] One of the principles is to "[i]ncorporate into resource management policy and plans the concepts within Agenda 21[49] relevant to the sustainable management of natural and physical resources".[50] The Regional Policy Statement also provides that, where there is insufficient information about actual or potential adverse effects, "a precautionary approach to the use and development of resources" will be taken "to ensure there are no adverse effects on the environment".[51]

[27] The Regional Policy Statement then identifies five regionally significant issues for Marlborough. Three of particular relevance to this appeal are the protection of water ecosystems, enabling community wellbeing and control of waste.

[28] Part 5 of the Regional Policy Statement deals with the protection of water ecosystems. The issue is identified as being that the "function of the marine ecosystem is disrupted by effects from land and water based activities".[52] It is recognised that small local effects of contamination and disruption can aggregate to have significant effects on the functioning of the ecosystem and that discharges, including from marine farming, can "cause disturbance to the natural marine ecosystem".[53]

[29] In order to deal with that issue, the Regional Policy Statement sets an objective of maintaining water quality in the coastal marine area at a level which provides for the sustainable management of the marine ecosystem.[54] A number of policies are then set out to achieve this objective. Of particular relevance to this appeal is the policy to "avoid, remedy or mitigate the reduction of coastal water quality by contaminants arising from activities occurring within the coastal marine area".[55] In terms of methods, the incorporation of "controls to avoid, remedy or

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48 At [3.1].

49 See *Agenda 21: Programme of Action for Sustainable Development,* UN GAOR, 46th Sess, Agenda Item 21, A/Conf.151/26 (1992). Agenda 21 was adopted by the Earth Summit in Rio de Janeiro in 1992.

50 *Marlborough Regional Policy Statement*, above n 47, at [3.3.1].

51 At [3.6.1].

52 At [5.3.1].

53 At [5.3.1]. It is also recognised that land based activities affect the marine ecosystem.

54 At [5.3.2].

55 At [5.3.5].

mitigate the effects of water from water based activities [including marine farming], on marine ecosystems" is required in resource management plans.[56]

[30] The Regional Policy Statement also provides that discharge controls are required "to reduce the discharge of contaminants into coastal water and allow for the safe consumption of plants and fish from the water".[57] In addition, research into the cumulative effects of water based activities on water quality must be supported. This applies in particular to marine farming:[58]

> Particular reference needs to be made to the cumulative or long term effects of water based activities on water quality, especially marine farming. Little is known about the cumulative or long term effects of marine farming on existing natural stocks and ecosystems.

[31] Part 7 of the Regional Policy Statement deals with community wellbeing and includes policies and objectives relating to the subdivision, use and development of the coastal environment in a sustainable way. It is recognised that the coastal marine area is "used for a wide variety of purposes to meet the commercial, economic, social and recreational needs of the people who use the area"[59] and that these purposes include marine farming.[60] The aim is to "provide for the continued use and development of these resources but sustainably manage those resources to minimise adverse effects, conflicts between users and ensure efficient and beneficial use".[61] It is recognised that "[a]ppropriate subdivision, use and development of the coastal environment enables the community to provide for its social, economic and cultural wellbeing".[62]

[32] Resource management plans are required to identify criteria to indicate where subdivision, use and development will be appropriate. Criteria to indicate where subdivision, use and development is inappropriate may include issues relating to water quality.[63] Allocation of space for aquaculture in the coastal marine area "will be based on marine habitat sustainability, habitat protection, landscape protection,

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56 At [5.3.6(a)].
57 At [5.3.8].
58 At [5.3.6(c)].
59 At [7.2.7].
60 At [7.2.10(d)].
61 At [7.2.7].
62 At [7.2.8].
63 At [7.2.9(a)].

navigation and safety, and compatibility with other adjoining activities."[64] It is acknowledged that there is little information to assess the effects of aquaculture on the sustainability of the marine habitat and that it could be many years before meaningful research is completed. This means that, in the interim, allocation of space for aquaculture will be undertaken in a precautionary manner. Applicants must therefore provide "a detailed assessment of the effects of their proposal".[65]

The Sounds Plan

[33] The Sounds Plan is in three volumes. Volume one deals with objectives, policies and methods. Volume two deals with rules and volume three contains maps. The introduction to the plan, in chapter 1, explains that a comprehensive range of assessment criteria are included in the second volume. These criteria are included to enable "an applicant for a resource consent to understand how any particular activity will be assessed".[66]

[34] Chapter 9 of the plan (in volume one) deals with the objectives, policies and methods for the coastal marine area. It is recognised that the private occupation of coastal space may be required to allow use of that space, including for aquaculture. One of the objectives is to accommodate appropriate activities, while avoiding, remedying or mitigating the adverse effects of those activities, including adverse effects on water quality.[67]

[35] In order to implement this policy, the coastal marine area is divided into two zones. Zone 1 identifies those areas where marine farms are prohibited, being areas "identified as being where marine farming will have a significant adverse effect on navigational safety, recreational opportunities, natural character, ecological systems, or cultural, residential or amenity values".[68] In Zone 2, marine farms are normally a discretionary activity.[69]

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64 At [7.2.10(d)].
65 At [7.2.10(d)].
66 Sounds Plan, above n 1, vol 1 at [1.8].
67 At [9.2.1] (Objective 1, Policy 1.1(l)).
68 At [9.2.2].
69 There were grand-parenting rules for marine farms that were already in existence when Zone 2 was set up.

[36] Section 9.3 of the Sounds Plan deals with the adverse effects of activities on the natural and physical resources of the coastal marine area. It is explained that the Marlborough Sounds are large, drowned river valleys. Queen Charlotte Sound is approximately 45 km long and has many small bays and coves. Pelorus Sound is more complex with a maze of large inlets, bays, coves and islands. It is said that, to a large extent, activities on land determine the environmental quality of the coastal marine area. Rigid controls are necessary as the coastal marine area "is the 'environmental sink' where the effects of all coastal and land-based activities impact".[70] Marine ecosystems depend on "uncontaminated seawater, undisturbed seabed or foreshore and healthy land and freshwater ecosystems adjacent to the coast".[71]

[37] Environmental effects in the area are felt in two ways: degradation of coastal water quality and alteration to the foreshore or seabed. Marine farming is one of the activities that both affects and depends on the quality of the coastal marine area. The objective is to manage the effects of activities so that water quality in the coastal marine area is at a level which enables the gathering or cultivating of shellfish for human consumption. It is explained that shellfish are a good water quality indicator species because of their filter feeding characteristics and their accommodation and harbouring of contaminants.[72]

[38] Chapter 35, in volume 2 of the Sounds Plan, sets out the more detailed requirements for Zones 1 and 2. Marine farming is usually a discretionary activity in Zone 2 and, with certain exceptions, prohibited in Zone 1.[73] There are general assessment criteria set out which must be applied to all discretionary activities involving the coastal marine area. These include taking into account any relevant objectives, policies and rules of the plan and the Coastal Policy Statement. The criteria also include taking into account the significant environmental features (including ensuring that any proposal does not compromise the integrity of any terrestrial or marine ecosystem)[74] and taking into account the protection of natural

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70 At [9.3].
71 At [9.3].
72 At [9.3.2].
73 Sounds Plan, above n 1, vol 2 at [35.4].
74 At [35.4.1.1.5.3(b)].

and physical resources so that any proposal maintains the future use potential of any renewable resource[75] and does not reduce water quality beyond a reasonable zone of mixing.[76]

[39] In terms of standards for marine farms in Zone 2,[77] no part of any farm can be located closer than 50 m to the mean low water mark and no part of any farm can be located further than 200 m from the mean low water mark.[78] In terms of assessment criteria applying to marine farms, the "effect on the marine ecology of feed proposed to be added to the environment, including the type and amount of feed and an assessment of its effect on the environment" must be provided,[79] as well as likely effects on water quality and ecology.[80] Permits may be granted for a period of up to 20 years only.[81]

Plan change approved by the Board

[40] The plan change, as approved by the Board, added a third zone, where marine farms and marine farming would be discretionary activities to the extent they complied with the standards specified.[82] These include limiting the farming to king salmon[83] from roe sources in New Zealand. There are standards on cage size, height and boundaries and also standards relating to feed barges, lighting and noise. Most relevantly for our purposes, the maximum initial annual discharge of fish feed within each site is set, together with annual maximum increases in the annual tonnage of fish feed discharge up to a total maximum annual discharge of fish feed.[84] For example, for the Waitata site, the maximum initial annual discharge of fish feed within the site is 3000 tonnes. The maximum annual increase is 1000 tonnes up to a maximum annual discharge ceiling of 6000 tonnes. There is provision in the rules

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75 At [35.4.1.1.5.4(b)].
76 At [35.4.1.1.5.4(e)].
77 At [35.4.2.9].
78 At [35.4.2.9].
79 At [35.4.2.9.1.2].
80 At [35.4.2.9.1.6(c)].
81 At [35.4.2.9.2].
82 In amended rule [35.4.2.10] as set out in *King Salmon* (Board), above n 6, at Appendix 3. In the rule, the terms "marine farms" and "marine farming" are deemed to include all structures and activities in the coastal marine area, all discharges to water or air associated with the farms and the taking and use of coastal water associated with the farms.
83 Their scientific name being *Oncorhynchus tshawytscha*.
84 In the amended rule, as set out in *King Salmon* (Board), above n 6, at [35.4.2.10(g)]–[35.4.2.10(i)].

that "[t]he annual feed discharge may exceed the relevant maximum feed discharges by up to 15%; provided that over any continuous 3 year period, the average annual feed discharge does not exceed the relevant maximum feed discharges".[85]

[41] Specific assessment criteria are also set,[86] covering a range of matters, including effects on marine mammals and seabirds.[87] The assessment criterion that is specifically related to discharges to coastal water provides:

> g) Assessment of any adverse effects from the discharges to coastal water, including:
>
> - The effects from seabed deposition and changes to water quality;
> - Ecological effects, including cumulative effects, relating to the proximity of ecologically important marine habitats;
> - Environmental standards against which the ecological, water quality and bed deposition effects of the discharges are monitored and evaluated;
> - Provision for staged increases in the scale of feed discharges and for monitoring of the effects of each stage against environmental standards, in particular for Papatua; [and]
> - Adaptive management approaches to the management of effects from seabed deposition and changes to water quality[.]

Evidence and findings on water quality

[42] The Board heard from a number of experts on water quality. These experts caucused and produced a joint statement dated 27 August 2012.[88] Following caucusing, the experts were agreed that the unavailability of baseline data had introduced uncertainty to the interpretation of modelling results and that baseline surveys would need to begin as soon as possible after the issuing of any consent.[89] The Board agreed that there was a paucity of data presented on the existing water

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85 In the footnote to [35.4.2.10(g)]– [35.4.2.10(i)].
86 At [35.4.2.10.3].
87 At [35.4.10.3(f)] and [35.4.10.3(j)].
88 *King Salmon* (Board), above n 6, at [360].
89 At [370].

quality of the Marlborough Sounds.[90] The trend of increasing nutrient additions from the land and the lack of robust research as to the impact of existing land based activities added to the Board's concerns about the characterisation of the existing environment.[91]

[43] An expert for King Salmon (Mr Knight) had presented three models relating to water quality in his evidence before the Board: a mass balance model,[92] a flushed aspatial model[93] and a spatially explicit model, the SELFE model.[94] These models had been modified following a peer review process initiated by the Board and it was the revised models that were considered by it.[95]

[44] The Board concluded that the first two models are a useful first check on the impact of the proposed salmon farms on the Sounds as a whole:[96]

> They provide an overview of the various sources and sinks of nitrogen and put the input from the farms into the context of the natural background variability, the nitrogen inputs from the land and the removal of nitrogen by mussel farming. These models demonstrate that the introduced nitrogen is a significant addition to the Sounds ecosystem but unlikely to cause a major shift or perturbation in the function of the ecosystem as a whole. The extensive mussel farming in Pelorus Sound acts as a buffer to further nutrient additions.

[45] As to the third model, the Board noted that improvements made during the review process had led the experts to agree that the "results are satisfactory except in the very short term (less than two to four weeks) and at a detailed scale of impact (minor embayments)". The experts were also agreed that "the [total nitrogen] increments will be conservative (that is overestimated) for the scenarios modelled". This is because the model ignores the removal of nitrogen by biological and physical processes.[97]

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90 At [373]. The Board noted that additional data did exist but had not been available to the experts.

91 At [374]. We were told at the hearing that the reference to existing farms in this paragraph was a reference to land based farms and not marine farms.

92 Discussed at [385]–[388].

93 Discussed at [389]–[392].

94 Discussed at [393]–[403].

95 At [380].

96 At [404].

97 At [405].

[46] The Board expressed concern, however, that the scenarios modelled did not include the maximum feed discharge set out in the proposed conditions. The Board said:[98]

> The scenarios modelled are for the "maximum *initial* feed discharge" in the proposed conditions of consent. While these levels are increased by 50% to demonstrate the impact of summer loadings Mr Knight has not modelled the "maximum feed discharge" also set out in the proposed conditions. He explained that these levels may never be reached and the intention was to take an adaptive management approach. *We are somewhat astounded and cannot understand why these maximum discharges were not modelled to give the truly worst case scenario for nutrient additions and the potential effects at both local and Sounds wide scale. Such modelling would not have precluded an adaptive management approach.*

[47] The Board said that the lack of spatial modelling of the maximum feed discharges made it "extremely difficult to come to a finding on the nature or magnitude of the effects of this discharge".[99] The Board, however, said that it was satisfied that the SELFE model "is an adequate tool to determine the potential impacts of the salmon farms on water quality."[100]

[48] It had been suggested in evidence that a full food web model should have been produced.[101] The Board agreed that a more sophisticated biogeochemical model would have assisted with the prediction of effects, particularly related to potential biological changes. However, it accepted evidence that such modelling would not necessarily provide any more certainty when attempting to quantify those effects. It said that such a model would be a major research project of considerable assistance in the overall management of the Sounds and the sources and sinks for nutrients. However, it did not consider such a model to be "the sole responsibility of King Salmon or any other individual stakeholder."[102]

[49] The Board then went on to discuss the possible effects on water quality of the proposed salmon farms, beginning with the possibility of harmful algal blooms, the cumulative impact and potential for eutrophication and the issue of mitigation, before coming to its overall conclusion on the water column.

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98 At [406] (emphasis added).
99 At [407].
100 At [412].
101 Discussed at [408]–[410].
102 At [411].

Harmful algal blooms

[50] As to the potential for harmful algal blooms, it had been explained in evidence before the Board that blooms (a high biomass) of plankton in coastal waters are a natural and essential ecosystem process. However, some algal species can cause mass mortalities in the marine environment.[103] Such harmful algal blooms are usually natural events, although degraded coastal water quality can promote the development and persistence of blooms.[104]

[51] The Board, while recognising that the development of harmful algal blooms is not easily predictable, accepted that the salmon farms "are unlikely to materially affect the frequency, duration or extent of such blooms".[105] There is the potential for localised changes in some bays but the availability of nutrients from the farms was but one driver. The Board agreed that ongoing monitoring, including of potentially affected bays, is necessary.[106]

Cumulative effects

[52] Turning to cumulative effects, the experts were agreed (with the exception of Dr Henderson) that, at a Sounds-wide scale, there is unlikely to be a change in the water column from oligotrophic/mesotrophic to eutrophic from the establishment of the salmon farms. The experts were also agreed that changes may occur at a smaller scale and the greatest potential for adverse effects, such as harmful algal blooms, exists in side embayments close to the farms and off the main channels.[107] The Board accepted the majority opinion on the point but did not rule out the possibility of more subtle ecosystem changes in response to the increased nutrients from the farms.[108]

[53] Dr Henderson, an independent expert, considered that the intense production systems of the proposed salmon farms would lead to further eutrophication of the

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103 At [413].
104 Discussed at [413]–[420].
105 At [421].
106 At [421].
107 At [427].
108 At [431].

Sounds that might be difficult to reverse.[109] Dr Gillespie, an expert called by King Salmon, "expected the rapidly flushed environment of the Sounds to ensure easy reversibility and a rapid return to the trophic condition pre-development following the closure of the salmon farms".[110] The Board did not make any explicit finding on this conflict of evidence but, given its rejection of Dr Henderson's concerns on the issue of the dangers of trophic change, may have done so implicitly.

[54] The Board accepted that Mr Knight "has quite correctly modelled the cumulative effects of the existing farms, this proposal and other consented salmon farms."[111] However, the Board noted that little information had been presented on the trends in nitrogen from the land. The possibility of more subtle and long term effects due to climate change were also noted, although there was not enough information to predict whether this would be positive or negative with respect to nutrient inputs.[112] The Board also noted that the conclusions of the experts are based on the present day conditions of the Sounds. It said that:[113]

> Increases in riverine inputs and/or conversions of shellfish to finfish farms would further add to the nitrogen load and have to be factored into the consideration of cumulative effects. That is the baseline is shifting and there is an important question around the assimilative capacity of the Sounds as a whole, given the likely trend of increasing nutrient loads from both land and sea based activities.

Mitigation

[55] There were a number of matters put forward as mitigation. These included possible improvements in feed, farm management and fish breeding to reduce the nitrogen emission rates. Dr Broekhuizen, an expert appointed by the Board, agreed that such improvements were plausible.[114] The Board did not make an explicit finding on those matters. The Board did, however, reject the notion that the location of the farms in high flushing environments was a form of "natural mitigation". It said that the "careful site selection is more correctly characterised as choosing a

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109 At [428].
110 At [429].
111 At [430].
112 At [430].
113 At [433].
114 At [434].

receiving environment where rapid mixing and dilution limit the intensity of the immediate effects on the water column and on the benthos [seabed]".[115]

Overall conclusion on effects on the water columu

[56] The overall conclusion of the Board as to the effects on the water column was, in agreement with the experts, that "the data and information on water quality, that had been presented" is not an "adequate description of the existing environment given the scale of the proposed increase in finfish farming and consequential release of nutrients into the marine environment".[116] Some of the uncertainty was to be remedied by the conditions of consent related to baseline monitoring and some through monitoring already under way by the Marlborough District Council. However, the Board considered that there remained considerable uncertainty "as to the nature of the receiving environment, including the trends in other nutrient sources" and consequently in the ability of the Sounds to assimilate a significant increase in nutrients adequately.[117]

[57] The Board accepted that the modelling of the nutrients introduced to the water column is conservative. However, the scenarios presented were generally for the initial feed rates for each farm and in some cases for the higher summer loadings. The Board noted that the applications for each salmon farm seek almost double this feed level and that the approach taken was in marked contrast to the modelling of effects on the benthos which were at the maximum feed levels. The Board commented again that this "astonishing gap in the prediction of effects on the environment cannot be explained away by emphasising that the modelling is conservative". Nor could it "be simply filled by invoking adaptive management".[118]

[58] The Board went on to repeat its concerns as to the lack of modelling at the maximum feed levels, saying that this was a "fundamental failing in the assessment of effects on the environment that we would not expect to see in a project of this magnitude and importance".[119] This meant that the Board could only consider

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115 At [436].
116 At [437].
117 At [437].
118 At [438].
119 At [438].

granting consent for "these graduated increases in feed discharge levels with any increases based on a more robust monitoring and adaptive management regime than that presented in the proposed conditions".[120]

Board's approach to the plan change

[59] The Board began its discussion of the plan change by saying that Part 2 of the RMA is "the framework against which we must exercise our decision-making".[121] The Board then outlined the statutory provisions and instruments applicable to its consideration of the plan change and addressed a number of matters that it saw as being of particular relevance. One of these was the compliance with statutory directions in relation to planning instruments, including the Coastal Policy Statement. We have discussed the problems with the Board's analysis in this regard and the "overall broad judgment" approach the Board adopted[122] in the principal judgment on the EDS appeal and do not repeat that analysis here. The Board also discussed the definition of "most appropriate".[123] We are not to be taken as commenting on that discussion as it was not the focus of argument before us. The Board did say, however, that its findings on the many contested issues "is effectively an evaluation of the various costs and benefits".[124] It said that its conclusion on the contested issues forms the basis for the evaluation.[125]

[60] The contested issues discussed included the economic costs and benefits, the salmon farms and their effects on the seabed,[126] water column, biosecurity, marine mammals, seabirds, natural character and navigation. In relation to the water column, the Board acknowledged "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".[127] The Board said that this was particularly

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120 At [439].
121 At [1156].
122 Set out at [1227].
123 At [1197]–[1199].
124 As required by s 32(4)(a) of the RMA.
125 *King Salmon* (Board), above n 6, at [1209].
126 See [304]–[322]. The main concern with regard to the seabed is the potential for reduced biodiversity and significant changes in the sediment chemistry of the seabed underneath the farms and beyond.
127 At [1212].

critical in the Pelorus Sound and the approval of only two of the four zone locations sought in the Waitata Reach was "partly underpinned by our recognition of the (unresolved) uncertainty and risk that exists with regards to the water column effects should all the zonings be approved and consents granted".[128]

[61] Overall, the Board considered that the additional policies and associated rules that were to be introduced into the plan "are efficient and effective in terms of the provision of space for salmon farming. They address this resource management issue and are most appropriate with respect to the settled objectives of the Sounds Plan." After this summary, the Board discussed the various matters in more detail. It said that it had to "apply our findings of fact to the balancing exercise we must now do".[129] If this is a reference back to the need to evaluate the various "costs and benefits" of the proposed plan changes, then this accords with s 32 of the RMA.[130]

[62] The Board said that the effects have been described and evaluated at a site, region (or reach) and whole of Sounds scale. The Board, for convenience, however, in its report discussed the plan changes at the regional (or reach) scale, given the clustering of the proposed plan change sites within three distinct regions.[131]

Port Gore

[63] With regard to the proposed Papatua site (Port Gore), the finding with regard to water quality was that there would be "localised increases in total nitrogen and, consequently, phytoplankton growth within Port Gore".[132] The Board considered, however, that the open nature of the site, being adjacent to Cook Strait, "reduces the potential for cumulative effects to arise over time". The Board also considered the likelihood of changes in the frequency or duration of algal blooms to be very low.[133]

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128 At [1212].
129 At [1225].
130 See [59] above.
131 *King Salmon* (Board), above n 6, at [1226].
132 At [1239].
133 At [1239].

Waitata Reach

[64] With regard to the four sites proposed in the Waitata Reach area and water quality, the Board said that "[n]itrogen is considered to be the primary limiting nutrient for phytoplankton production in the Pelorus Sounds". Even with the extensive mussel farming removing nutrients from the water, intensive salmon farming would "be a substantial net addition".[134]

[65] In the absence of a sophisticated biogeochemical or "food web" model for Pelorus Sound, the Board considered it difficult to be sure of the outcomes of the salmon farms for the wider ecosystem. It said that, while "some expansion of salmon farming seems able to be accommodated (as indicated by the 'critical nutrient loading rate'[135]) the assimilative capacity for an expansion of this scale has not been demonstrated".[136]

[66] The "cumulative additions of nitrogen, increases in phytoplankton and consequential reduction in water clarity" were also potentially of significance for the King Shag foraging habitat. This merited a precautionary approach, given the threatened status and limited geographic range of the King Shag.[137]

[67] In its overall assessment with regard to this region, the Board said:[138]

> After careful consideration of all the balancing factors, we conclude that the siting of four proposed farms in this Reach would not be appropriate. The assimilative capacity of the receiving waters and the potential cumulative effects on the foraging areas of the King Shag are uncertain. The cumulative effects of the Kaitira and Tapipi [farms] on the natural character, landscape and seascape qualities of the entrance to the Sounds would be high. Further, Tapipi lies in the path of a traditional waka route – a taonga to Ngati Koata. It would also be in the vicinity of recorded sites of significance to Maori.

[68] The Board considered that granting all the plan changes sought in this area "would not give effect to the statutory provisions in respect of natural character, landscape, Maori, or ecological matters. The overall cumulative effects would be

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134 At [1245].
135 The definition of a critical nutrient loading rate was explained by the Board, at [385], as the "nutrient loading rate which cannot be exceeded without loss of ecosystem integrity".
136 At [1245].
137 At [1246].
138 At [1252].

high."[139] The Board accordingly granted the request with respect to Waitata and Richmond, but declined the request with respect to Kaitira and Tapipi.[140]

Queen Charlotte Sounds and Tory Channel

[69] For the Queen Charlotte Sounds, there is no specific mention of water quality issues. The plan change request with regard to Kaitapeha and Ruaomoko was declined for other reasons.[141] As to the Tory Channel site, Ngamahau, again there is no specific mention of water quality but, apart from effects on cultural values, ecological features and the effect on local residents, the effects of the farms at the site were considered to be less than minor.[142] The Board approved that plan change.[143]

Assessment approach

[70] After having outlined its decisions in relation to the three regions, the Board discussed its "Part II Assessment". It said that it considered it had "struck the right balance ... between providing for the social and economic well-being of the community and achieving sustainable management of the natural and physical resources of the Sounds".[144] That statement is not the correct approach and King Salmon did not attempt to defend it. The purpose of the Act is set out in s 5 of the RMA as being to promote sustainable management of natural and physical resources. It would be contrary to this purpose to balance economic and social wellbeing against that purpose. In any event, the "overall judgment" approach, based on s 5, does not take proper account of the hierarchy of instruments, such as the Coastal Policy Statement and the Regional Policy Statement.[145]

[71] In this case, any "balancing" approach that led to water quality being compromised would be inconsistent with those instruments. Objective 1 of the

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139 At [1253].
140 At [1254].
141 At [1255]–[1264].
142 At [1265]–[1267].
143 At [1275].
144 At [1276].
145 The approach of the Board to Part II and the overall judgment approach is discussed in more detail in *Environmental Defence Society Inc v The New Zealand King Salmon Company Ltd*, above n 12, particularly at [106]–[149].

Coastal Policy Statement requires, among other things, water quality to be maintained. Policy 21 relates also to water quality and the management of discharges is dealt with in Policy 23. Further, Policy 8, dealing with aquaculture, specifically recognises the reliance of aquaculture on proper water quality.[146] Similar themes arise in the Regional Policy Statement, which recognises the importance of water quality being kept at a level that provides for sustainable management of the marine ecosystem and the importance of avoiding, remedying or mitigating adverse effects from the discharge of contaminants.[147]

[72] Further, any compromise to water quality would be inconsistent with the Sounds Plan. The plan changes instituted by the Board left most of the Sounds Plan intact. One of the objectives of the Sounds Plan is to allow development, subject to avoiding, mitigating or remedying adverse effects on water quality. The importance of uncontaminated seawater and the maintenance of water quality is stressed in the Sounds Plan.[148]

[73] In King Salmon's submission, however, the Board did not undertake any such balancing exercise in relation to the water column effects. The Board recognised that it had to be satisfied that the life supporting capacity of the water and its ecosystems are adequately safeguarded.[149] King Salmon contends that the adaptive management approach adopted achieved that aim.

[74] We accept King Salmon's submission that the Board did not in fact apply the incorrect balancing approach to the decision on water quality and that the Board, when discussing the adaptive management conditions, implicitly accepted that water quality would be adequately protected by those measures.[150] The real issues in this appeal therefore are whether the Board was entitled to accept an adaptive management approach and the other two issues relating to the relationship between

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146 See [23] above.
147 See [29] above. See Marlborough Regional Policy Statement, above n 47, at objective [5.3.2] and policy [5.3.5].
148 See [34] and [36] above.
149 *King Salmon* (Board), above n 6, at [1277(c)].
150 At [454]–[460].

the plan and the consents that were identified at the beginning of this judgment.[151] Before turning to those issues, we discuss the Board's decision on the consents.

The consents

[75] As noted above, the Board granted resource consents for the farms at the four sites that had been the subject of the plan changes. The consent conditions originally proposed by King Salmon underwent modification during the course of the hearing and the conditions that were imposed by the Board are intended to create an adaptive management regime. Objectives involving qualitative standards are set in the conditions, along with a process for developing quantitative standards. The consents provide for monitoring in accordance with those standards and remedial action if required. This process is to be monitored by an independent expert peer review panel.

Modification of consent conditions in course of hearing

[76] In its initial application, King Salmon had suggested detailed conditions for an adaptive management approach. There were extensive modifications made over the course of the hearing to these conditions. The Board set out in detail the reasons for these changes. We do not summarise all of this discussion but do summarise the matters of principle discussed by the Board.[152]

[77] One of the most important additions, in response to the concerns expressed by submitters, was the introduction of a series of objectives, expressed in narrative form, designed to maintain the environmental quality of the Sounds.[153] Dr Gillespie explained that specific quantitative thresholds or management triggers were not recommended "at this stage" because of the wide natural variability in nutrient levels. After three years of monitoring, however, thresholds could be defined for specific indicators or for an integrated trophic index.[154]

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151 See [6] above.

152 The section of the Board decision dealing with the modifications to the proposed conditions of consent preceded the discussion regarding the plan changes.

153 *King Salmon* (Board), above n 6, at [444].

154 At [444].

[78] That approach had been considered by the experts during caucusing and various amendments to the water quality objectives were agreed. At the close of the hearing, King Salmon proposed the recasting of the objectives as "qualitative water quality standards" and at the same time "outlin[ed] the process for developing the quantitative standards and responses".[155]

[79] The Board accepted that it was not able to make a decision on quantitative water standards at this stage. However, it said that the thresholds to be set through the water quality standards are simply a mechanism to achieve the agreed water quality objectives. It pointed out that "the peer review panel is tasked with reviewing the baseline information and the quantitative water quality standards which in turn are to be approved by the Council".[156] It went on to say that the objectives "are robust and would ensure the quantitative water quality standards would be sufficiently constrained to be effective". It noted that, in the end, there had been little dispute as to the setting of the objectives.[157]

[80] Dr Gillespie proposed that both qualitative and quantitative standards should continue to be used in a "holistic approach". Any breach of a threshold would trigger more intensive monitoring to establish cause and effect and then decisions as to whether or not to cut back on production.[158] The Board agreed with Dr Gillespie's holistic approach.[159] It said that it saw the qualitative standards as "objectives for an adaptive management approach to water quality (and the wider ecosystem)". It noted that some of the objectives are able to be stated reasonably precisely "but others are broad and involve a measure of professional judgment." The requirement for a peer review panel was therefore necessary and appropriate.[160]

[81] The Board was concerned that any shift in trophic state needs to be expressed in terms of an "increase" or "shift towards" rather than a full scale change in state. As noted above, the Board considered that a change from today's oligotrophic/mesotrophic conditions to a eutrophic state would represent an

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155 At [448].
156 At [1288].
157 At [1291].
158 At [450].
159 At [454].
160 At [455].

ecological disaster.[161] It said that preventing "such an extreme scenario is hardly an appropriate safeguard, something less must trigger action". It went on to say that what represents a material or significant shift (with respect to magnitude, temporal and spatial extent) must be left to the judgement of the peer review panel in the light of all of the information from the monitoring programme. The Board approved a wording change to make it clear that "avoiding a significant movement along the scale is the objective".[162] The Board also said that it favoured adding an integrated trophic index to the list of quantitative water quality standards, while recognising that it may be some time before such an index can be reliably "calibrated" for the Sounds. The Board believed the creation of an enrichment index for the locations would be a useful indicator for monitoring changes and provide a trigger for an adaptive management response.[163]

[82] The Board said that it must make the decision, based on the evidence presented, as to the levels of acceptable change. It said:[164]

> While we are not able to make a decision as to the appropriate water quality standards the thresholds must relate to the agreed objectives as modified by this decision. And the conditions must clearly set out the process and timelines for setting these standards. We are satisfied that the proposed conditions provided by King Salmon in closing are adequate in this regard. The Peer Review Panel is tasked with reviewing the baseline information, the quantitative water quality standards, the management responses and the supporting monitoring programme.

[83] The Board had also been concerned that any breach of the water quality standards in the original proposals required, first, the gathering of further information and, if that indicated an issue, an "action plan" to be formed. The Board said that it did not entirely disagree with this approach but, if the standards are exceeded greatly, then this should result in more immediate action.[165] There were modifications made to the process originally proposed to ensure that this was the case.

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161 See [10] above.
162 *King Salmon* (Board), above n 6, at [456].
163 At [432]. The creation of an enrichment index was imposed as a condition in each of the resource consents granted: see Appendices 8–11.
164 At [460].
165 At [459].

Overall decisions on consents

[84] In its overall decision on the resource consent applications, the Board said that on balance the concurrent resource consent applications for Papatua, Waitata, Richmond and Ngamahau should be granted, subject to the Conditions of Consent. The Board said:[166]

> While some adverse effects will arise, particularly in respect to the water quality, the seabed, Maori values, natural character and landscape, and amenity values: these effects can be adequately managed through the proposed conditions of consent.
>
> Any adverse effects need to be balanced with the need to provide for the economic and social well-being of the community. We reiterate, that providing for these four farms, this will strike the right balance.

[85] The terms of the consents were set at 35 years.[167] The Board said that, in setting this term, it had taken into account the level of financial investment that the consent holder has made in achieving their resource consent and the ongoing costs. A 35-year term would enable the minimum necessary return on investment threshold to be achieved. By contrast, a 20-year term would significantly reduce the return by a factor of 25 per cent.

[86] The Board did express concern with a 35-year term in relation to the potential effect on the water quality, scientific uncertainty as to the ecosystem response and customary values of the Sounds environment.[168] It said, however, that the adaptive management approach and a robust set of conditions applied to the issued consents "gives certainty to the near field operation of the farms".[169] However, the "far field and Sounds-wide effect of the farms in combination with yet to be fully understood natural variation and trends in sources of nutrients entering the Sounds from the ocean, land and other activities leave a higher degree of uncertainty beyond a 20 year period".[170] The Board considered, however, that this could be addressed, if necessary, by the Council through the review process.[171]

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166 *King Salmon* (Board), above n 6, at [1341]–[1342].
167 At [1340].
168 At [1337].
169 At [1338].
170 At [1338].
171 At [1338]. Sections 128 and 129 of the RMA specify when consent conditions can be reviewed by a consent authority. The resource consents granted by the Board contained a condition

[87] The Board then went on to consider and reject the White Horse Rock application because of adverse effects on recreational fishing, customary fishing, navigation, natural character and landscape. When considered cumulatively with the existing farms and the other consents, the adverse effects "would be sufficiently high to tip the balance against granting the application."[172]

Consent conditions

[88] The consent conditions imposed a requirement for a "baseline plan" to be created by an independent person specifying how the monitoring and analysis is to be undertaken to establish baseline information.[173] A peer review panel (the composition of which is approved by the Council) will review the plan and provide recommendations and a report to the consent holder. The "baseline plan" must be approved by the Council. Prior to any structures being placed on the farms, a "baseline report", prepared by an independent person, containing the results from monitoring and analysis undertaken in accordance with the "baseline plan", must be provided to the peer review panel for its review and assessment.[174] The peer review panel is required to review the baseline report, including the recommended water quality standards and integrated trophic index,[175] and make a recommendation to the Council for its approval.[176]

[89] Importantly, if the "baseline plan" is not approved by the Council, then the consent will lapse after three years from the date of the consent's commencement.[177] If the resulting "baseline report" is not approved by the Council, no structure(s) can

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dealing with the ability of the Council to review the conditions of consent. The condition specifies the times at which the Council may review the various conditions of consent. For example, see condition [80] of the Waitata consent at Appendix 9. For simplicity, subsequent pinpoint references to consent conditions are with reference to the Waitata consent (Appendix 9).

172 At [1356]–[1357].

173 The duration of the baseline monitoring varies between the farms from one to two years, and in the case of the farms with the testing duration of merely one year, can be extended on the recommendation of the peer review panel: at [465].

174 Condition [68(a)].

175 The creation of an enrichment index was imposed as a condition in each of the resource consents granted (referred to as an "integrated trophic index" in the conditions): see condition [44(a)]. An enrichment index is a means of assessing the trophic condition of a body of water (by calculating various nutrient and chemical levels of water) over time and provides a robust indicator of a water column ecosystem: at [426].

176 At [1287].

177 Condition [1].

be placed on the marine farms.[178] Therefore, if the analysis and monitoring of the baseline information shows that the development of a marine farm would be inappropriate, the Council can effectively halt any further development of the marine farms by not approving the report.

[90] In addition to the baseline review before the farms are stocked, the Board set out numerous conditions for the ongoing monitoring of the farm to provide a detailed feedback-loop on the effects on the benthos and water quality. For example, in the Waitata Farm consent,[179] the conditions of consent set an initial maximum feed level and maximum increases allowed per annum.[180] Before any increase in the feed levels can be implemented, the farm must have operated at the current maximum level for at least three years, the results must indicate that the enrichment stages[181] are not statistically significantly more than the enrichment stages from the previous year and that the marine farm complies with all the environmental quality standards set in the consent and does not exceed the relevant standards for each zone.[182] These environmental quality standards include various chemical and ecological measurements.[183]

[91] Any increase in the tonnage of feed must be recommended in the "annual report", which is prepared by an independent person, providing details on the monitoring of results from the previous year, an analysis of those results and recommendations for changes to the monitoring and marine farm management actions for the following year.[184] The peer review panel will review this report and make recommendations and then it must be submitted to the Council.[185] Only upon the approval of the "annual report", including the aspects as to an increase in the tonnage of feed, may there be an increase in feed levels.[186]

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178 Condition [60].
179 At Appendix 9.
180 Condition [35].
181 The various enrichment stages are described in table 5 of the conditions of the consents in the appendices to the Board's decision. The enrichment stages provide seven levels of enrichment from enrichment stage one which is described as "natural/pristine conditions", to enrichment stage seven which is where there is "severe enrichment".
182 See condition [37].
183 See conditions [37(c)] – [44].
184 See conditions [56(d)] and [67(e)].
185 See condition [68(b)].
186 See condition [60].

[92] If and when the farms are stocked and monitoring detects that the enrichment stages are above those allowed under the environmental quality standards for the various zones, then, depending on the extent to which the enrichment stages exceed the environmental quality standards, the amount of feed must be reduced, or in more serious circumstances, stock must be removed from the farms until compliance is achieved.[187]

[93] In essence, the above conditions require the gathering of baseline information for the assessment as to whether the marine farm can be built and stocked. If the marine farm is built and stocked, the conditions mandate extensive monitoring and provide remedial mechanisms if water quality is compromised.

The issues

[94] We now discuss the three issues identified at the beginning of the judgment:

(a) whether an adaptive management approach was available;

(b) whether the plan changes were improperly predicated on the consent conditions; and

(c) whether the parameters of the adaptive management regime (if available) should have been contained in the plan rather than through consent conditions.

Adaptive management

[95] We propose to discuss the question of whether an adaptive management approach was available to the Board under the following headings: the parties' submissions; the precautionary approach under the Coastal Policy Statement; the Board's consideration of the precautionary approach and adaptive management; the guidance notes on the Coastal Policy Statement; international commentary; and caselaw on adaptive management from New Zealand, Australia and Canada. We

[187] See conditions [40(a)]–[40(c)].

then assess whether the requirements for an adaptive management approach were met in this case.

The parties' submissions

[96] SOS submits that there was a threat of serious damage to water quality in the Sounds. Scientific uncertainty meant that the Board could not assess the effects of the proposal on water quality. It was thus contrary to its statutory function to approve the plan changes.[188] SOS relies on *Coromandel Watchdog of Hauraki Inc v Chief Executive of the Ministry of Economic Development* to support the proposition that a consent authority can classify an activity as prohibited when it considers it has insufficient information, even if further information may later become available.[189] As an alternative, SOS submits that the Board's decision was inconsistent with the only reasonable conclusion from the evidence.[190]

[97] In particular, SOS submits that:

(a) there was insufficient baseline information available to the Board. This means that, even at minimum initial feed levels, the plan changes cannot be justified; and

(b) the Board had found that there was a "fundamental failing" in the modelling exercise in that there had been a failure to model the effects of the maximum feed discharge on water quality. As this was the case, the Board could not justify the plan changes allowing stocking over time to the maximum level.

[98] King Salmon submits that, under the RMA, discretionary activity status simply allows a person to apply for a resource consent. The change from prohibited to discretionary status for the salmon farms in Zone 3 therefore has no environmental effects in itself. As to the resource consents, it is submitted that the Board had

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188 In arguing this, SOS relies upon ss 5, 12, 15(1), 32(2)(c), 66, 69, 70, 105, 107 and 149P(6) of the RMA.

189 *Coromandel Watchdog of Hauraki Inc v Chief Executive of the Ministry of Economic Development* [2007] NZCA 473, [2008] 1 NZLR 562 (Glazebrook, O'Regan and Arnold JJ) at [34(a)] and [36].

190 *Edwards (Inspector of Taxes) v Bairstow* [1956] AC 14 (HL).

sufficient information on all contested issues, including water quality, for consents to be granted up to the initial feed levels (and that is all that was to be allowed initially). The modelling for those initial feed discharge limits was accepted by the Board as having been undertaken on a conservative basis.

[99] In King Salmon's submission, the Board applied a proper precautionary approach in that it declined four of the eight plan change sites, as well as consent for the White Horse Rock site. It also adopted a robust adaptive management regime with regard to the four sites that were approved so that no increases in feed levels could occur unless it was safe to do so. It is submitted that the SOS contentions amount to a submission that there must be perfect (or near perfect) scientific knowledge of all the potential and actual effects of an activity before it can be classified as other than prohibited. It is submitted that there is no statutory support for such a proposition.

Precautionary approach under the Coastal Policy Statement

[100] Policy 3 of the Coastal Policy Statement requires a precautionary approach to managing activities in the coastal environment when the effects of those activities are uncertain but potentially significantly adverse.[191]

[101] The Board accepted that there was a lack of baseline information.[192] Further, while modelling of initial feed levels had been undertaken, there had been no modelling at the maximum feed levels. The Board also said that, if there were a change in trophic level of the Sounds resulting from nitrogen introduced into the coastal waters through the salmon farms, then this would be an ecological disaster.[193] This means that the requirements set out in Policy 3 for uncertainty and potentially significant adverse effects were met and a precautionary approach was required.[194]

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191 See [22] above. The Marlborough Regional Policy Statement, above n 47, also emphasises the need for the precautionary approach and the uncertainty as to the long term effects of marine farming: see [26] and [30] above.

192 *King Salmon* (Board), above n 6, at [461].

193 See [10] above.

194 Therefore, the approach taken by the High Court that it was open to the Board to assess the weight to be given to the precautionary approach was incorrect: see *King Salmon* (HC), above n 2, at [85].

Board's consideration of the precautionary approach and adaptive management

[102] Despite being required to give effect to the Coastal Policy Statement, the Board did not refer to Policy 3 when it specifically discussed the precautionary approach.[195] However, the Board did accept that it was required to take a precautionary approach, which it said is inherent in the structure of the RMA.[196]

[103] Turning to the adaptive management approach, the Board said that this arose, at least in part, from the precautionary approach. Under adaptive management, ongoing monitoring of the effects of an activity are required and the Board said that this "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".[197]

[104] The Board noted that in this case three adaptive management approaches were proposed by King Salmon:[198]

> (a) **Staged development** – Sites are proposed to be developed in a staged manner, with expansion contingent on compliance with pre-defined seabed and environmental quality standards (EQS to be specified in the consent conditions) and on regular reviews of wide-scale water column and wider eco-system monitoring result;
>
> (b) **Tiered approach to monitoring** – Monitoring effort is proposed to increase if and when sites approach or exceed the EQS or in response to other identified environmental issues. Likewise, monitoring intensity may decrease with evidence of sustained compliance and stability;
>
> (c) **Ongoing adaptive management** – The farms are proposed to be managed adaptively long-term, in response to environmental monitoring results. Any breaches of the consent condition standards will be addressed and management responses implemented to ensure the farm becomes compliant. Any other adverse effects identified through monitoring, including from the wide scale water column and wider ecosystem monitoring, can also be addressed by adaptive management approaches.

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195 *King Salmon* (Board), above n 6, at [173]–[182], although Policy 3 is referred to in a quote from one of the experts. However, the Board did refer to Policy 3 when outlining the contents of the Coastal Policy Statement: see [85], [283] and [975].

196 At [175]–[178]. We are not to be taken as making any comment on that discussion or on whether the cases discussed correctly state the legal position.

197 At [179].

198 At [54].

[105] The Board referred to a number of cases where the adaptive management technique had been applied in New Zealand.[199] On the basis of those cases, the Board considered that, before endorsing an adaptive management approach in this case, it would have to be satisfied that:[200]

(a) there will be good baseline information about the receiving environment;

(b) the conditions provide for effective monitoring of adverse effects using appropriate indicators;

(c) thresholds are set to trigger remedial action before the effects become overly damaging; and

(d) effects that might arise can be remedied before they become irreversible.

[106] The Board considered that it had appropriately applied the precautionary principle by in some cases refusing consent and in others by the adoption of "the strong proposed adaptive management conditions of consent".[201]

Guidance notes on the Coastal Policy Statement

[107] The guidance note to Policy 3 of the Coastal Policy Statement prepared by the Department of Conservation deals with the precautionary approach and adaptive management.[202] It is said that it will be a matter for local authorities to decide on a case-by-case basis whether the activity should be avoided until sufficient study has

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199 See *Golden Bay Marine Farmers v Tasman District Council* EnvC Wellington W19/2003, 27 March 2003; *Minister of Conservation v Tasman District Council* HC Nelson CIV-2003-485-1072, 9 December 2003; *Golden Bay Marine Farmers v Tasman District Council* EnvC Wellington W89/2004, 3 December 2004; *Lower Waitaki River Management Society Inc v Canterbury Regional Council* EnvC Christchurch C80/2009, 21 September 2009; *Geotherm Group Ltd v Waikato Regional Council* EnvC Auckland A47/2006, 13 April 2006; *Crest Energy Kaipara Ltd v Northland Regional Council* EnvC Auckland A132/2009, 22 December 2009; *Biomarine Ltd v Auckland Regional Council* EnvC Auckland A14/2007, 13 February 2007; and *Clifford Bay Marine Farms Ltd v Marlborough District Council* EnvC Christchurch C131/2003, 22 September 2003.

200 *King Salmon* (Board), above n 6, at [181].

201 At [1278].

202 Department of Conservation *NZCPS 2010 Guidance Note – Policy 3: Precautionary approach.*

been done into its likely effects, or whether an activity is allowed, but subject to "complex and detailed conditions and a programme of specified testing and monitoring (as in adaptive management)".[203] It said that adaptive management recognises that:[204]

> ... knowledge about natural resource systems is uncertain and that some management actions are best conducted as experiments or "learning by doing". A key issue in implementing an adaptive management approach is to ensure that conditions clearly specify the level of effect that is anticipated. If monitoring shows this threshold to have been reached, then the condition (in the case of a resource consent) should provide for the activity to be adjusted.

[108] The commentary goes on to say that an adaptive management approach must provide for monitoring of issues of concern and will not be appropriate where adaptive management cannot remedy the effects before they become irreversible.[205]

International commentary

[109] In 2007, the International Union for Conservation of Nature (IUCN)[206] approved a set of guidelines on the application of the precautionary principle.[207] These included a guideline on using an adaptive management approach, which it is said should be used unless strict prohibitions are required.[208] Any such approach should include the following core elements:[209]

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203 At 7.

204 At 7–8.

205 At 8.

206 The IUCN is an international environmental organisation founded in 1948. The IUCN is comprised of more than 1,200 member organisations (government and non-governmental organisations), six commissions and a secretariat of over 1,000 people in more than 60 countries. IUCN's main aims are targeted at ensuring biodiversity conservation, the use of nature based solutions and related environmental governance. See <www.iucn.org>.

207 International Union for Conservation of Nature "Guidelines for applying the precautionary principle to biodiversity conservation and natural resource management" (as approved by the 67th meeting of the IUCN Council 14–16 May 2007) [IUCN Report].

208 Guideline 12 at 9–11. This was said in the context of the precautionary principle at international law. In that context, rather than being concerned with taking precautionary measures in allowing development, the term is more often used for advocating precautionary measures to protect the environment. For example, in the IUCN Report, it is noted that "[a]n element common to the various formulations of the Precautionary Principle is the recognition that lack of certainty regarding the threat of environmental harm should not be used as an excuse for not taking action to avert that threat": at 1. For a discussion on the precautionary principle in international law, see also: Philippe Sands and Jacqueline Peel *Principles of International Environmental Law* (3rd ed, Cambridge University Press, Cambridge, 2012); Nicolas de Sadeleer *Environmental Principles: From Political Slogans to Legal Rules* (Oxford University Press, Oxford, 2002); World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) *Report of the Expert Group on the Precautionary Principle of the World Commission on the Ethics of Scientific Knowledge and Technology* (UNESCO COMEST, March 2005); and *1992 Rio*

(a) monitoring of impacts of management or decisions based on agreed indicators;

(b) promoting research, to reduce key uncertainties;

(c) ensuring periodic evaluation of the outcomes of implementation, drawing of lessons and review and adjustment, as necessary, of the measures or decisions adopted; and

(d) establishing an efficient and effective compliance system.

[110] In its commentary on this guideline, the IUCN said that an adaptive management approach is:[210]

> ... particularly useful in the implementation of the Precautionary Principle as it does not necessarily require having a high level of certainty about the impact of management measures before taking action, but involves taking such measures in the face of uncertainty, as part of a rigorously planned and controlled trial, with careful monitoring and periodic review to provide feedback, allowing amendment of decisions in the light of such feedback and new information.

[111] It is recognised that the precautionary principle may require prohibition of activities. This may be the case, for example, where urgent measures are needed to avert imminent potential threats, where the potential damage is likely to be irreversible and where particularly vulnerable species or ecosystems are concerned.[211]

[112] Where adaptive management is suitable, monitoring and regular review are required. In some cases, further information and research may lead to the precautionary measure no longer being needed. However, it could lead to the conclusion that the threat is more serious than expected and that more stringent measures are required.[212]

Declaration on Environment and Development A/Conf/151/26 (Vol I) (1992).

209 IUCN Report, above n 207, at guideline 12.

210 At 10.

211 At 10.

212 At 10.

New Zealand cases

[113] As indicated by the Board, the concept of adaptive management has been discussed and implemented in a number of Environment Court decisions. We propose to discuss three of these. The first is *Clifford Bay Marine Farms Ltd v Marlborough District Council*, which involved the granting of resource consent for the proposed implementation of a large mussel farm in a "prime Hector's dolphin habitat", with uncertainty as to the effects of the farm on the dolphins.[213] The Environment Court granted a resource consent for a small marine farm, following a two year intensive survey, research and monitoring program regarding Hector's dolphins, allowing a cautious adaptive management strategy.[214] As noted by the Court:[215]

> The two options open to us are to decline consent, or to grant it in such a way that if any adverse effects on the use Hector's dolphin make of the habitat arise, they are limited, and measures to reverse them speedily can be implemented. The probability of undetected adverse effects of significance occurring unrelated to, and unaccompanied by, other existing adverse effects are of sufficiently low probability that they should not lead us to decline the application altogether.

[114] In *Crest Energy Kaipara Ltd v Northland Regional Council*, the Environment Court said that the concept of adaptive management had been developed through a number of decisions of the Court.[216] The Court said that it should not put an applicant in a position of anticipating and researching all hypotheses before making an application.[217] However, the applicant "must establish sufficient of a case to persuade the court to grant consent on the basis of allowing the adaptive management processes to be embarked upon".[218]

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213 *Clifford Bay Marine Farms Ltd v Marlborough District Council*, above n 199.

214 The High Court (*Director-General of Conservation v Marlborough District Council* [2004] 3 NZLR 127) remitted the case back to the Environment Court for reconsideration in light of issues surrounding unlawful delegation espoused by the High Court. In the subsequent Environment Court decision (*Director-General of Conservation v Marlborough District Council* EnvC Christchurch C113/2004, 17 August 2004) the conditions surrounding the monitoring of Hector's dolphins were slightly modified.

215 *Clifford Bay Marine Farms Ltd v Marlborough District Council*, above n 199, at [157].

216 *Crest Energy Kaipara Ltd v Northland Regional Council*, above n 199, at [224] with reference to *Golden Bay Marine Farmers v Tasman District Council*, above n 199; *Clifford Bay Marine Farms Ltd v Marlborough District Council*, above n 199; and *Lower Waitaki River Management Society Inc v Canterbury Regional Council*, above n 199.

217 At [228], with reference to the Environment Court decision in *Director-General of Conservation v Marlborough District Council*, above n 214, at [40].

218 At [229].

[115] The Court said that it is important in such plans for baseline knowledge to be collected on which management plans can build in "an on-going and cycling process".[219] Plans should set reasonably certain and enforceable objectives, plan and design a process for meeting those objectives, establish a monitoring regime and a process for the evaluation of monitoring results leading to the review and refinement of hypotheses. After that point, the process will often start again at the design and planning level.[220]

[116] In *Lower Waitaki Management Society Inc v Canterbury Regional Council* the Environment Court said that the Court "always has to be careful to ensure that the objectives for the adaptive management are reasonably certain and enforceable."[221] In that particular case, the Court said that the management plans needed more detail.[222]

Australian cases

[117] The concept of adaptive management has also been discussed in a number of Australian decisions. In *Telstra Corporation Ltd v Hornsby Shire Council*, the New South Wales Land and Environment Court (Preston CJ) held that the type and level of precautionary measures required depends on the combined effect of the degree of seriousness and irreversibility of the environmental threat and the degree of uncertainty.[223] The more significant and the more uncertain the threat, the greater the degree of precaution required.[224]

[118] The Judge also said that prudence would suggest that some margin for error should be retained.[225] One means of ensuring this is through an adaptive management approach, whereby the development is expanded as the extent of

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219 At [226].
220 At [226].
221 *Lower Waitaki Management Society Inc v Canterbury Regional Council*, above n 199, at [381].
222 At [555].
223 *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 133, (2006) 146 LGERA 10 at [161].
224 At [161].
225 At [162].

uncertainty is reduced.[226] The Judge said that an adaptive management approach might involve the core elements we set out at [109] above.[227]

[119] In *Environment East Gippsland Inc v VicForests*[228] the plaintiff sought to restrain logging in an area of old growth forest, which was significant both ecologically and as a source of timber resources. One of the main contentions was that logging would breach the precautionary principle in respect of habitat preservation for endangered species. The Victorian Supreme Court said that the precautionary principle does not require avoidance of all risks.[229] The degree of precaution will depend upon the combined effect of the seriousness of the threat and the degree of uncertainty.[230] It also held that uncertainty may in some circumstances be adequately remedied by an adaptive management approach.[231] The test set out by the Court was as follows:[232]

(a) Is there a real threat of serious or irreversible damage to the environment?

(b) Is it attended by a lack of full scientific certainty (in the sense of material uncertainty)?

(c) If yes to (a) and (b), has the defendant demonstrated the threat is negligible?

(d) Is the threat able to be addressed by adaptive management?

(e) Is the measure alleged to be required proportionate to the threat in issue?

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226 At [163].

227 At [164]. The elements listed by the Court are identical to those set out in the IUCN Report, above n 207. The *Telstra* judgment was released prior to the IUCN report and the Court sourced the elements from a leading textbook on sustainability: Rosie Cooney and Barney Dickson (eds) *Biodiversity and the Precautionary Principle, Risk and Uncertainty in Conservation and Sustainable Use* (Earthscan, London, 2005).

228 *Environment East Gippsland Inc v VicForests* [2010] VSC 335.

229 At [203].

230 At [204].

231 At [205].

232 At [212].

[120] It is significant that the Victorian Supreme Court considered that, before adaptive management could be considered, the threat had to be shown to be negligible, but this may not have been intended as a general statement of principle. It may have been a requirement arising out of the facts of the particular case and the seriousness of the risk of environmental harm.

[121] In *Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council*,[233] a case involving a consent for a limestone quarry, Preston CJ made some further comments on adaptive management. He said that:[234]

> Adaptive management is a concept which is frequently invoked but less often implemented in practice. Adaptive management is not a "suck it and see", trial and error approach to management, but it is an iterative approach involving explicit testing of the achievement of defined goals. Through feedback to the management process, the management procedures are changed in steps until monitoring shows that the desired outcome is obtained. The monitoring program has to be designed so that there is statistical confidence in the outcome. In adaptive management the goal to be achieved is set, so there is no uncertainty as to the outcome and conditions requiring adaptive management do not lack certainty, but rather they establish a regime which would permit changes, within defined parameters, to the way the outcome is achieved.

Canadian cases

[122] Adaptive management has also been discussed in Canada. The case of *Canadian Parks and Wilderness Society v Canada (Minister of Canadian Heritage)* involved the construction of a winter snow road through a national park.[235] It was held by the Federal Court of Appeal that any environmental harm from the road was likely to be of limited significance because of the mitigation and adaptive management measures and the high degree of reversibility of the project.[236] The Court had earlier said that adaptive management responds to the difficulty of predicting the environmental effects of a project and counters "the potentially paralysing effects of the precautionary principle on otherwise socially and

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233 *Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council* [2010] NSWLEC 48.

234 At [184].

235 *Canadian Parks and Wilderness Society v Canada (Minister of Canadian Heritage)* 2003 FCA 197, [2003] 4 FC 672.

236 At [105]–[107].

economically useful projects".[237] It was said that the precautionary principle states that a "project should not be undertaken if it *may* have serious adverse environmental consequences, even if it is not possible to prove with any degree of certainty that these consequences will in fact materialise".[238]

[123] The case of *Pembina Institute for Appropriate Development v Canada (Attorney General)* involved an iron sands mine project in Alberta.[239] Tremblay-Lamer J referred to *Canadian Parks* and said that adaptive management allows projects to proceed, despite uncertainty and potentially adverse environmental impacts, "based on flexible management strategies capable of adjusting to new information regarding adverse environmental impacts where sufficient information regarding those impacts and potential mitigation measures already exists".[240]

Was an adaptive management approach available in this case?

[124] The issue for the Court is when an adaptive management approach can legitimately be considered a part of a precautionary approach. This involves the consideration of the following: what must be present before an adaptive management approach can even be considered and what an adaptive management regime must contain in any particular case before it is legitimate to use such an approach rather than prohibiting the development until further information becomes available.

[125] As to the threshold question of whether an adaptive management regime can even be considered, there must be an adequate evidential foundation to have reasonable assurance that the adaptive management approach will achieve its goals of sufficiently reducing uncertainty and adequately managing any remaining risk. The threshold question is an important step and must always be considered. As Preston CJ said in *Newcastle*, adaptive management is not a "suck it and see" approach.[241] The Board did not explicitly consider this question but rather seemed to

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237 At [24]. This paralysing effect is discussed in Cass R Sunstein *Laws of Fear – Beyond the Precautionary Principle* (Cambridge University Press, Cambridge, 2005) at 13–34.

238 At [24]. It is unnecessary to decide whether the Canadian approach is the proper articulation of the precautionary principle in the New Zealand context.

239 *Pembina Institute for Appropriate Development v Canada (Attorney General)* 2008 FC 302.

240 At [32].

241 See [121] above. See also the comments of Tremblay-Lamer J quoted at [123] above; the explicit consideration of the two options in *Clifford Bay Marine Farms Ltd v Marlborough*

assume that an adaptive management approach was appropriate. This may be, however, because there was clearly an adequate foundation in this case.

[126] The Board had before it modelling showing that water quality would not be compromised at the initial maximum feed levels for all nine locations. The Board accepted that the modelling of the nutrients introduced to the water column was conservative.[242] The experts were agreed too that the results of the modelling were satisfactory except in the very short term and for minor bays.[243] Although there was no modelling for the maximum feed levels, as King Salmon points out, there is no guarantee that these levels will actually be reached.[244] Under the consent conditions, they will only be reached if water quality (and the seabed) will be protected.[245]

[127] Indeed, as also pointed out by King Salmon, the total maximum discharge levels that could ever be enabled under the approved plan changes were less than half of what was sought and were contained within three separate areas. Further, in the Waitata Reach, the combined maximum feed levels for the two farms[246] that were approved (10,000 tonnes per annum) are less than the combined initial maximum feed levels (12,000 tonnes per annum) for the five farms[247] that were proposed in the Waitata Reach. Of course those levels are concentrated in two farms and this may mean that a linear calculation may not adequately capture the risk but it does, as King Salmon submits, illustrate the extent of the precautionary approach applied by the Board in the Waitata Reach where it refused two of the plan changes and consent for the White Horse rock site, partly because of water quality concerns.

District Council, above n 199, at [113]; and the threshold question discussed in *Crest Energy Kaipara Ltd v Northland Regional Council*, above 199, at [229].

242 See [57] above.

243 See [45] above.

244 See [46] above.

245 See [90] above.

246 Waitata and Richmond. The initial feed levels (in tonnes per annum) for the Waitata and Richmond farms are 3,000 and 1,500, respectively. The maximum increase in feed discharge (in tonnes per annum) for the Waitata and Richmond farms is 1,000 and 500, respectively. The maximum feed discharge ceiling (in tonnes per annum) for the Waitata and Richmond farms is 6,000 and 4,000, respectively.

247 Waitata, Richmond, Kaitira, Tapipi and White Horse Rock. The maximum initial feed discharge levels (in tonnes per annum) for each of these farms proposed were 3,000, 1,500, 3,000, 3,000, and 1,500, respectively.

[128] The Board also accepted evidence that the incidence of harmful algal blooms was unlikely to be affected by the salmon farms, apart from localised changes in some bays.[248] Further, the Board also accepted the evidence of the majority of the experts that a trophic shift in the Sounds was unlikely.[249] While recognising the potential for less disastrous shifts, this was to be dealt with in the conditions.[250]

[129] The secondary question of whether the precautionary approach requires an activity to be prohibited until further information is available, rather than an adaptive management or other approach, will depend on an assessment of a combination of factors:[251]

(a) the extent of the environmental risk (including the gravity of the consequences if the risk is realised);

(b) the importance of the activity (which could in some circumstances be an activity it is hoped will protect the environment);

(c) the degree of uncertainty; and

(d) the extent to which an adaptive management approach will sufficiently diminish the risk and the uncertainty.

The overall question is whether any adaptive management regime can be considered consistent with a precautionary approach.

[130] In this case with regards to [129](a) above, the gravity of risk if realised (ecological disaster) was grave.[252] The extent of the risk is difficult to assess because of the uncertainties as to the baseline information and the lack of modelling for

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248 *King Salmon* (Board), above n 6, at [421].

249 At [431].

250 At [431] and [432]. See [88]–[93] above.

251 While we have summarised the discussion referring to adaptive management in New Zealand, Australian and Canadian case law and in commentaries, we are not to be taken as having endorsed the approach taken in those cases or commentaries, except to the extent specifically indicated in this section of the judgment at [124]–[134].

252 See [10] above.

maximum feed levels. However, on current information, the majority of the experts considered that a change in trophic level of the Sounds was unlikely.[253]

[131] With regards to [129](b) above, the importance of marine farming is outlined at Policy 8 of the Coastal Policy Statement. It provides that aquaculture is important to the social, economic and cultural well-being of people and communities and thus requires that the social and economic benefits of aquaculture be taken into account in decision making.[254] The Board was also satisfied that these particular projects were individually and collectively of economic benefit at the local, regional and to a lesser extent, the national level.[255]

[132] With regards to [129](c), the uncertainty, particularly as to baseline and increased feed levels, was high. The modelling that had been done could be seen as having reduced the uncertainty somewhat, subject to the limits of modelling. As the Board noted, however, quoting Mr Knight, models "can never perfectly simulate what effects will transpire under real world conditions", or, quoting another witness, "all models are wrong, but some models are useful".[256]

[133] The vital part of the test is contained within [129](d) above. This part of the test deals with the risk and uncertainty and the ability of an adaptive management regime to deal with that risk and uncertainty. We accept that, at least in this case, the factors identified by the Board[257] are appropriate to assess this issue. For convenience, we repeat these here:

(a) there will be good baseline information about the receiving environment;

(b) the conditions provide for effective monitoring of adverse effects using appropriate indicators;

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253 See [52] above.
254 See [23] above.
255 *King Salmon* (Board), above n 6, at [263]–[268].
256 At [380].
257 See [105] above.

(c) thresholds are set to trigger remedial action before the effects become overly damaging; and

(d) effects that might arise can be remedied before they become irreversible.

[134] It is unfortunate that the Board did not return to discuss the factors it had identified explicitly. We must therefore assess the extent to which the findings of the Board as to the measures put in place meet those tests.

[135] Looking first at the question of baseline information under [133](a), normally one would expect there to be sufficient baseline information before any adaptive management approach could be embarked on (as against prohibition until any deficiency in baseline information is remedied). All the experts were agreed that there was a lack of baseline information with regard to water quality.[258] That deficiency will, however, be remedied before the farms are stocked and no structure can be placed on the farms if the Council does not approve the baseline report.[259] Further, the Board had before it the modelling results and the opinions of the experts we have just discussed at [126] to [128] above. The approach of the Board was in these circumstances available to it. In addition, in this case, the baseline information that will be collected will be of use in the managing of the Sounds generally, and in particular provide more understanding of the effects, not just of marine farming but also of land based activities. This is consistent with the various methods in the Regional Policy Statement that encourage research to further the various policies.[260]

[136] With regards to [133](b), the Board was of the view that the consent conditions provided effective monitoring of adverse effects and that appropriate thresholds were set.[261] The environmental quality standards set were agreed to by the experts with little debate as to the content. These standards are to continue to be used in a holistic approach with the quantitative standards that are to be

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258 See [42] above.
259 See [89] above.
260 See [30] above.
261 *King Salmon* (Board), above n 6, at [1277](b).

developed.[262] The qualitative standards provide an overarching framework. The baseline report and the ongoing monitoring reports are to be prepared by an independent person, monitored by the peer review panel and have to be approved by the Council.[263]

[137] As to [133](c), any significant shift in trophic state will lead to remedial action by either reducing the amount of feed, or in serious circumstances, removing fish from the farm until the trophic state improves.[264] SOS expressed concern about the efficacy in practice of the monitoring and remedial measures but it is not an error of law for the Board to rely on the measures being properly implemented.

[138] As to [133](d), although it did not explicitly make findings that the effects could be remedied before they became irreversible, this is implicit from its acceptance of the conditions as complying with a precautionary approach.[265]

[139] The answer to the overall question from [129](d) of whether risk and uncertainty will be diminished sufficiently for an adaptive management regime to be consistent with a precautionary approach will depend on the extent of risk and uncertainty remaining and the gravity of the consequences if the risk is realised. For example, a small remaining risk of annihilation of an endangered species may mean an adaptive management approach is unavailable. A larger risk of consequences of less gravity may leave room for an adaptive management approach.

[140] In this case, while a change in trophic state would be grave, the experts were agreed it was unlikely. Further, the information deficit is effectively to be remedied before the farms are stocked and before feed levels are increased. Remedial action will be taken if there is any significant shift in water quality. The Board was thus entitled to consider that the four factors it had identified were met. In this case, given the uncertainty will largely be eliminated and the risk managed to the Board's satisfaction by the conditions imposed, it was open to the Board to consider that the

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262 At [454].
263 See [88] and [89] above.
264 See [92] above.
265 See [53] above for a discussion as to expert evidence on reversibility.

adaptive management regime it had approved, in the plan and the consent conditions, was consistent with a proper precautionary approach.

Relationship between the plan change and consent applications

The parties' submissions

[141] In SOS's submission, while the plan changes and the consent applications could be heard together, they remain separate processes with a different focus (the planning role as against a quasi-judicial role for consent applications).[266] The 2011 amendments to the RMA, which allowed the two to be heard together, were not intended to make a substantive change to the nature of the planning and consent processes or the relationship between them.[267] SOS submits that the Board made its decision on the plan change and the consent applications as an integrated whole and that its plan change decision was improperly predicated on the consent conditions it intended to impose.

[142] In response to this submission, King Salmon's position is that the Board's decision was not predicated on the conditions it proposed to impose at the consenting stage. It says that the Board repeatedly reminded itself of the statutory direction in relation to the sequencing of the matters for decision before it.[268] The Board followed the correct sequence by first considering the requested plan changes[269] and then the five remaining resource consent applications.[270] The Board noted, when considering the plan changes, that it did so "aware of" the conditions proposed,[271] but in King Salmon's submission, the decision was not "predicated on compliance with the proposed conditions of consent". In any event, the proposed conditions of consent cannot be an irrelevant factor for the Board to take into account.

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266 *Coromandel Watchdog of Hauraki Inc v Chief Executive of the Ministry of Economic Development*, above n 189, at [16] and [22].

267 Section 149P(8) of the RMA necessitates that a board of inquiry, when dealing with a plan change and a concurrent application, must first determine the matters in relation to the plan change request and then determine the matters in relation to the concurrent application.

268 *King Salmon* (Board), above n 6, at [73(e)] and [101]–[102].

269 At [1156]–[1279].

270 At [1280]–[1342].

271 At [1277(b)].

Discussion

[143] We accept that the Board outlined its decision on the plan changes before its decision on the consent applications. We also accept that the Board was aware of the different statutory provisions that governed plan changes and consent applications. However, the influence of the consent conditions on the Board's decision on the plan change is evident from the structure of the report. The modifications to the consent conditions originally proposed by King Salmon were discussed by the Board after it had made findings on the contested effects and before the consideration of the plan changes.

[144] It is quite clear, too, that the Board would not have granted the plan change request in the absence of the detailed consent conditions. The Board referred on more than one occasion to the uncertainty relating to baseline levels and the fundamental failure to model maximum feed levels. The consent conditions require the gathering of baseline information, which had to be done before the farms were stocked. The consent conditions also require ongoing monitoring to ensure that, if water quality becomes at risk of being compromised, then appropriate remedial action can be taken. It is thus the consent conditions that address the uncertainties that the Board had identified and contain the adaptive management regime which is an essential component of the Board's decision.[272]

[145] The issue then is whether it was improper for the Board to take into account the consent conditions when deciding on a plan change to make salmon farming a discretionary activity in Zone 3. We do not consider that it was. If a relevant authority considering a plan change request could not conceive of a consent being granted for an activity no matter what the conditions, then the activity could not be designated as a discretionary activity. If, however, an activity could have significant adverse effects but these effects could be eliminated by a simple consent condition, then it would be irrational to require a planning authority to ignore the fact that such a condition could be imposed. All that occurred in this case is that the Board considered the actual conditions that would ultimately be imposed, rather than

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[272] The Board explicitly noted, at [439], that it could only consider granting consent if there was a more robust monitoring and adaptive management regime than that presented in the proposed conditions by King Salmon.

hypothetical conditions. This is legitimate given that the hearing, and the subsequent decision, covered both plan changes and consent conditions.

[146] It is nevertheless important for the plan change process and the consents to be considered separately, with the different statutory provisions and the different roles of the decision maker firmly in mind: as a planning authority (for plan changes) and as a hearing authority with a quasi-judicial role (for consents). We consider that the Board in this case did consider the plan changes and the consents separately and was well aware of the different roles and statutory provisions when considering water quality issues. It also took a proper regional approach[273] to the issue of water quality, considering the effect of the farms on water quality on a Sounds-wide basis.[274]

[147] We recognise that there could be dangers when a planning authority has regard to anticipated consent conditions where the consents are for only one activity, while the plan change covers a variety of activities. A planning authority must have regard to the full range of activities that a proposed plan change could subsequently permit. In this case, however, both the plan changes and the consent conditions related only to salmon farming.

What should have been contained in the plan?

The parties' submissions

[148] SOS submits that, if the Board could identify conditions that would enable salmon farming to continue consistently with the RMA,[275] then these conditions should have been in the plan and specified in rules and standards. That would have given the community certainty about what is allowed to enable people to "order their lives under it with some assurance".[276] SOS acknowledges that there were assessment criteria in the plan but points out that these are guidelines only. Further,

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273 See *Environmental Defence Society Inc v New Zealand King Salmon Co Ltd*, above n 12, at [170].

274 See *King Salmon* (Board), above n 6, at [406] and [427].

275 Of course, the primary submission of SOS is that no such conditions would adequately safeguard water quality, in light of the lack of information before the Board.

276 *Discount Brands Ltd v Westfield (New Zealand) Ltd* [2005] NZSC 17, [2005] 2 NZLR 597 at [10] per Elias CJ.

it points out that the Board could not even set water quality standards in the resource conditions as it lacked sufficient information to do so. Instead, it imposed a monitoring regime and a means of setting water quality standards to be approved by the Council. This did not give proper assurance that the adaptive management regime, as envisaged by the Board, would be complied with.[277]

[149] In addition, if the adaptive management regime had been specified as rules and standards in the plan, SOS says that any future resource consent application would almost certainly be notified and the community could have participated in decisions relating to resource consent applications in the future that would be made on the basis of the newly gathered monitoring information. Public participation is integral to the RMA.

[150] In response, King Salmon submits that the standards, assessment criteria and the existing provisions of the Sounds Plan, together with all of the relevant higher order planning documents (such as the Coastal Policy Statement), provide specific direction and guidance for conditions of consent to be imposed on any subsequent resource consent application. In its submission, no future consent could be granted without properly providing for the maintenance of water quality. Further, water quality objectives were set as conditions of consent. As to public participation, King Salmon submits that the public has had a proper opportunity to be heard during the Board process.

Discussion

[151] Under s 87A(4), if a resource consent is granted for a discretionary activity, the activity must comply with the requirements, conditions and permissions, if any, of the RMA, regulations, plan or proposed plan. It is common practice for regional plans to include assessment criteria for determining whether a discretionary activity should be granted a resource consent. If such criteria exist, the consent authority must give effect to them. However, the law does not require in all circumstances

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[277] SOS did not, however, pursue in this Court its earlier argument that the Board had improperly delegated its decision to the independent expert, the peer review panel and the Council. In *King Salmon* (HC), above n 2, the High Court dealt with this submission at [114]–[128]. We make no comment on this issue.

comprehensive assessment criteria setting out when resource consent may be granted for discretionary activities.

[152] As to the discharge of contaminant levels, s 15(1)(a) of the RMA allows for the discharge of contaminants into water as long as the discharge is expressly allowed by either a national environmental standard or other regulations, a rule in a regional plan,[278] or a resource consent. Thus in the current case, the discharge levels of fish feed could be set either in the regional plan or in the individual consents.

[153] If, however, a consent for a particular activity would only be granted on certain conditions, then it would certainly be good practice (and may in some circumstances be a requirement) that this be made clear in the plan, either as standards or as assessment criteria. Otherwise consent applications may not address relevant criteria and a future consent authority may risk making a decision on a basis that was not contemplated by the planning authority.

[154] The structure of the Sounds Plan is to have rules and standards but also to have assessment criteria relating to resource consent applications. Assessment criteria are designed to give guidance to those applying for consents as to the types of information and analysis that will be required of applicants.[279] They also give the community information on how such consents will be assessed. Although the assessment criteria are not said to be binding, a reasonable consent authority would have to take them into account, to the extent that they were relevant.

[155] In this case, we accept King Salmon's submission that no future consent for Zone 3 could be granted without properly providing for the maintenance of water quality. This is because of what is contained in the Coastal Policy Statement and the Regional Policy Statement on water quality, along with the general requirements of the Sounds Plan on that topic, as well as the specific standards and assessment criteria relating to Zone 3,[280] including the requirement to assess the adverse effects of any discharge to coastal water, the provision for staged and monitored increases in

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278 As well as a rule in a proposed regional plan for the same region (if there is one).
279 See [33] above.
280 See [40] and [41] above.

feed discharge and the necessity for adaptive management approaches to the management of the seabed and water quality.[281]

[156] As to the submission of SOS relating to the inability of the Board to set water quality standards, it is true that the Board could not set quantitative standards but it did set comprehensive qualitative ones in the consents.[282]

[157] We accept that public participation is a key tenet of decision making under the RMA with many public participatory processes.[283] As noted by Keith J in *Discount Brands Ltd v Westfield (New Zealand) Ltd,* the purpose of these processes is to recognise and protect the particular rights of those who are affected and to enhance the quality of the decision making.[284] With regard to the current case, the hearing before the Board was eight weeks long. The Board heard from 181 witnesses and 1221 submissions were received. Therefore, in this case, there was a significant amount of public participation in the process.

Conclusion, result and costs

[158] The Board was entitled to consider that the adaptive management regime, reflected in both the plan and the consent conditions, was consistent with a proper precautionary approach. The plan changes were not improperly predicated on the consent conditions and there was no need for the plan to contain more than it did on water quality, the plan containing in particular a reference to an adaptive management regime and to controls for water quality.

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281 See [41] above. The amended rule [35.4.2.10.3] set out in *King Salmon* (Board), above n 6, at Appendix 3, also includes a requirement to assess the effects from seabed deposition and changes to water quality, ecological effects and environmental standards in which effects of discharges can be monitored and evaluated.

282 The submissions of SOS contained a number of other complaints about the consent conditions (including the 35-year term of the consents) and also complaints relating to other matters such as the assessment of economic benefit. These matters did not explicitly come within the terms of the leave sought or given and were just noted to support the main grounds of appeal. As such, we have not found it necessary to deal with them. To the extent they were dealt with in the judgment of Dobson J, we are not to be taken as making any assessment of his findings relating to those matters.

283 For example, under s 165ZT of the RMA, an accepted plan change request and a concurrent application for coastal permits needs to be publicly notified in accordance with that section.

284 *Discount Brands Brands Ltd v Westfield (New Zealand) Ltd,* above n 276, at [46].

[159] The appeal with regard to the Waitata, Richmond and Ngamahau sites is dismissed.

[160] If costs cannot be agreed, the parties have leave to file memoranda on or before 2 June 2014.

Solicitors:
Dyhrberg Drayton, Wellington for Appellant
Russell McVeagh, Wellington for First Respondent
DLA Phillips Fox, Auckland for Second Respondent
DLA Phillips Fox, Wellington for Third Respondent
Crown Law Office, Wellington for Fourth Respondents

BOARD OF INQUIRY
NEW ZEALAND KING SALMON REQUESTS FOR PLAN CHANGES AND APPLICATIONS FOR RESOURCE CONSENTS

IN THE MATTER of the Resource Management Act 1991 (the RMA)

AND

IN THE MATTER of a referral to a Board of Inquiry under Section 147 of the Act of requests for plan changes and applications for resource consents by The New Zealand King Salmon Company Limited

The Board of Inquiry

Retired Environment Judge Gordon Whiting (Chairperson)
Environment Commissioner Helen Beaumont (Board Member)
Mr Edward Ellison (Board Member)
Mr Mark Farnsworth (Board Member)
Mr Michael Briggs (Board Member)

For the Board: Retired Environment Judge/Chairman Gordon Whiting, sitting alone

Date: 14 March 2013

MINUTE NO. 8 OF THE BOARD DATED 14 MARCH 2013

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[1] In the Final Report and Decision of the Board of Inquiry, dated 22 February 2013, the Board made the following determination regarding the concurrent resource consents for the four sites where the Plan Change request was approved:[1]

> 5. Because of the complexity of the Conditions of Consent and the number of iterative changes that have occurred since the commencement of the hearing, leave is given to the Marlborough District Council to apply within one week from receipt of this decision for amendments to correct any minor mistakes or defects.

[1] Final Report and Decision, at B.5

[2] Following the issue of the Decision, the Marlborough District Council (the **Council**) carried out a review of the consent conditions. During its review the Council identified a number of matters that it considered were of a minor nature that they considered required amendment.

[3] The changes sought to the consent conditions for each site were outlined in attached tables to a Memorandum of Counsel for the Council dated 7 March 2013. The table contained a brief explanation as to the reason why the respective changes were sought.

[4] I, as Chairman of the Board, have been delegated authority from the Board to consider the proposed amendments, and if appropriate, make them. I considered the tables attached to the Memorandum of Counsel dated 7 March 2013 and made all the amendments sought as they clearly fell within the ambit of minor mistakes or defects and were appropriate to make. These amendments were contained in an Addendum dated 13 March 2013.

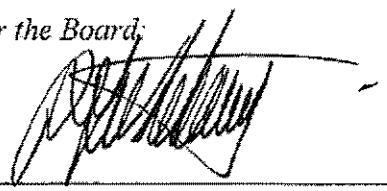
[5] Late on 13 March 2013, and received by me on 14 March 2013, I received a 35th Memorandum of Counsel from New Zealand King Salmon (**NZKS**). That memorandum had attached to it a reproduction of the Council tables but with NZKS's comments in red.

[6] It is my view that the Board became functus officio when it issued its Final Report and Decision on 22 February 2013, save for the window of opportunity offered to the Council to seek amendments to correct any minor mistakes or defects of the conditions of consent.

[7] Accordingly, the 35th Memorandum of Counsel for NZKS will not be considered by the Board.

DATED at AUCKLAND this 14th day of March 2013

For the Board:



R G Whiting
Retired Environment Judge/Chairman

BOARD OF INQUIRY
NEW ZEALAND KING SALMON REQUESTS FOR PLAN CHANGES AND APPLICATIONS FOR RESOURCE CONSENTS

IN THE MATTER of the Resource Management Act 1991 (the RMA)

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Mr Mark Farnsworth (Board Member)
Mr Michael Briggs (Board Member)

For the Board: Retired Environment Judge/Chairman Gordon Whiting, sitting alone

Date: 13 March 2013

ADDENDUM TO FINAL REPORT AND DECISION AMENDING MINOR MISTAKES OR DEFECTS TO CONDITIONS OF CONSENT

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[1] In the Final Report and Decision of the Board of Inquiry, dated 22 February 2013, the Board made the following determination regarding the concurrent resource consents for the four sites where the Plan Change request was approved:[1]

> 5. Because of the complexity of the Conditions of Consent and the number of iterative changes that have occurred since the commencement of the hearing, leave is given to the Marlborough District Council to apply within one week from receipt of this decision for amendments to correct any minor mistakes or defects.

[1] Final Report and Decision, at B.5

[2] Following the issue of the Decision, the Marlborough District Council carried out a review of the consent conditions. As pointed out in the Council's Memorandum,[2] the version of the consent conditions in the Final Decision was the first time that the conditions had been separated into four separate sites, and also all the condition numbering (and subsequent cross-references) changed to reflect a more logical and workable numbering system. It was mainly because of the complexity of this process that the Board gave the Council one week to reply for amendments to correct any minor mistakes or defects.

[3] The Council during its review identified a number of matters that are minor mistakes or defects that they considered required amendment. The changes sought to the consent conditions for each site were outlined in attached tables to a Memorandum of Counsel for the Council dated 7 March 2013. The table contained a brief explanation as to the reason why the respective changes were sought.

[4] The Council accordingly sought that the changes as set out in the attached table to the memorandum be made to the final version of the consent conditions that will be incorporated into the Council system and made available to all parties to this process.

[5] I, as Chairman of the Board, have been delegated the authority of the Board to consider the proposed amendments, and if appropriate, make them.

[6] I have considered carefully the tables attached to the Memorandum of Counsel dated 7 March 2013, and have made all of the amendments sought as they clearly full within the ambit of *minor mistakes or defects*.

[7] Accordingly, I have prepared a tracked change version of the amendments, together with a clean version of the amendments to Appendix 8 (Papatua Farm), Appendix 9 (Waitata Farm), Appendix 10 (Richmond Farm), and Appendix 11 (Ngamahau Farm).

[8] A copy of this Addendum is to be forwarded to the following parties:

[a] The Council;

[b] The applicant, King Salmon; and

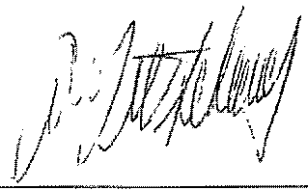
[2] Memorandum of Counsel, 7 March 2013

[c] The Minister of Conservation.

[9] The Addendum, together with the tracked change version and the clean version of the amended conditions of consent is to be posted on the EPA/King Salmon website. A hard copy is to be made available to any party who requests a hard copy of the Addendum.

DATED at AUCKLAND this 13th day of March 2013

For the Board:



R G Whiting
Retired Environment Judge/Chairman

APPENDIX 9

Final Conditions of Consent for Waitata as amended by Addendum dated 13 March 2013

(Clean version)

NEW ZEALAND KING SALMON

CONDITIONS OF CONSENT

Resource Consent for Waitata Farm

Coastal Permit

To establish and operate a marine farm and undertake marine farming of King Salmon (Oncorhynchus tshawystcha), including:

a) All associated structures, activities in the coastal marine area, occupation of the common marine and coastal area, disturbance of or damage to the foreshore or seabed, and other ancillary activities and structures;
b) All associated discharges to water, but excluding the discharge of human sewage;
c) All associated discharges to air of odour and from diesel and petrol powered equipment
d) The associated taking and use of coastal water.

Duration of this coastal permit – 35 years from the date of commencement of this consent

This consent is subject to the following Conditions.

Lapse

1. This consent shall lapse three years from the date of commencement. The consent shall not lapse if the Baseline Plan required under Condition 56 is provided to and approved by the Council in accordance with Condition 60 and the monitoring required by the Baseline Plan is confirmed to have commenced.

Occupancy and Activity

Occupation and Activity Area

2. The occupancy and activity shall be limited to the area shown on **Figure 1** attached to this consent. The marine farm layout shall be generally in accordance with the layout shown on **Figure 1**.

   Advice Note: While the occupancy and activity associated with the marine farm and marine farming will occur within the area specified in Condition 2, some effects arising from the activities may be experienced beyond the boundary of this area. For example, the marine farm will be able to be seen and heard from beyond the boundary of the area, and some waste material will travel beyond the boundary.

3. The consented area may be exclusively occupied to the extent necessary to undertake the activity and ensure the safety and security of the marine farm and all its structures. In particular, the physical space occupied by all surface structures, including all net pens and barges (refer Conditions 14 and 15), may be exclusively occupied; and all mooring lines extending from the structures to the seabed and the anchoring systems with the seabed may exclusively occupy the physical space that they occupy, but not the water space above, between, and below the lines (other than as necessary to ensure the safety and security of the lines and the anchoring systems).

Salmon Stock

4. All farmed salmon shall be from roe sourced in New Zealand.

Noise

5. All marine farming shall be conducted so as to ensure that noise arising from such activities does not exceed the following noise limits when measured no closer than 250m from any marine farm surface structure:

0700 hours – 2200 hours Monday to Friday and 0700 hours – 1200 hours Saturday	55 dBA L_{10}
On any day between 0700 hours and 2200 hours	No L_{max} limit
At all other times including any public holiday	45 dBA L_{10}, and 75 dBA L_{max}

All marine farming shall be conducted so as to ensure that noise arising from such activities does not exceed the following noise limits when measured at the Notional Boundary of dwellings existing at [insert date of Plan Change becoming operative]:

0700 hours – 2200 hours Monday to Friday	50 dBA L_{10} and 0700 hours – 1200 hours Saturday
On any day between 0700 hours and 2200 hours	No L_{max} limit
At all other times including any public holiday	40 dBA L_{10}, and 75 dBA L_{max}

6. Noise shall be measured in accordance with NZS 6801:2008. Adjusted levels shall be determined in accordance with NZS 6802:2008. Any construction activities will meet standards specified in NZS 6803:1999.

7. The following activities shall be exempt from the above noise standard:

   a Noise generated by navigational aids, safety signals, warning devices, or emergency pressure relief valves;
   b Noise generated by emergency work arising from the need to protect life or limb or prevent loss or serious damage to property or minimise or prevent environmental damage; or
   c Noise ordinarily generated by the arrival and departure of vessels servicing the marine farm.

8. The use of outdoor radios or similar external speakers on the marine farm is prohibited.

Submerged Artificial Lighting

9. The consent holder shall ensure that the submerged artificial lighting set up in each net pen will not be comprised of any more than the luminance of nine 1000 watt halide underwater lights.

King Shags - Buffer Area and Management Plan

10. As shown on **Figure 2** a buffer area of 100m shall be maintained from the King Shag roosting site in the vicinity of the marine farm, as at the date of the commencement of this consent, within which no ship movements associated with the marine farm shall occur.

11. The consent holder shall, in consultation with the Department of Conservation and the members of the Tangata Whenua Panel (refer to condition 77) prepare and implement a King Shag Management Plan (KSMP). The consent holder shall engage an independent person (or persons) with appropriate knowledge and expertise to prepare the KSMP. The objective of the KSMP shall be to ensure the establishment and operation of the marine farm does not result in a reduction in the population of King Shag in the Marlborough Sounds, with particular regard to the Duffers Reef Shag colony. This plan shall be provided to the Council prior to the first discharge of feed to the marine farm, with copies being provided to the Department of Conservation and the members of the Tangata Whenua Panel.

    The KSMP shall require:

a Surveys of the numbers of King Shag in the Marlborough Sounds no less than once every three years. The first survey shall be undertaken prior to the first discharge of feed to the marine farm. All survey results are to be provided to the Council, Department of Conservation and the Tangata Whenua Panel within three months of completion of the survey, and posted on the King Salmon website.

b In the event that a statistically significant decline of King Shag numbers ($p<0.05$) has occurred since the previous survey, the consent holder shall investigate whether the operation of the marine farm is causing or contributing to the decline.

c A response mechanism is to be implemented if the marine farm is found to be causing or contributing to the decline in King Shag numbers. Such mechanism to include but not be limited to immediate changes to marine farm management practices including a reduction in feed or stocking levels.

Structures

Location of Structures for Benthic Monitoring Purposes

12. A corner of (one of) the first marine farm net pen(s) established on the marine farm shall be located on the point nominated for that purpose in Condition 20 and located at one end of either row of the salmon net pens. So long as there remain marine farm net pens on the marine farm, net pens shall be located so as to extend contiguously from the nominated corner in either direction.

Advice Note: Condition 12 above is necessary to assist benthic monitoring.

Design and Size of Structures

13. Marine farm net pens shall be steel framed net pens.

14. The maximum area of marine farm net pen surface structures within the marine farm (other than temporary net pens for transferring salmon to or from the marine farm) shall be 1.5 hectares.

15. Only one feed/accommodation barge (the "barge") shall be located on the marine farm. The "barge" shall have a maximum footprint of $280m^2$ and a maximum height of 7.5m above water level.

16. The exterior design of the feed / accommodation barge (the "barge") shall be generally in accordance with the design produced by HMA, King Salmon Feed Barge Drawing SK09, 9th August 2012.

Colours and Materials for Structures

17. The feed/accommodation barge (the "barge"), including its roof and all ancillary features (such as drain pipes), shall be finished in non-reflective materials and painted in a dark colour (such as Karaka Green). Dark coloured curtains, blinds or shutters are to be provided for the windows of rooms used for staff accommodation.

18. All exterior above-water metal structures (other than the surface of walkways) are to be painted or otherwise finished in dark recessive colours.

19. Black or dark colour is to be used for predator nets, grower nets and bird netting which are normally above-water. Lighter colours may be used for bird netting if trials find this to be more effective.

Council to be Informed of Installation of Structures

20. The Council shall be notified that structures have been installed on the marine farm, and provided with a plan showing the location of those structures, within one month following the initial placement of the first structure(s) at the marine farm, and within one month of the

addition of any further structures. When the Council is notified of the initial installation of the first structure(s) on the marine farm, it shall also be informed of the co-ordinates of the starting corner of the marine farm for the purposes of Condition 12.

Marine Farm Navigational Lighting and Marking

21. The placement of marine farm navigational lighting and marking shall be approved by the Harbourmaster under his or her Maritime Delegation from the Director of Maritime Safety pursuant to sections 200, 444(2) and 444(4) of the Maritime Transport Act 1994.

Structural Engineering Design, Installation and Maintenance

22. The design, including the design loading, for the anchoring and mooring warp system shall be specified by a suitably qualified and experienced Chartered Professional Engineer (with appropriate peer review) to cater for the maximum wave loading, and maximum tidal range and currents. The design report and plans shall be provided to the Council, prior to the initial placement of the first structure(s) at the marine farm. A suitably qualified and experienced Chartered Professional Engineer shall supervise the installation of, and certify that, the anchoring system has been installed in accordance with the design report and plans.

23. During installation of the anchoring and mooring warp system, a test pullout loading shall be undertaken of a representative screw anchor, in order to confirm the anchor pullout capacity, in accordance with the Engineering Feasibility Report dated September 2011, prepared by OCEL Consultants Limited and lodged with the application. A report describing the results of the test, and confirming the pullout capacity of the representative screw anchor shall be prepared by the Chartered Professional Engineer specified in Condition 22 who supervises the installation of the anchoring system, and provided to the Council.

24. The anchoring and mooring warp system shall be monitored and maintained in accordance with a "Marine Farm Mooring Monitoring and Maintenance Schedule" prepared or reviewed and accepted by a suitably qualified and experienced Chartered Professional Engineer and provided to the Council. This Schedule shall be provided to the Council prior to the initial placement of the first structure(s) at the marine farm. The monitoring shall include periodic monitoring of the actual mooring loads caused by the hydrodynamic forces on the marine farm by tidal currents and waves, designed to demonstrate that the design loading on the anchors and mooring warps is not exceeded. If monitoring shows that design loadings have been exceeded, the causes of the loading exceedance shall be investigated and rectified.

25. The mooring system shall be designed and maintained such that the maximum loading, under all normal tidal and weather conditions, on any mooring is the lesser of 20% of the anchor pullout capacity determined in accordance with Condition 23, or 20% of the mooring line tension capacity after allowing for the deleterious effects of splices and ties.

26. The structure and mooring system shall be designed such that, under all design cases, the failure of a critical component under the design loading case does not result in the progressive break-up of the structure or progressive failure of the mooring system.

27. Beyond 20m from any surface structure, no mooring line shall be within 4m of the surface of the water.

28. The consent holder shall maintain all structures and fixtures to ensure that they are restrained, secure and in working order at all times, so as to not create a navigational hazard.

Navigational Information and Safety

29. One month prior to the initial placement of the first structure(s) at the marine farm, the consent holder shall notify the Harbourmaster, Land Information New Zealand and the Ngati Koata Trust Board (or its successors) that the structures are to be placed within the area, and provide them with a copy of the Farm Layout Plan in Figure 1 and a copy of the plan required by Condition 20. Any subsequent additions or disestablishment of the structures shall be notified in a similar manner.

30. Following the initial placement of the first structure(s) at the marine farm, the consent holder

shall:

a ensure that a notice alerting mariners to the presence and location of the marine farm is broadcast on Marlborough Radio as directed by the Harbourmaster;

b prepare and implement an education strategy to alert and inform Marlborough Sounds boat users of the presence and location of the marine farm, its structures and associated mooring lines. The strategy shall be prepared in conjunction with the Harbourmaster prior to the initial placement of the first structure(s) at the marine farm and will cover a period of 2 years from the initial placement of the first structure(s) at the marine farm.

31. The consent holder shall, prior to the initial placement of first structure(s) at the marine farm, prepare a **Navigation Risk Reduction and Management Plan**. The Navigation Risk Reduction and Management Plan shall provide details of the risk controls (design criteria, processes and procedures) to be put into place to operate the marine farm in compliance with Conditions 22-30 and minimise the potential for adverse navigation effects due to the operation of the marine farm. The Navigation Risk Reduction and Management Plan shall be reviewed and updated to reflect any changed circumstances and at not more than 5 yearly intervals. The initial preparation of the Navigation Risk Reduction and Management Plan and its review shall be undertaken in consultation with the Harbourmaster.

Removal of Marine Farm Structures

32. The consent holder shall remove all structures associated with the farm from the site under the following circumstances:

a if the marine farm has not been operated by the consent holder for a period of 2 years, and there is no evidence from the consent holder during that period that it intends to continue to maintain and use the marine farm; or

b the term of the consent for marine farm structures has expired and the consent holder has not lodged an application to renew the consent for those structures, or if such an application has been lodged the consent has been refused and all rights of appeal exhausted.

Discharge of Feed, Marine Fouling and Antifouling to Coastal Water

Feed Discharge Limits

33. Only extruded pellets or similar shall be fed at the marine farm.

34. The annual tonnage of nitrogen that may be discharged to the marine farm is to be limited to 7% of the tonnage of feed that may be discharged in accordance with Condition 35 and Table 1 (i.e. if up to 3000 tonnes of feed can be discharged then up to 210 tonnes of nitrogen can be discharged).

35. The annual tonnage of feed that may be discharged to the marine farm is limited as follows:

a The initial feed discharged (in at least each of the first three years) shall not exceed the Maximum Initial Feed Discharge specified in **Table 1;**

b In any year, the tonnage of feed discharged shall not exceed the Maximum Feed Discharge specified in **Table 1;**

c Any increase in feed discharged (from one year to the next) shall not exceed the Maximum Increase in Feed Discharge specified in **Table 1;**

d Whether or not the annual tonnage of feed discharge may increase above the Maximum Initial Feed Discharge, or may reach the Maximum Feed Discharge, is dependent upon compliance with Condition 36 below.

36. The annual tonnage of feed discharged to the marine farm may only be increased above the Maximum Initial Feed Discharge specified in Condition 35, or above any subsequent allowable annual feed discharge level, if the following requirements are met:

a the requirements of Condition 37
b the requirements of Conditions 38-44 (relating to compliance with Environmental Quality Standards (EQS)); and
c any specifications for marine farm management in the **Marine Environmental Monitoring and Adaptive Management Plan (MEM-AMP)** for that year (Condition 65).

Table 1: Maximum initial and maximum annual feed discharges, and maximum increases in annual feed discharges (from one year to the next)

Farm	**Maximum Initial Feed Discharge** (tonnes per annum)	**Maximum Increase in Feed Discharge** (tonnes per annum)	**Maximum Feed Discharge** (tonnes per annum)
Waitata	3000	1000	6000

Notes

1 The annual feed discharge may exceed the relevant maximum feed discharges specified in **Table 1** by up to 15%; provided that over any continuous 3 year period, the average annual feed discharge does not exceed the relevant maximum feed discharges specified in **Table 1.**
2 There is no limit to any decrease in the annual tonnage of feed discharge.

37. There shall be no increase in the annual tonnage of feed discharged to the marine farm unless the following requirements are met:

a The marine farm shall have operated at or near (±15%) its current maximum annual feed discharge level for at least 3 years;

and

b Annual monitoring results of the Enrichment Stage (ES) from the most recent two successive years shall be comparable, based on the monitoring undertaken in Condition 66, assessed as follows. The Enrichment Stage (ES) from the annual monitoring, assessed in accordance with Condition 40, shall statistically not be significantly more than the ES from the previous year, based on the average result for all sampling stations (**Figure 3**) within each compliance Zone. This requirement must be met for each of the Environmental Quality Standards (EQS) compliance Zones for which ES are specified in Condition 40;

and

c The marine farm complies with all the EQS specified in Condition 40 and is less than the relevant maximum EQS for each Zone.

Environmental Quality Standards (EQS)

38. The discharge of feed, marine biofouling and antifouling at the marine farm shall meet the requirements of Conditions 39 - 44 relating to Environmental Quality Standards (EQS) at all times. Any breach of these requirements shall, as soon as practicable, be notified to the Council and the members of the Tangata Whenua Panel (refer to Condition 77).

Environmental Quality Standards (EQS) –Seabed Deposition

39. EQS Compliance Zones shall be defined for the marine farm, in accordance with **Figure 3** and the dimensions and areas contained in **Table 2.**

Table 2: Maximum distances of EQS Compliance Zone 2/3 and Zone 3/4 boundaries

from the nearest edge of the marine farm net pens; and the maximum total affected areas of Zones 1, 2 and 3.

	EQS Compliance Zone boundary dimensions (maximum distances)		EQS Compliance Zone Area (Maximum area)
Farm	**Distance from nearest net pen to Zone 2/3 boundary**	**Distance from nearest net pen to Zone 3/4 boundary**	**Total area of Zones 1, 2 and 3 (the footprint)**
	Metres (m)	Metres (m)	Hectares (ha)
Waitata	150	600	24

a The above Zones shall be fixed.

b Notwithstanding, Condition 39a, the size and shape of the above Zones will be reviewed (to enable comparison with the zone dimensions contained in **Table 2**), after 3 years of operation at the Initial Feed Discharge level in **Table 1**, as part of the **Annual Report** (refer to Condition 67j) for that year. The dimensions and area of the Zones may be amended as a result of a recommendation in the **Annual Report**, provided that the total area of Zones 1, 2 & 3 does not increase by more than 10% from the area specified in **Table 2.**

40. At all times, the seabed beneath and in the vicinity of the marine farm shall comply with the EQS specified in **Table 3**. Zone dimensions and area for compliance purposes shall be defined in accordance with Condition 39. Enrichment Stages (ES) shall be defined in accordance with **Figure 4** and **Table 5.**

Table 3: Environmental Quality Standards (EQS) – Seabed Deposition

Zone	Compliance Monitoring Location	EQS
Zones 1 & 2 – beside and beneath the net pens	Measured beneath the edge of the net pens – "Pen" Stations on **Figure 3**	ES≤ 5.0 No more than one replicate core with no taxa (azoic), No obvious, spontaneous out-gassing (H_2S/methane), Bacteria mat (*Beggiatoa)* coverage not greater than localized/patchy in distribution.
Zone 3 – near to the net pens	Measured at the Zone 2/3 Boundary Stations on **Figure 3**	ES≤ 4.0 Infauna abundance is not significantly higher than at corresponding "Pen" Station Number of taxa >75% of number at relevant / appropriate reference Station(s)
Zone 4 – outside the footprint area	Measured at the Zone 3/4 Boundary Stations on **Figure** 3	ES < 3.0 Conditions remain statistically comparable with relevant / appropriate reference Station(s)

ES exceedance

a In the event that the ES is up to and including 0.3 above the EQS for the 1/2 (Pen), 2/3 or 3/4 Zone Boundary Stations in Table 3, the consent holder shall in the year following receipt of confirmed notice of such an ES result through its monitoring (and allowing one additional month from any initial notice to provide for re-testing), reduce the amount of feed

discharged to the marine farm by 20% of the amount discharged in the year before.

b In the event that the ES is greater than 0.3 and not greater than 0.6 above the EQS for the 1/2 Pen, 2/3 or 3/4 Zone Monitoring Locations in Table 3, the consent holder shall in the year following receipt of confirmed notice of such an ES result through its monitoring (and allowing one additional month from any initial notice to provide for re-testing), reduce the amount of feed discharged to the marine farm by 40% of the amount discharged in the year before.

c In the event that the ES is greater than 0.6 above the EQS for the 1/2 Pen, 2/3 or 3/4 Zone Monitoring Locations in Table 3, the consent holder shall, within four months from the date the consent holder receives confirmed notice of such an ES result through its monitoring (and allowing one additional month from any initial notice to provide for re-testing), remove stock and fallow the site until compliance is achieved. Upon any re-stocking, the consent holder shall ensure that the amount of stock shall be designed to ensure that the ES levels required in Table 3 for the 1/2 Pen, 2/3 and 3/4 Zone Monitoring Locations will be met in the following year.

Environmental Quality Standards (EQS) - Copper and Zinc Levels

41. Composite samples of sediments beneath and beside the net pens (measured beneath the edge of the net pen – Pen Stations on **Figure 3**) shall be assessed against the ANZECC (2000) ISQG-Low criteria for copper and zinc, as a first-tier trigger level.

42. Where total metals analysis of composite sediment samples exceeds the ANZECC (2000) ISQG-Low criteria for copper and zinc, the MEM-AMP (refer Conditions 65-66) shall include a hierarchical schedule of monitoring of increasing focus and intensity and, ultimately, management action based on the decision hierarchy contained in **Figure 5**.

Environmental Quality Standards (EQS) – Water Column

43. The marine farm shall be operated at all times in such a way as to achieve the following Water Quality Objectives in the water column:

a To not cause an increase in the frequency, intensity or duration of phytoplankton blooms (i.e. chlorophyl *a* concentrations ≥5 mg/m^3) [Note: water clarity as affected by chlorophyl *a* concentrations is addressed by this objective];

b To not cause a change in the typical seasonal patterns of phytoplankton community structure (i.e. diatoms vs. dinoflagellates), and with no increased frequency of harmful algal blooms (HAB's) (i.e. exceeding toxicity thresholds for HAB species);

c To not cause reduction in dissolved oxygen concentrations to levels that are potentially harmful to marine biota [Note: Near bottom dissolved oxygen under the net pens is addressed separately through the EQS – Seabed Deposition];

d To not cause elevation of nutrient concentrations outside the confines of established natural variation for the location and time of year, beyond 250m from the edge of the net pens;

e To not cause a statistically significant shift, beyond that which is likely to occur naturally, from a oligotrophic/mesotrophic state towards a eutrophic state;

f To not cause an obvious or noxious build-up of macroalgal (eg sea lettuce) biomass [Note to be monitored in accordance with Condition 66h].

44. The marine farm shall be operated at all times in such a way as to comply with Water Quality Standards (WQS), and associated responses, for the near-farm and wider-scale water column environment of Pelorus Sound. Two tiers of response to potential breaches of WQS shall be set, the first to trigger further monitoring and the second to require reduced stocking on the marine farm following the next harvest of salmon on the marine farm. The WQS and responses shall be established as follows:

a For the first three years of marine farm operation, initial WQS for chlorophyll *a* (chl *a*),

dissolved oxygen (DO), Total Nitrogen (TN) concentrations and an integrated trophic index to achieve the qualitative Water Quality Objectives a, c, d, and e of Condition 43 shall be specified in the **Baseline Report** (Condition 64) and may be reviewed in the **Annual Report** at the end of the first and second years of marine farm operation (Condition 67).

b The initial WQS shall be reviewed in the **Annual Report** at the end of the third year of marine farm operation (Condition 67) and WQS specified to achieve the Water Quality Objectives a - e of Condition 43. These WQS shall be reviewed through the Annual Report every three years thereafter unless any other **Annual Report** (Condition 67) necessitates earlier review.

c WQS shall be specified at the locations specified in Condition 63c.

d In the **Baseline Report** and each **Annual Report**, a hierarchy of responses to potential breaches of the WQS shall be specified, including:

i. A first level response requiring further monitoring and/or analysis to determine whether the operation of the marine farm is causing the relevant WQS not to be achieved; and
ii. A second level response requiring a plan of action as soon as practicable, with clear timeframes to reduce effects on the water column and achieve full compliance with the WQS, through reduced stocking on the marine farm following the next harvest of salmon on the marine farm.

Discharge of Greywater to Coastal Water

45. Greywater may be discharged from the staff facilities on the marine farm, including from showers, wash basin, kitchen and laundry facilities. The greywater discharge shall not exceed 1 m^3 per day from the marine farm. The consent holder shall ensure than an appropriate system is operated at the marine farm to determine the volume of greywater discharge. The results shall be provided to the Council not less frequently than once a year. The consent holder shall notify the Council of any non-compliance with this condition, and explain the reason for it, within one month of the consent holder becoming aware of the non-compliance.

General

46. At all times the consent shall be exercised in accordance with the following General Conditions 47-84 and any documents required under those conditions.

Exercise of this Consent in accordance with Information Provided

47. The exercise of this consent shall be undertaken:

a generally in accordance with the following documents (where applicable): NZ King Salmon, Sustainably Growing King Salmon, Resource consent application, dated October 2011; except as amended within the evidence presented by witnesses for NZ King Salmon during the hearing of the resource consent applications, and except where amendments are required by the conditions of this consent, provided that:

b in the event of differences of conflict between the information described in the documents and these conditions, the conditions shall prevail.

Odour Management

48. The consent holder shall, prior to the first discharge of feed to the marine farm, have in place, and implement, operational procedures to implement best management practices to:

a ensure that, as far as practicable, filling of the 'mort' bin (storing dead fish) does not occur during still air conditions;

b establish target times for cleaning the grower nets once they have been raised, to minimise the potential for odour from dirty nets;

c ensure that, as far as practicable, there is only one grower net being lifted and cleaned at one time, to minimise the potential for odours from this activity.

Marine Mammal and Shark Management

49. The consent holder shall, in consultation with the Department of Conservation, and the members of the Tangata Whenua Panel (refer to Condition 77) prepare, implement and comply with a Marine Mammal and Shark Management Plan. This plan shall be provided to the Council prior to the initial placement of the first structure(s) at the marine farm.

The objectives of the Marine Mammal and Shark Management Plan shall be to:

a minimise the adverse effects on marine mammals and protected sharks from the operation of the marine farm;
aa minimise the interaction of sharks with the marine farms;
b determine how the operation of the marine farm will be managed adaptively to avoid, remedy and mitigate adverse effects on marine mammals and protected sharks;
c ensure that the best practicable option is adopted to avoid entanglement or entrapment of marine mammals and sharks, having regard to best international practice, ongoing research and allowing for technological improvements in net design and construction;
d establish a monitoring programme to assess the effectiveness of the **Marine Mammal and Shark Management Plan**; and
e establish reporting and response procedures in the event of marine mammal and protected shark entrapment, entanglement, injury or death.

50. The **Marine Mammal and Shark Management Plan** shall include, but not be limited to, the following details:

a minimising the potential for sharks and marine mammals to enter the marine farm net pens through the use of predator-resistant materials in net pen construction and predator exclusion nets enclosing the marine farm net pen structures and extending sufficiently high above the water around the marine farm to exclude such predators, but no higher;
b limiting the maximum mesh size of any predator netting to 200mm (the internal measurement when the net is stretched in the direction of the long diagonal of the meshes);
c ensuring predator nets are sufficiently tensioned and maintained at that tension at all times so as to avoid entanglement of marine mammals or large sharks;
d ensuring the twine diameter of the predator net is of a sufficient gauge to:
  i. be detected acoustically by dolphins; and
  ii. avoid the entanglement of marine mammals or large sharks;
e predator net maintenance requirements, including:
  i. standards and scheduling;
  ii. repairing holes and tears immediately;
  iii. avoiding predator nets being left open over night or for extended periods of time;
  iv. avoiding forming entrapment pockets in predator nets;
f procedures for auditing marine farm security following any marine mammal gaining access beyond a predator net, and taking all practical steps to correct any faults found;
g procedures to ensure visual surface marine mammal surveys are conducted prior to major net maintenance work and that nets are not opened, removed or shifted if dolphins are observed within 2km of the marine farm;
h procedures for capture and release of any entrapped or entangled marine mammal and protected shark species;
i procedures for the retrieval, storage and transport of dead marine mammals and protected shark species for formal identification and autopsy purposes;
j staff training requirements, including identification of protected shark species;
k ensuring there is no feeding of marine mammals and sharks;
l ensuring dead fish are removed promptly from the fish pens;
m ensuring anchor warps are maintained under sufficient tension to prevent possible entanglement of cetaceans and large sharks;
n ensuring all lines associated with the marine farm are secured at all times, and that any loose lines are secured and/or retrieved promptly;
o ensuring that all nets are removed from marine farm structures that are left fallow, untended or are abandoned;

p ensuring all net and cordage debris, plastic strapping and other marine farm, domestic or other non-biodegradable waste is collected, retained and disposed of at an approved solid waste facility onshore, and that if any loose debris does enter the water around the marine farm, it is retrieved from the seabed, water column or foreshore promptly;

q reporting requirements to the Marlborough District Council and the Department of Conservation, and in particular:

i. a minimum of annual summary reports of all incidents involving marine mammals and protected sharks becoming entangled or entrapped at a marine farm;

ii. immediate reporting (within 24 hours) of any incident where a marine mammal or protected shark may be injured or killed;

iii. reporting (within one week) of actions undertaken to remedy any unforeseen events such as a marine mammal or protected shark becoming entrapped or entangled at a marine farm.

The Marine Mammal and Shark Management Plan shall be reviewed, to ensure best practice, by an appropriate qualified person at 5-yearly intervals and provided to the Council.

Biosecurity Management

51. The consent holder shall prepare and implement a Biosecurity Management Plan with the objectives of minimising the risk of spreading marine pests and disease agents as a result of the establishment and operation of the marine farm. The consent holder shall consult with the Tangata Whenua Panel (refer to Condition 77) in the course of preparing the Biosecurity Management Plan. The reasonable costs of this participation will be met by the consent holder.

52. The **Biosecurity Management Plan** shall include on-farm, as well as vector-based, management measures to reduce the risk of spread, including:

a Methods to manage vectors that could spread marine pests and disease agents to or from marine farms;

b Routine practices to manage fouling of nets and structures;

c A passive surveillance regime to facilitate early detection of unusual or suspicious organisms associated with marine farm structures;

d An effective disease surveillance regime for salmon stock;

e The use of husbandry and harvesting methods consistent with best practice for the minimisation of disease risk;

f On-farm management measures to prevent, control or contain biosecurity risks to the extent practicable.

The Biosecurity Management Plan shall also specify the parties to be notified should any new biosecurity risk from marine pests or disease agents be identified at the farm. These parties shall include the members of the Tangata Whenua Panel (refer to Condition 77) and landowners and tourism / recreation businesses within 1km of the farm.

53. The **Biosecurity Management Plan** shall be reviewed, to ensure best practice, by a person or persons appropriately qualified in marine biosecurity and aquatic animal diseases, and provided to the Council prior to the initial placement of the first structure(s) at the marine farm. The Plan shall be reviewed at least annually by the consent holder to ensure that the management practices specified in the Plan are consistent with Condition 51 and 52. Any revisions to the Plan shall be provided to the Council within one month following completion of the revisions.

Marine Environmental Monitoring, Adaptive Management and Reporting

54. The marine environmental monitoring, adaptive management and reporting to be undertaken in accordance with Conditions 56-67 shall address, but not be limited to, the following potential effects from the operation of the marine farm:

a Effects of deposition on the seabed and foreshore;

b Effects on water quality.

55. The **Purposes** of the marine environmental monitoring, adaptive management and reporting to be undertaken in accordance with Conditions 56-67 shall be:

a To ensure that the discharge of feed, marine biofouling and antifouling at the marine farm meets the requirements of Conditions 38- 44 relating to Environmental Quality Standards (EQS) at all times;

b To ensure that the operation of the marine farm does not result in adverse effects to notable biological features within 1 km of the marine farm including any areas of blue cod habitat or any areas identified by the Tangata Whenua Panel (refer to Condition 77 as customary kaimoana gathering areas, as a result of biodeposition or nutrient enrichment. For purposes of this condition "notable biological features" shall include but not be limited to areas of significant reef, tubeworm mounds and hydroid colonies;

c To ensure that the operation of the marine farm does not result in seabed enrichment in areas of natural deposition in neighbouring bays to the marine farm including any areas in those bays identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas;

d To confirm that the operation of the farm does not result in any adverse effects on macroalgal biomass on intertidal and shallow rocky reefs, including any reefs identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas, as a result of biodeposition or nutrient enrichment;

e To obtain information regarding farm-specific, near-farm mixing properties in order to provide a context for achieving the WQS set under Condition 44;

f To confirm that the magnitude of effects from submerged artificial lighting on night-time feeding activity by fish, seabirds and marine mammals in and around the illuminated pens are generally as described in the evidence of Dr C Cornelisen presented to the hearing by the Board of Inquiry.

g To confirm the average feed loss levels from the marine farm, including how the feed loss varies over time;

h To improve understanding of the size and composition of aggregations of pelagic and demersal fish beneath the marine farm; and of the potential for key heavy metal and organohalogenated contaminants of public health interest in long-lived bentho-pelagic fish species, of recreational, commercial or customary interest, residing in the near vicinity of the marine farm.

56. The following plans and reports shall be prepared by the consent holder, in order to address the potential effects set out in Condition 54 and achieve the Purposes in Condition 55.

a Prior to the initial placement of the first structure(s) at the marine farm, a **Baseline Plan** to specify the monitoring and analysis to be undertaken in order that baseline information can be obtained and analysed prior to the initial placement of the first structure(s) at the marine farm;

b Prior to initial placement of the first structure(s) at the marine farm, a **Baseline Report** which presents the results from the monitoring and analysis undertaken in accordance with the **Baseline Plan**, makes recommendations for the development of the marine farm and the monitoring to be undertaken in the first year of operation of the marine farm, and specifies the initial WQS and responses in accordance with Condition 44;

c For each year of operation of the marine farm, a **MEM-AMP** to provide a summary of the relevant recommendations from the previous year's **Baseline Report** or **Annual Report**, and specify the proposed monitoring and marine farm management actions for the following year. The **MEM-AMP** may be prepared as one Plan jointly with the **MEM-AMP(s)** for other marine farms managed by the same consent holder.

d For each year of operation of the marine farm, an **Annual Report** to provide the details of the monitoring results from the previous year, an analysis of the monitoring results (including in terms of compliance with the EQS), and recommendations for changes

to the monitoring and marine farm management actions for the following year. The **Annual Report** may be prepared jointly with **Annual Reports** for other marine farms managed by the same consent holder.

57. The consent holder shall engage an independent person (or persons) with appropriate knowledge and expertise to prepare the **Baseline Plan** and **Baseline Report**, the **MEM-AMP** and the **Annual Report,** in accordance with the conditions of this consent.

58. Prior to finalising the plans and reports specified in Condition 56, the consent holder shall provide them in draft form to the Peer Review Panel for its review, assessment, recommendations and reports, in accordance with Conditions 68 - 74. The consent holder shall have particular regard to any recommendations from the Peer Review Panel in finalising these plans and reports. The plans and reports shall identify how the consent holder has had regard to any recommendations from the Peer Review Panel, if any recommendations have not been adopted and the reasons why.

59. Prior to finalising the plans and reports specified in Condition 56, the consent holder shall provide them to the members of the Tangata Whenua Panel (refer to Condition 77), and provide that Panel with the opportunity to:

a Receive and discuss with the consent holder the results of all monitoring and analysis required by the conditions of this consent;

b Review and provide input to the preparation of the **Baseline Plan** and **Baseline Report**, the **MEM- AMP** and the **Annual Report**, required by Condition 56.

60. Having had particular regard to any recommendations from the Peer Review Panel, the consent holder shall provide the following final plans and reports to the Council for its approval in terms of the conditions of this consent[1]:

a The Baseline Plan;

b The **Baseline Report;** and

c Any **Annual Report** which includes:

i. any change in any WQS;

ii. any adjustment to the areas and dimensions of the seabed EQS Compliance Zones; or

iii. any increase in the maximum annual tonnage of feed that may be discharged to the marine farm

The monitoring and analysis required in terms of the **Baseline Plan** shall not be commenced until the **Baseline Plan** has been approved by the Council.

No structure(s) shall be placed on the marine farm until the **Baseline Report** has been approved by the Council.

No change may be made to any WQS, no adjustment may be made to the area or dimensions of any Seabed EQS Compliance Zone, and there shall be no increase in annual tonnage of feed that may be discharged to the marine farm, until the relevant aspects of the **Annual Report** that includes that/those recommendation(s) is approved by the Council.

Following its approval by the Council, the consent holder shall provide copies of the relevant final plans and reports to the Tangata Whenua Panel (refer Condition 77).

61. Other than as specified in Condition 60, having had particular regard to any recommendations from the Peer Review Panel, the consent holder shall provide the following plans and reports specified in Condition 56 to the Council and the Tangata Whenua Panel (refer Condition 77), in accordance with the following timing:

[1] The approval of Marlborough District Council in respect of an **Annual Report** shall be limited to those aspects of the **Annual Report** that are specified in Condition 60c.

a The first **MEM-AMP** – following the provision of the **Baseline Report** to the Council and prior to the first discharge of feed to the marine farm;

b Each subsequent annual **MEM-AMP** - by 31 July each year.

c The **Annual Report** - by 30 April each year.

62. The consent holder shall undertake the monitoring, analysis, marine farm management and other actions in accordance with the **Baseline Plan** and the current provisions of the **MEM-AMP** for that year. The monitoring, and analysis shall be undertaken by a person or persons with appropriate knowledge and expertise.

63. The **Baseline Plan** shall include, but not be limited to, the following:

a Quantitative and qualitative mapping of soft-sediment habitats and communities across the occupancy and activity area specified in Condition 2; and across the area of EQS compliance Zones 1, 2 & 3 specified in Conditions 39 and 40, including replicate data for the primary environmental variables from each of the proposed on-going monitoring stations and at appropriate reference stations;

b A synthesis and review of all available existing water quality data relevant to the enrichment status of Pelorus Sound, in order to provide a historical baseline of water quality conditions;

c Water column monitoring for nutrient (NH_4-N, NO_3-N, NO_2-N, DRP, Si, TN and TP) and chlorophyll a concentrations, phytoplankton composition and biomass, salinity, clarity, temperature, turbidity and dissolved oxygen (DO) at the following locations:

i. Near-farm locations within 1km from the net pens;
ii. Locations within Pelorus Sound that are expected to have the greatest potential for marine farm-related cumulative enrichment effects (particularly where marine farms are located in proximity to one another and/or as indicated by spatially explicit nutrient modelling or other modelling considered necessary by the Peer Review Panel in accordance with Condition 70a);
iii. Locations further away from marine farms or groups of marine farms in Pelorus Sound that are expected to have progressively lesser marine farm-related cumulative enrichment effects (as indicated by spatially explicit nutrient modelling or other modelling considered necessary by the Peer Review Panel in accordance with Condition 70a);
iv. Locations that are identified as being of high ecological value
v. Within the inner Sounds; and
vi. Near the entrances to Cook Strait.

The above water column data shall be collected at least monthly at these locations over one year (this shall be required for up to two years if recommended by the Peer Review Panel) prior to the first discharge of feed to the marine farm, provided that this frequency could be reduced in whole or in part, depending on the availability of existing water column data (which can suitably substitute). The appropriateness of any reduction is to be specifically considered by the Peer Review Panel (as part of its review of the **Baseline Plan** under Condition 70).

The monitoring stations for this water column monitoring shall be established as long-term monitoring stations for the purposes of undertaking the long-term water column monitoring specified in Condition 66c. The precise location of the long-term monitoring stations and the range of specific nutrient parameters monitored may, however, be adjusted over time in response to monitoring results (in accordance with Condition 66c) and/or in response to modelling considered necessary by the Peer Review Panel in accordance with Condition 70a.

d Quantitative and qualitative baseline monitoring (for potential biodepositional effects following marine farm operation) of habitats that support notable biological features within 1km of the marine farm ("reef" monitoring), including any areas of blue cod habitat or any

areas identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas, as well as comparable habitats at appropriate reference sites. The monitoring shall be undertaken two times during one year. For the purposes of this condition "notable biological features" shall include but not be limited to areas of significant reef, tubeworm mounds and hydroid colonies.

e Quantitative and qualitative baseline monitoring (for potential seabed enrichment effects following marine farm operation) at soft sediment sites in neighbouring bays near to, and removed from, the marine farm, chosen based on potential exposure to increased bi odeposition including any areas in those bays identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas. This monitoring shall be undertaken at a selection of representative soft sediment sites, which may also double as reference sites for near-farm monitoring (see Condition 63a), and shall be undertaken two times during one year. [*The same monitoring may be undertaken for a group of marine farms, as it will provide baseline information for all* marine *farms in that group*].

f Quantitative and qualitative baseline monitoring (for potential effects on macroalgal biomass from biodeposition and/or nutrient enrichment) of ephemeral macroalgae (e.g. *Ulva* sp.), benthic algal films) and perennial algae (e.g. *Hormosira banksii*) percentage cover and the abundance of grazing invertebrates (e.g. cats' eyes snails (*Turbo smaragdus)* and Kina (*Evechinus chloroticus*) on intertidal and shallow subtidal rock reefs, including any reefs identified by the Tangata Whenua Group (refer to Condition 77) as customary kaimoana gathering areas. Monitoring shall be undertaken two times during one year at the following locations:

i. At or near locations expected to have the greatest potential for marine farm-related cumulative enrichment effects (either within 1km of the marine farm or in neighbouring bays);
ii. At or near locations further away from the marine farm or groups of marine farms in locations that are expected to have less marine farm-related cumulative enrichment effects.

64. The **Baseline Report** shall include the following:

a Presentation of the results from, and analysis of, the baseline monitoring required by the **Baseline Plan**, including the results of the synthesis and review of all available existing water quality data relevant to the enrichment status;

b Any recommendations as to the specific location or installation of marine farm anchoring structures;

c Any recommendations regarding ongoing monitoring following the initial placement of the first structure(s) at the marine farm and the first discharge of feed to the marine farm;

d As required by Condition 44, specification of initial WQS and associated hierarchy of responses to breaches of the WQS. Prior to specifying the initial WQS and responses, the consent holder shall consult with the Council and the Department of Conservation.

65. The **MEM-AMP** shall specify the following:

a A summary of the recommendations from the **Baseline Report** (in the case of the first **MEM-AMP** for the marine farm) or from the previous year's **Annual Report** regarding marine farm management actions and monitoring (including any increases or decreases in the tonnage of feed to be discharged).

b A description of all monitoring to be undertaken for the coming year (detailed monitoring requirements are set out in Condition 66). This shall include the methods, locations and frequency of the monitoring, including any control / reference sites. This shall give effect to any recommendations contained in the **Annual Report** for amendments to the dimensions and areas of the EQS compliance Zones specified in **Table 2** and/or to the location of the representative compliance monitoring Stations specified in **Table 3**, following the review of the results of the monitoring undertaken after 3 years of operation at the Initial

Feed Discharge level in **Table 1**.

c All monitoring and management actions to be undertaken at the marine farm in order to meet the requirements of Conditions 38-44 (including any increases or decreases in the tonnage of feed to be discharged).

d Any other actions to be undertaken in order to address the potential effects from the operation of the marine farm set out in Condition 54 and achieve the Purposes in Condition 55, including to avoiding, remedying or mitigating any significant adverse effects from the operation of the marine farm identified in the previous year's **Annual Report**.

66. The **MEM-AMP** shall include the following monitoring:

a The level of sampling and range of environmental variables (e.g. sediment grain size, infauna, percent organic matter, redox & sulfides) to be measured annually at each of the near-farm benthic (soft-sediment) monitoring stations in order to determine compliance with the EQS –Seabed Deposition in Condition 40. This includes appropriate farm-specific reference stations, which may also double as far-field soft-sediment monitoring sites (see Condition 66f);

b Monitoring in order to determine compliance with the EQS – Copper and Zinc Levels required by Conditions 41 and 42 using a decision-tree approach (see Figure 4), whereby monitoring effort increases in focus and intensity as trigger levels (representing the increased likelihood of ecological effects) are reached.

c Monitoring in order to determine compliance with the WQS in Condition 44. Throughout the term of the consent this shall include long-term water column monitoring for nutrient (NH_4-N, NO_3-N, NO_2-N, DRP, Si, TN and TP) and chlorophyll a concentrations, phytoplankton composition and biomass, salinity, clarity, temperature, turbidity and dissolved oxygen (DO) at locations stipulated in Condition 63c. The precise location of the long- term monitoring stations and the range of specific nutrient parameters monitored may, however, be adjusted over time in response to monitoring results and/or in response to modelling considered necessary by the Peer Review Panel in accordance with Condition 70c. This monitoring is to be undertaken at least four times per year with at least two surveys occurring during mid-summer periods of highest salmon feed discharge rates and at least two surveys occurring periods associated with winter/spring and/or autumn diatom maxima.

d Monitoring intensity for a-c above shall be dependent upon the age of the marine farm, how stable the feed discharge levels have been over the last 12 months, and whether or not the marine farm has been compliant with the EQS over the last 2 years (and the nature of any breaches).

e Targeted water column surveys to quantify the localised effect of the marine farm on surrounding water quality, for the purpose of obtaining information regarding marine farm-specific, near-farm mixing properties in order to provide a context for evaluating compliance with the WQS in Condition 44. This shall involve a series of fine-scale surveys in the vicinity of the marine farm (within 1km from the net pens) measuring: salinity, clarity, temperature, chlorophyll a, turbidity, dissolved oxygen (DO), nutrient concentrations (NH_4-N, NO_3-N, NO_2-N, DRP, Si, TN and TP), phytoplankton composition and biomass along transects that move away from the marine farm and span potential nutrient gradients. The surveys shall be undertaken at least twice per year and continued for at least two years after the marine farm has reached stable maximum feed discharge levels and no future increases are proposed.

f Annual quantitative and qualitative monitoring for potential depositional effects at soft sediment sites in neighbouring bays near to, and removed from, the marine farm, in order to ensure that the marine farm is not resulting in seabed enrichment in areas of natural deposition in neighbouring bays. The sites shall be chosen based on potential exposure to increased biodeposition including any areas in those bays identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas. This monitoring shall be undertaken at a selection of representative soft sediment sites, which

may also double as reference sites for near- farm monitoring (see Condition 66a), and shall be continued until at least 5 years after the marine farm has reached a stable level of feed discharge and no future increases are proposed *[The same monitoring may be undertaken for a group of marine farms, as it will assess the cumulative effects from all marine farms in that group].*

g Annual quantitative and qualitative monitoring of habitats that support notable biological features under or within 1km of the net pens ("reef" monitoring), including any areas of blue cod habitat or any areas identified by the Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas, in order to ensure that the operation of the marine farm is not causing adverse effects to these features as a result of biodeposition. Monitoring shall also include comparable habitats at appropriate reference sites. This monitoring shall be continued until at least 5 years after the marine farm has reached a stable level of feed discharge and no future increases are proposed. For the purposes of this condition "notable biological features" shall include but not be limited to areas of significant reef, tubeworm mounds and hydroid colonies. *[This condition only applies if notable biological features are located within 1km of the marine farm].*

h Annual quantitative and qualitative monitoring of ephemeral macroalgae (e.g. Ulva sp.), benthic algal films) and perennial algae (e.g. Hormosira banksii) percentage cover and the abundance of grazing invertebrates (e.g. cats' eyes snails (Turbo smaragdus) and Kina (Evechinus chloroticus) on intertidal and shallow subtidal rocky reefs including any reefs identified bythe Tangata Whenua Panel (refer to Condition 77) as customary kaimoana gathering areas in order to ensure that the operation of the marine farm does not cause an obvious or noxious build-up of macroalgal (e.g. sea lettuce) biomass. Monitoring shall be undertaken at the following locations:

i. At or near locations expected to have the greatest potential for marine farm-related cumulative enrichment effects (either within 1km of the marine farm or in neighbouring bays);
ii. At or near locations further away from the marine farm or groups of marine farms in locations that are expected to have less marine farm-related cumulative enrichment effects.

This monitoring shall be continued until at least 5 years after the marine farm has reached a stable level of feed discharge and no future increases are proposed.

i After 3 years of operation at the Initial Feed Discharge level in Table 1, a repeat of the baseline monitoring undertaken in accordance with Condition 63a, in order to review the dimensions and areas of the EQS compliance Zones in Table 2, Condition 39, and the location of the compliance monitoring Stations specified in Table 3, Condition 40. This monitoring may incorporate the compliance monitoring for the EQS –Seabed Deposition in terms of Condition 66a for that year.

j

j Quarterly monitoring over 2 years by scientifically advised marine farm staff of the effects from submerged artificial lighting on changes in night-time feeding activity by fish, seabirds and marine mammals in and around the illuminated net pens, in order to confirm that the magnitude of these effects are generally as expected.

k Monitoring of feed loss at a range of appropriate times across a full production cycle, once the marine farm has reached a stable level of feed discharge and no future increases are proposed, to establish feed loss levels and their variability through time.

l Seasonal monitoring of the size and composition of aggregations of pelagic and demersal fish beneath the marine farm at a range of appropriate times across one year, once the marine farm has reached a stable level of feed discharge and no future increases are proposed.

m Occasional monitoring to improve understanding of the potential for key heavy metal and organohalogenated contaminants of public health interest in long-lived, bentho-pelagic fish species, of recreational, commercial or customary interest, residing in the near vicinity of the marine farm.

67. The **Annual Report** shall include, but not be limited to, the following:

a A statement as to the tonnage of feed and nitrogen discharged each month over the previous year.

b The results of all the monitoring undertaken in the previous year.

c A comprehensive analysis of the results of that monitoring, including:

i. whether the monitoring information obtained is fit for the purpose of determining the effects from the operation of the marine farm and for determining whether compliance with the EQS specified in Conditions 38-44 is achieved;

ii. whether there are any evident trends in terms of effects from the operation of the marine farm.

EQS – Deposition on the Seabed

d An assessment and conclusions as to whether compliance with the EQS specified in Condition 40 has, or has not, been achieved for the previous year.

e Recommendations as to any amendments to management practices (including any increases or decreases in the tonnage of feed to be discharged) at the marine farm in order to ensure that the EQS in Condition 40 are complied with.

EQS – Copper and Zinc Levels

f An assessment and conclusions as to whether compliance with the ANZECC (2000) ISQG-Low criteria for copper and zinc set out in Condition 41 has, or has not, been achieved for the previous year.

g Where the ANZECC (2000) ISQG-Low criteria for copper and zinc have been exceeded, recommendations as to any amendments to monitoring and management actions at the marine farm, in accordance with Condition 42.

EQS – Water Column

h An assessment and conclusions as to whether the WQS specified in Condition 44 have, or have not, been complied with, for the previous year.

i Recommendations as to any amendments to management practices (including any increases or decreases in the tonnage of feed to be discharged) at the marine farm, in order to ensure that the WQS specified in Condition 44 continue to be complied with. In the case of non-compliance with the WQS, recommendations as to monitoring, analysis and/or management responses in accordance with Condition 44d.

Review of the Dimensions and Areas of the EQS Compliance Zones in Table 2

j Following 3 years of operation at the Initial Feed Discharge level in **Table 1**, a review of the results of the monitoring undertaken in terms of Condition 66i. This shall include, a comparison of those monitoring results with the dimensions and areas of the EQS compliance Zones specified in **Table 2**, Condition 39. In accordance with Condition 39b, the Annual Report shall specify any recommendations for amendments to the dimensions and areas of the EQS compliance Zones in **Table 2**, Condition 39, and to the location of the representative compliance monitoring Stations specified in **Table 3**, Condition 40, for the subsequent years;

Determination of WQS

k The Annual Report will include the relevant reviews of the near farm and wider-scale

water column and ecosystem monitoring results and of WQS and associated hierarchy of responses to breaches of the WQS as specified in condition 44. Prior to specifying amendments to the WQS and responses, the consent holder shall consult with the Council and the Department of Conservation.

Other Recommendations

l Where identified as a result of the monitoring, any recommendations for other actions to be undertaken to address potential effects from the operation of the marine farm set out in Condition 54 and to achieve the Purposes in Condition 55, including to avoid, remedy or mitigate any significant adverse effects from the operation of the marine farm.

m Any other recommendations for amendments to the monitoring programme for the following year.

Peer Review Panel

68. The consent holder shall establish, at its own cost, a Peer Review Panel, for the following purposes:

a to review and provide recommendations to the Council and the consent holder in respect of the adequacy and appropriateness of the **Baseline Plan** and the **Baseline Report** required by Conditions 63 and 64, prior to their provision to the Council for its approval;

b to review and provide recommendations to the Council and the consent holder in respect of the adequacy and appropriateness of any aspect of an **Annual Report** (required under Condition 67) which relates to:

i. any change in any WQS;

ii. any adjustment to the areas and dimensions of the seabed EQS Compliance Zones; or

iii. any increase in feed discharge to the marine farm;

prior to its provision to the Council for its approval[2]; and

c to review and provide recommendations to the consent holder in respect of the adequacy and appropriateness of the **Marine Environmental Monitoring and Adaptive Management Plans (MEM-AMP)** and **Annual Reports** (other than those aspects specified in b above) required under Conditions 65-67, prior to their provision to the Council.

The Peer Review Panel shall be established in time to review the **Baseline Plan.**

69. The Peer Review Panel shall comprise:

a not less than three persons, at least two of whom shall be scientists who, between them, have experience across the following scientific areas – marine seabed and water column ecology – and evaluating enrichment-related effect – and who are recognised by their peers as having such experience, knowledge and skill. Prior to nominating any person for membership of the Peer Review Panel, the consent holder shall seek comment on that person from the Department of Conservation. These persons shall be approved in writing by the Council before they commence their review functions.

70. The Peer Review Panel shall report to the consent holder and/or the Council (as required by

[2] The approval of Marlborough District Council in respect of an **Annual Report** shall be limited to those aspects of the **Annual Report** that are specified in Condition 68b

Condition 68) on the following matters:

a its review of the **Baseline Plan**, its assessment as to the adequacy of the existing water quality data and monitoring proposed to achieve the requirements of Condition 63 and whether the actions and methods are in accordance with good practice, and any recommendations regarding changes to the monitoring proposed or any requirement for further modelling;

b its review of the **Baseline Report**, its assessment as to whether it adequately responds to the results of the monitoring undertaken in terms of the **Baseline Plan** and achieves the requirements of Condition 64 and any recommendations regarding changes to the conclusions and recommendations contained in the **Baseline Report**. This shall specifically include a review of, and any recommendations for changes to, the initial WQS required by Condition 44a and the hierarchy of responses to breaches of the WQS;

c its annual review of the **MEM-AMP**, its assessment as to the adequacy of the monitoring and marine farm management and other actions proposed to achieve the requirements of Conditions 65-66 and whether the actions and methods are in accordance with good practice, and any recommendations regarding changes to the monitoring proposed or any requirement for further modelling;

d its annual review of the **Annual Report**, its assessment as to whether it adequately responds to the results of the monitoring undertaken in terms of the previous **MEM-AMP** and achieves the requirements of Condition 67 and any recommendations regarding changes to the conclusions, recommendations and other matters specified in the **Annual Report**. This shall specifically include a review of, and any recommendations for changes to, the WQS required by Condition 44b and the hierarchy of responses to breaches of the WQS;

e prior to any increase in the annual tonnage of feed discharge to the marine farm, confirmation that the requirements of Conditions 36-37 are complied with, and any associated recommendations regarding changes to the monitoring proposed or any requirement for further modelling;

f confirmation that the requirements of Conditions 38 - 44 have been complied with;

g any other matters it considers appropriate in fulfilling its purposes in terms of Condition 68 above;

h any recommendations as to whether it considers any particular condition(s) should be subject to review in accordance with Sections 127 and 128 of the Act.

71. As part of undertaking its role in accordance with Condition 70, the Peer Review Panel shall provide an opportunity for the Tangata Whenua Panel (refer to Condition 77) to submit information to the Peer Review Panel that relates to the matters it is required to consider and for the Tangata Whenua Panel to meet and speak at least annually with the Panel prior to the Panel finalising its report to the consent holder on the **Baseline Report** and the **Annual Report** in terms of Condition 70b and 70d.

72. Copies of all reports from the Peer Review Panel shall be provided to the consent holder, the Council and the members of the Tangata Whenua Panel (refer to Condition 77). These shall be public documents and shall be published on the consent holder's website within four weeks of its receipt by the consent holder.

73. The consent holder shall, in relation to the Peer Review Panel:

a develop protocols regarding appointment processes, including resignations, replacements and reappointments; the holding of meetings; provision of information and technical advice; administrative support; and other necessary and related procedures. Such protocols are to be developed in consultation with the Council;

b maintain and support the ongoing purposes and work of the Panel, as required by the

conditions of these consents;

c meet the reasonable costs of undertaking its functions in accordance with the conditions of these consents.

74. The Peer Review Panel shall determine its own processes and procedures for conducting its meetings as it sees fit. The frequency of meetings shall be determined by the consent holder in consultation with the Peer Review Panel, and shall be sufficient to enable the Peer Review Panel to adequately undertake its duties in a timely manner in terms of Condition 70 above.

Social Impact Management

75. The consent holder shall develop the following management plans and provide them to the Council prior to the initial placement of the first structure(s) at the marine farm:

a A **Residential Amenity Management Plan** to minimise the risk of neighbours experiencing significant reductions in residential amenity due to off-site visual, noise and odour and other effects from the marine farm. This shall include a requirement that there be no firearms at the marine farm at any time, nor on any vessel associated with the marine farm and operated by the consent holder. This shall include the identification of a specific liaison person to be the point of contact with neighbours and any local residents association for the purposes of disseminating information relating to the operation of the marine farm and to respond to any issues or concerns raised.

b A **Wildlife Nuisance Management Plan** to minimise the risk of neighbours experiencing significant reductions in amenity values due to wildlife nuisances attributable to the marine farm.

c A **Solid Waste Management Plan** to minimise the risk of reductions in neighbouring amenity values caused by the accumulation of solid waste debris along the shoreline resulting from the marine farm.

d A Staff Recruitment and Training Plan to maximise opportunities for Marlborough residents to gain employment in the consent holder's expanded Marlborough operations resulting from the development of the marine farm.

These Plans may be combined together or form part of a wider management plan, provided the matters referred to are addressed in any such document.

Tourism and Recreation

76. The consent holder shall:

a prior to the initial placement of the first structure(s) at the marine farm, establish a nominated person within the consent holder's company to liaise with Destination Marlborough (or its successor) and relevant tourism and recreation businesses and organisations in the Marlborough Sounds. The name and contact details for the nominated person, and any changes to those details, shall be provided to Destination Marlborough (or its successor). The nominated person shall be the authorised point of contact for anyone who might be interested in discussing, or meeting, with the consent holder in relation to:

i. tourism opportunities associated with salmon or salmon farming;
ii. queries or concerns about the operation of the farm, as relevant to tourism or recreation in the Marlborough Sounds.

b offer to host, and provide relevant expertise from within the consent holder's company at, an annual forum for tourism operators within the Marlborough Sounds, in order to assist in growing tourism opportunities and business in the Sounds, including in Outer Pelorus Sound. The offer shall be made through Destination Marlborough (or its successor) which shall be asked to co-ordinate the forum.

Tangata Whenua

77. Prior to finalising the Baseline Plan, the consent holder shall offer Te Runanga o Ngati Kuia Charitable Trust (or the organisation with a mandate to represent Te Runanga o Ngati Kuia in relation to these issues) and Ngati Koata Trust Board (or the organisation with a mandata to represent Ngati Koata in relation to these issues) the opportunity to establish, and decide the membership of, a Tangata Whenua Panel. The purpose of the Tangata Whenua Panel, if established, shall be to advise the Peer Review Panel in respect of any matters of concern or issue to the Tangata Whenua Panel, including, but not limited to:

a The mauri of the water in the Sounds,

b Any cultural matters or considerations that the Peer Review Panel should be aware of or take into account in considering the water column monitoring locations proposed in the Baseline Plan, the initial Water Quality Standards proposed in the Baseline Report and any amendment to the ongoing Water Quality Standards in a subsequent Annual Report.

If requested by the Tangata Whenua Panel, the consent holder shall meet with it promptly, and shall take into account any matters raised by the Panel in respect of the exercise of the consent.

The Consent holder shall also:

c Consult with the Tangata Whenua Panel in relation to the preparation of the Marine Mammal Management Plan and the Biosecurity Management Plan, required by Conditions 50 and 51;

d Pay all reasonable costs of the Tangata Whenua Panel meeting and providing advice to the Peer Review Panel and the consent holder on cultural matters in respect of this consent.

The Tangata Whenua Panel may operate jointly for more than one marine farm managed by the same consent holder.

78. Prior to the initial placement of the first structure(s) at the marine farm, the consent holder shall, in consultation with the Tangata Whenua Panel (refer to Condition 77), prepare an Accidental Discovery Protocol, and provide a copy of the protocol to the Council. The protocol shall be implemented in the event of an accidental discovery of cultural or archaeological artefacts or features during the development of the marine farm. The protocol shall include, but not be limited to:

a Training procedures for contractors installing anchors for the marine farm regarding the possible presence of cultural or archaeological sites or material, what these might look like, and the relevant actions to take if any sites or material are discovered;
b Parties to be notified in the event of an accidental discovery shall include, but not be limited to, the iwi with manamoana in the vicinity of the marine farm, the New Zealand Historic Places Trust and the Council;
c Procedures to be undertaken in the event of an accidental discovery (these shall include the immediate ceasing of all physical works in the vicinity of the discovery);
d Procedures to be undertaken before work may recommence in the vicinity of the discovery. These shall include allowance for appropriate tikanga (protocols), recording of sites and material, recovery of any artefacts, and consulting the iwi with manamoana in the vicinity of the marine farm and the Historic Places Trust prior to recommencing works in the vicinity of the discovery.

79. Prior to the initial placement of the first structure(s) at the marine farm the consent holder shall invite the members of the **Tangata Whenua Panel** (refer to Condition 77) to collaborate in undertaking a **Stocktake of Wāhi Tapu** in the areas that may be affected by the installation or operation of the marine farm, including wāhi tapu located on land in the immediate vicinity of the marine farm. This stocktake shall involve the collation of available information (written and oral) regarding the location of, and values associated with, any wāhi tapu in these areas.

Review of Conditions by Consent Authority

80. In accordance with the provisions of sections 128 and 129 of the Resource Management Act (or any provision in substitution therefore), the Council may, at the time(s) specified in **Table 4** below, review the conditions of consent, by serving notice of its intention to do so for one or more of the purposes specified in **Table 4:**

Table 4: Purpose and Times of Potential Review of Conditions of this Consent

Purpose(s)	Time(s) Of Service Of Notice
To deal with any adverse effect on the environment which may arise from the commencement of the consent and which cannot be adequately avoided, remedied or mitigated by any term or condition incorporated within the consent, pursuant to the provisions of section 128(1)(a)(iii) of the Act.	On any anniversary of the initial placement of the first structure(s) at the marine farm Or Within 2 months of receipt of the Annual Report or 5 months of any other report
To modify the monitoring programme.	Within 2 months of receipt of the Annual Report required by Condition 67.
To review the tonnage of feed that may be discharged in accordance with the conditions of this consent, in order to ensure compliance with the EQS in Conditions 38-44 is achieved	Within 2 months of receipt of the Annual Report or 5 months of any other report
To review the specification of the WQS required by Conditions 44a and 44b and the hierarchy of WQS and responses	Within 2 months of receipt of the Baseline Report required by Condition 64 or the Annual Report required by Condition 67
To require the consent holder to adopt the best practicable option to avoid, remedy or mitigate any adverse effect on the environment relating to the activity.	Within 2 months of Annual Report or 5 months of any other report
To review the navigation risk reduction and management plan to ensure that management practices result in compliance with Conditions 21-31.	On any anniversary of the initial placement of the first structure(s)at the marine farm

Other Matters

81. Pursuant to section 36 of the Act and the Council's Schedule of Fees, the consent holder shall pay all actual and reasonable costs associated with any review of this resource consent.

82. Inspection and monitoring by the Council's Regulatory Department in respect of the conditions of this consent may take place annually or more frequently in the event that a previous inspection or complaint indicates the need for more frequent inspection and monitoring.

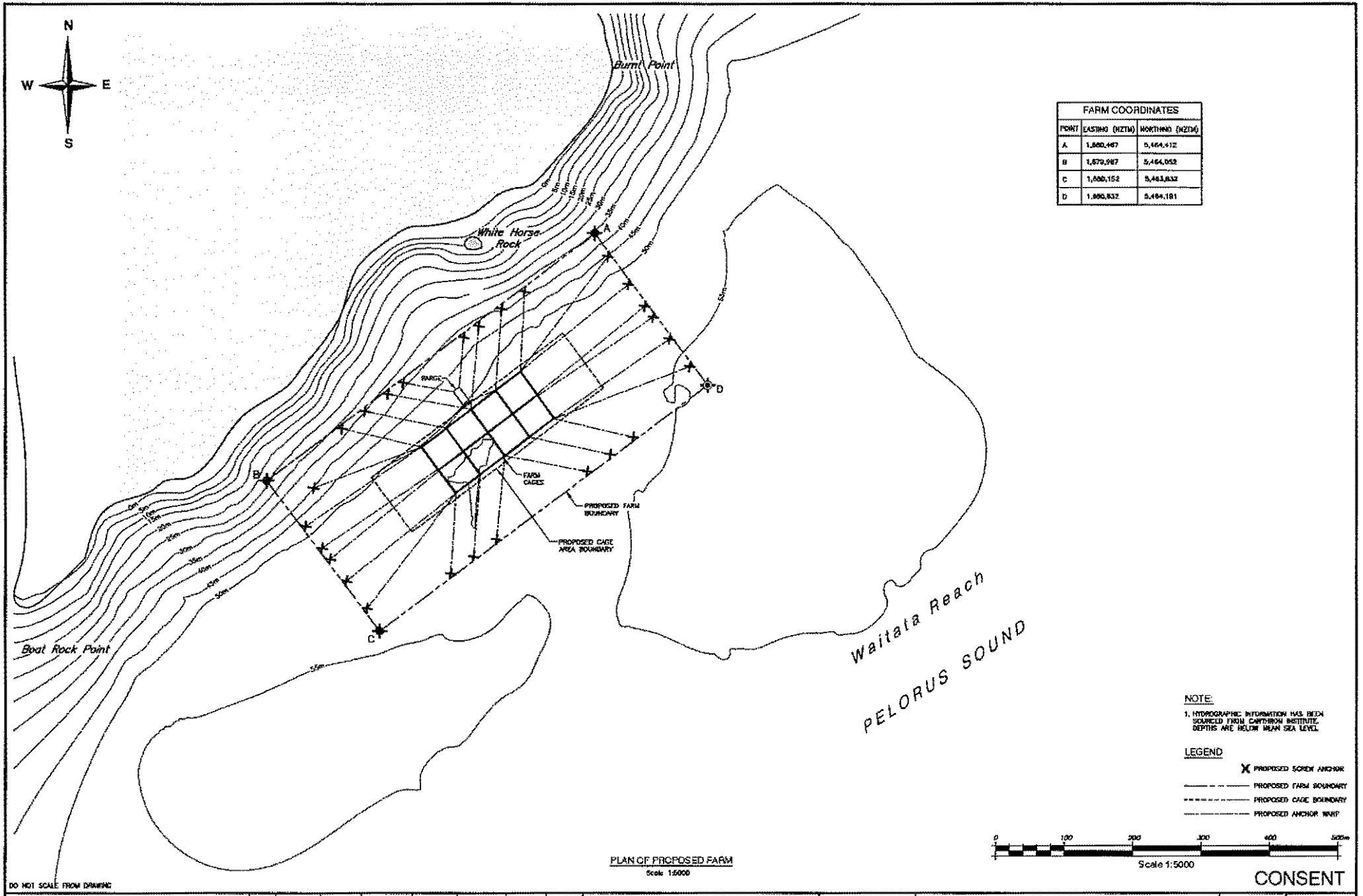
83. The costs of these inspections and any formal monitoring programme established in consultation with the consent holder will be charged to the consent holder in accordance with the Council's Schedule of Fees pursuant to section 36 of the Act.

84. Prior to the first discharge of feed to the marine farm, either:

a All costs payable by the applicant to the Environmental Protection Authority or the Minister pursuant to s 149ZD of the Resource Management Act 1991 must have been recovered; or

b If the amount payable to the Environmental Protection Authority or the Minister pursuant to s 149ZD is subject to a dispute, objection or appeal, the outstanding amount must be placed into a trust account as nominated by the Environmental Protection Authority pending resolution of the dispute, objection or appeal.

Figure 1: Farm Layout Plan



FARM COORDINATES		
POINT	EASTING (NZTM)	NORTHING (NZTM)
A	1,660,467	5,464,412
B	1,679,987	5,464,052
C	1,680,152	5,463,832
D	1,680,832	5,464,191

NOTE:

1. HYDROGRAPHIC INFORMATION HAS BEEN SOURCED FROM LINZ. DEPTHS ARE BELOW MEAN SEA LEVEL.

LEGEND

- PROPOSED SCREW ANCHOR
- PROPOSED FARM BOUNDARY
- PROPOSED CAGE BOUNDARY
- PROPOSED ANCHOR WARP

0 100 200 300 400 500m

Scale 1:5000

PLAN OF PROPOSED FARM

Scale 1:5000

CONSENT

DO NOT SCALE FROM DRAWING

Amendments	Rev'n	Date	Drawn	Issued for	Checked	Approved	Date
COORDS TABLE ADDED	9	29/01/13	PH	CONSENT	C. TEEAR		Drawn RVC
NOTES ADDED	8	10/08/12	RVE	PRELIMINARY	C. TEEAR		Checked
WHITE HORSE ROCK BARGE POSITION AMENDED	7	09/08/12	RVE	PRELIMINARY	C. TEEAR		Traced
BARGE DIMENSIONS AMENDED	6	05/08/12	RVE	PRELIMINARY	C. TEEAR		Approved
							Date 05/11

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48 Crown Hill Street, PO Box 151, New Plymouth, Tel (067) 458310, Fax (067) 458310

NZ KING SALMON COMPANY LIMITED

WAITATA, WAITATA REACH, PELORUS SOUND

PLAN OF PROPOSED FARM LAYOUT

Scale (A3)	ACAD Filename
1:5000	051103-DR-051103-R009
Drawing No.	Rev.
DR-051103-070	9

Figure 2: Buffer Area around King Shag Roosting Site in the vicinity of the Waitata Farm (Boat Rock Point)

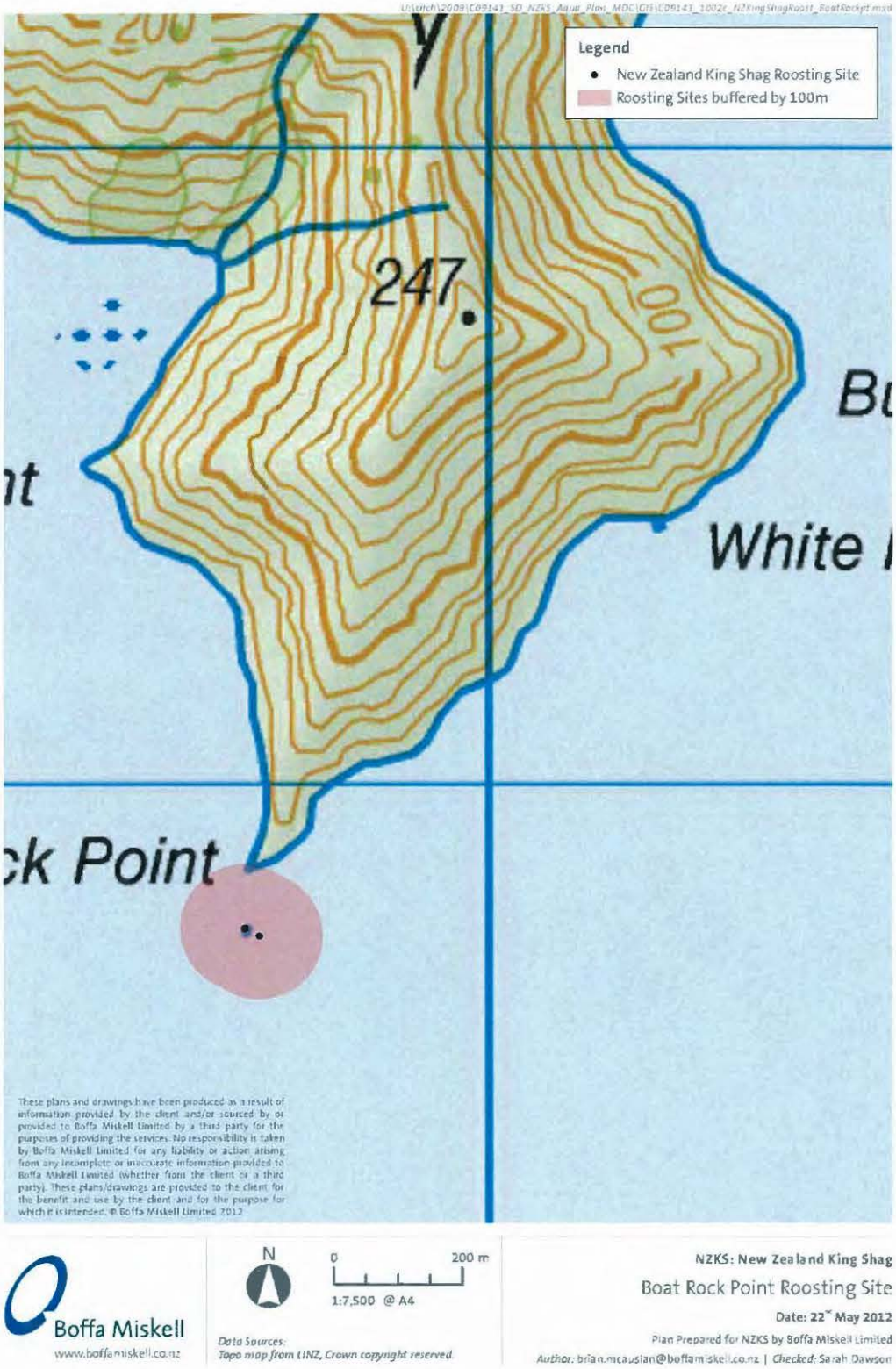


Figure 3: Environmental Quality Standard (EQS) - Definition of EQS Compliance Zones

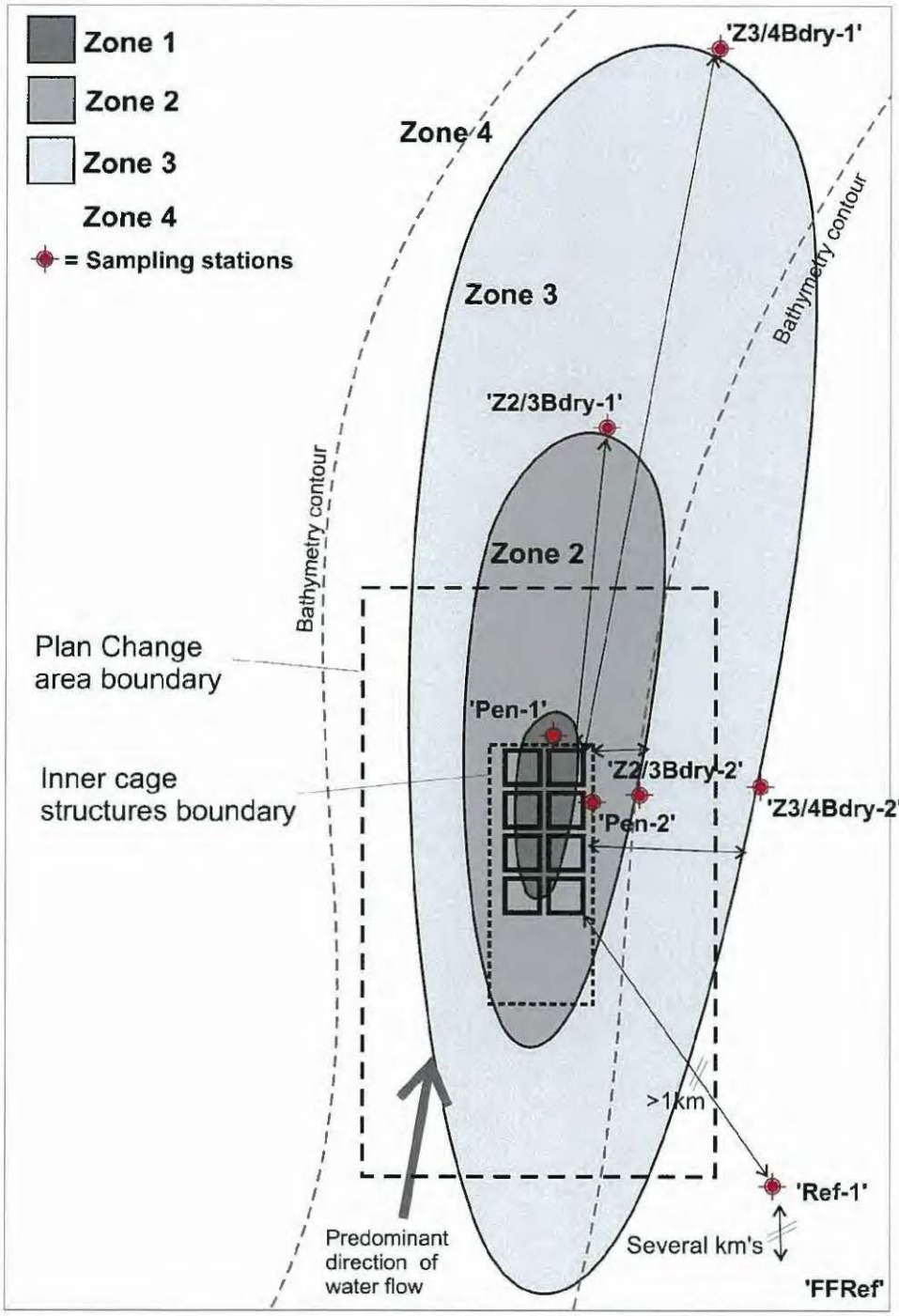


Figure 4: Schematic Diagram of Enrichment Stages

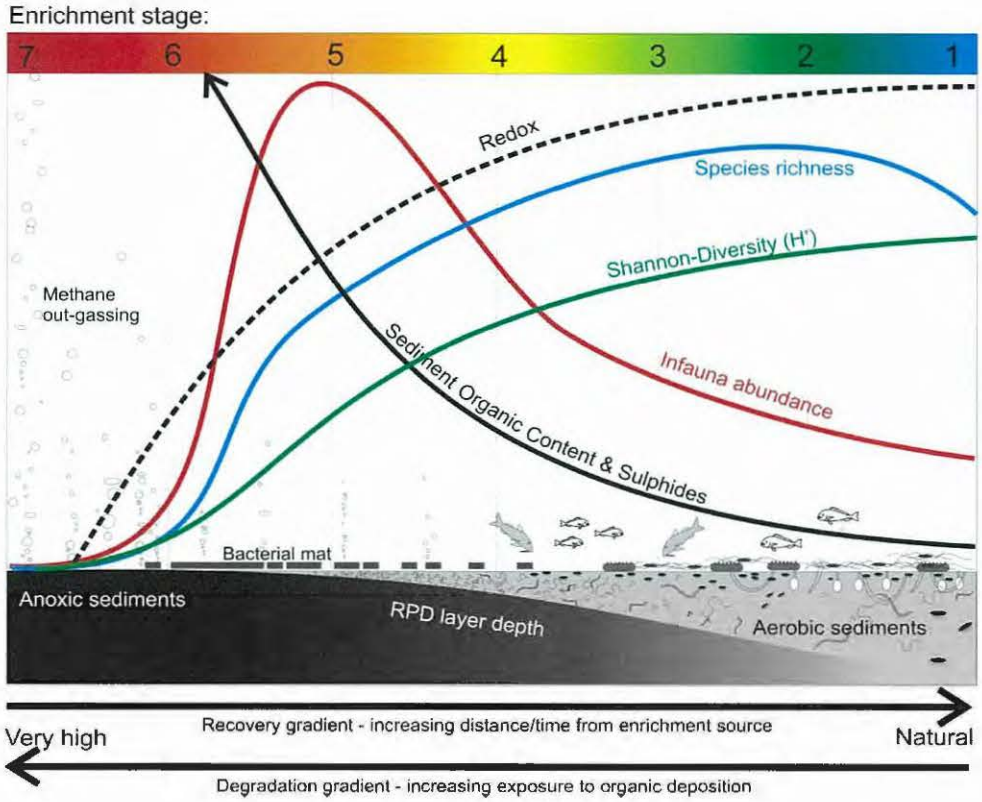
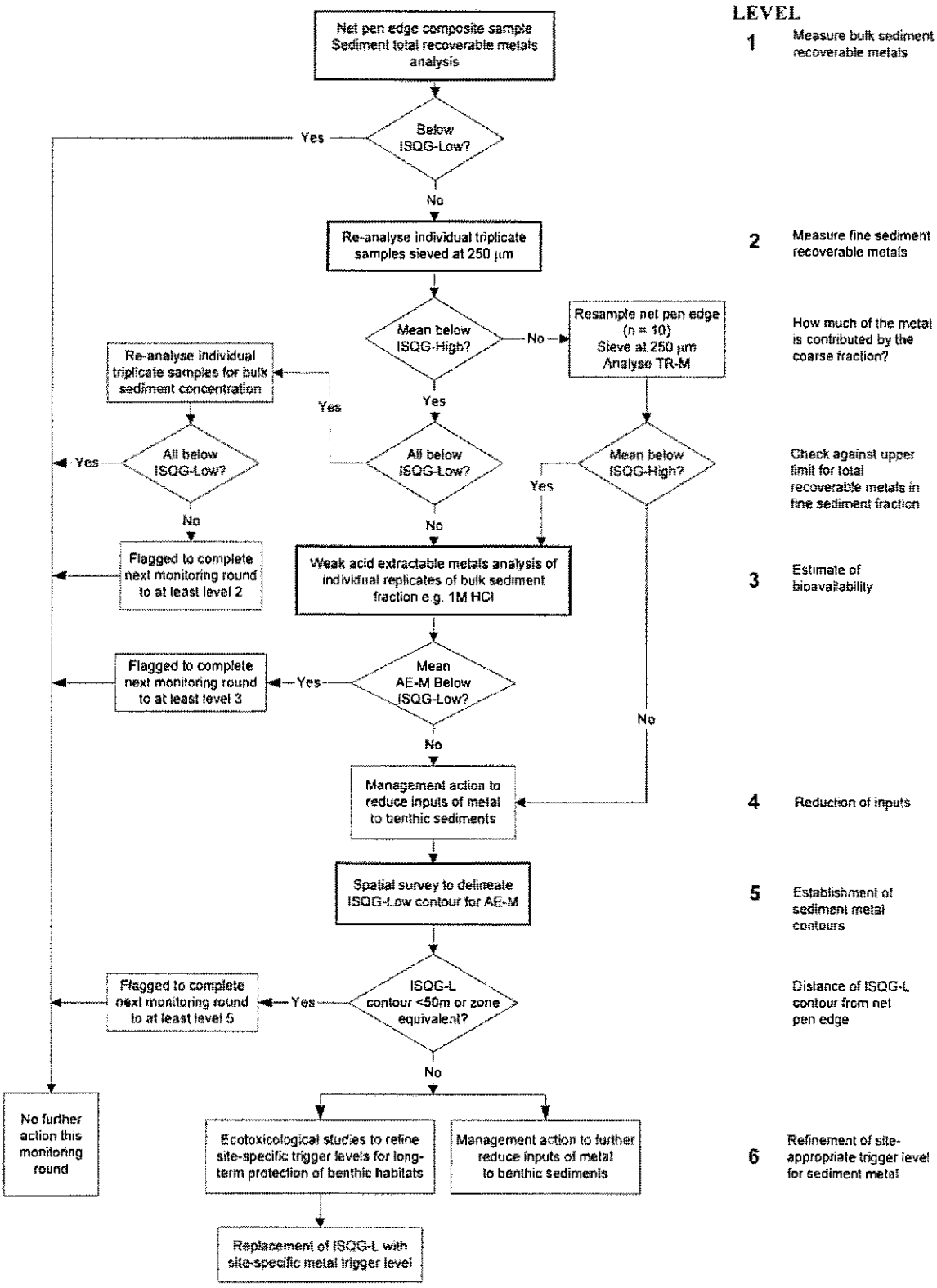


Table 5: General Description and Environmental Characteristics of Enrichment Stages (ES)

ES	General description		Environmental characteristics
1	**Natural/pristine conditions**	LF	Environmental variables comparable to unpolluted/ un-enriched pristine reference site.
		HF	As for LF, but infauna richness and abundances naturally higher (~2×LF) and % organic matter (OM) slightly lower.
2	**Minor enrichment**: Low level enrichment. Can occur naturally or from other diffuse anthropogenic sources. 'Enhanced zone'	LF	Richness usually greater than for reference conditions. Zone of 'enhancement' – minor increases in abundance possible. Mainly compositional change. Sediment chemistry unaffected or with only very minor effects.
		HF	Changes as for LF
3	**Moderate enrichment**: Clearly enriched and impacted. Significant community change evident.	LF	Notable abundance increase, richness and diversity usually lower than reference site. Opportunistic species (i.e. Capitellid worms) begin to dominate.
		HF	As for LF
4	**High enrichment**:Transitional stage between moderate effects and peak macrofauna abundance. Major community change.	LF	Diversity further reduced, abundances usually quite high, but clearly sub-peak. Opportunistic species dominate, but other taxa may still persist. Major sediment chemistry changes (approaching hypoxia).
		HF	As above, but abundance can very high while richness & diversity are not necessarily reduced.
5	**Very high enrichment**: State of peak macrofauna abundance.	LF	Very high numbers of one of two opportunistic species (i.e. Capitellid worms, Nematoda). Richness very low. Major sediment chemistry changes (hypoxia, moderate oxygen stress). Bacterial mat usually evident. Out-gassing occurs on disturbance of sediments.
		HF	Abundances of opportunistic species can be extreme (10×LF ES 5 densities). Diversity usually significantly reduced, but moderate richness can be maintained. Sediment organic content usually slightly elevated. Bacterial mat formation and out-gassing possible.

ES	**General description**		**Environmental characteristics**
6	**Excessive enrichment**: Transitional stage between peak abundance and azoic (devoid of any organisms).	LF	Richness & diversity very low. Abundances of opportunistic species severely reduced from peak, but not azoic. Total abundance low but can be comparable to reference sites. %OM can be very high (3-6 times reference).
		HF	Opportunistic species strongly dominate, with taxa richness and diversity substantially reduced. Total infauna abundance less than at sites further aware from the farm. Elevated %OM and sulphide levesl. Formation of bacterial mats and out-gassing likely.
7	**Severe enrichment**: Anoxic & azoic; sediments no longer capable of supporting macrofauna with organics accumulating.	LF	None, or only trace numbers of macrofauna remain. Some samples with no taxa. Spontaneous out-gassing; *Beggiatoa* usually present but can be suppressed. *%OM* can be very high (3-6 times Ref).
		HF	Not previously observed – but assumed similar to LF sites

Figure 5: Decision Hierarchy for Copper and Zinc



Annotation History

Date	Reason for Amendment/Alteration
17/04/2017	Supreme Court Judgement
05/09/2017	Section 127 variation to change Condition 66(e)
04/10/2018	Section 127 variation to change Condition 37
16/11/2018	Section 127 variation to change Condition 2 to enable an alternative net pen layout on the existing Waitata salmon farm.