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Dear Sir/Madam

Submission on Variation 1 to the Proposed Marlborough Environment Plan ('V1')

I am presenting this submission covering V1 and the proposed implementation of consent authorisations in relation to V1 in my capacity as Chairman of the Kenepuru and Central Sounds Residents' Association Incorporated (KCSRA).

Who are we

KCSRA was established in 1991 and currently has 330 household members whose residents live full-time or part-time in the Kenepuru and Pelorus Sounds. The Association's objects include, among others, to coordinate dealings with central and local government and promote the interests of residents of the Kenepuru and the Central Sounds area and to promote and act in the best interests of residents, ratepayers and persons associated with the Kenepuru and Central Sounds area.

What do we do

KCSRA works hard to represent our members on a range of issues. For example, advocating for better and safer roads and provision of public amenities in places of high visitor use, liaison and representations to the local Council and central government, and involvement in local environmental/conservation issues. To see a fuller description of our activities visit our web site and look under the "Public Documents" section (www.kcsra.org.nz).

Why are we Submitting

Our members greatly appreciate and value of the Marlborough Sounds area with its striking land and seascapes. Our members appreciate that it is a fantastic national asset that needs to be safeguarded for future generations of New Zealanders. Sadly over the last decade or so it has become clear that the marine

space of the Sounds is in a poor state of environmental health and under pressure from many sources.

Much of this adverse pressure has arisen from past management and regulatory mistakes and oversights. All too often it seems that short term commercial objectives arguing export dollars and jobs have been favoured against long term sustainable management practices/uses. By way of example, this short term focus has seen excessive marine farm development in low flush areas where the cumulative negative impacts (both ecological and other) are only now being identified and grappled with.

A fundamental role of V1 is to acknowledge and rectify these mistakes of the past and to set up a more objective and sustainable framework for going forward for the benefit of all stakeholders. Unfortunately we submit that V1 fails this at this fundamental level though the erroneous adoption of unsupportable baseline principles.

The Kenepuru and Central Sounds Residents' Association inc (KCSRA) would like the opportunity to appear and be represented at the V1 hearings.

Supplementary Reports

This submission includes five supplementary reports:

- The dissenting position of the KCSRA representatives on the Aquaculture Rules Working Group (ARWG).
- A report by Dr Brian Stewart dated 3 December 2015.
- A report from Dr Shaw Mead dated 25 February 2021 plus another document of appendices to that report
- A report from Dr Michael Steven dated 2 February 2018
- Shelly King - Records and Summaries of Beach Clean Data, Clova Bay 2020.

1. Structure of Submission

1.1 Our concerns are articulated in a number of parts as follows:

(a) Firstly, we outline fundamental concerns with the baseline proposition adopted by Marlborough District Council (Council) when setting out its proposed AMA's.

(b) We then make submissions with regard to the schematic need for V1 to properly and comprehensively address cumulative effects.

(c) We then raise specific submission points with regard to ecological carrying capacity – i.e. pelagic and benthic effect matters, including cumulative effects.

(d) We then raise a number of other broad scale submission points.

(e) Some of our submission points are depicted graphically on maps in Appendices 3 and 6. These maps are intended to assist with the illustration of our submission points but are not intended to be a complete representation of our submission points.

(f) Finally, we step through the proposed provisions with more specific clause by clause submission points.

2. Baseline Proposition

2.1 Council has adopted a baseline proposition that all existing aquaculture activity can be accommodated within the enclosed waters of the Sounds. This baseline was adopted without the undertaking of any carrying capacity analysis from either an ecological or biodiversity perspective or from a natural character or natural landscape perspective.

2.2 This baseline proposition dominated the proceedings of the ARWG – as is outlined in the Dissenting Opinion of the KCSRA representatives on the ARWG (as accompanies this report). The view of these KCSRA representatives is that throughout the ARWG process Council gave primacy to the preservation of existing activity levels (along with controlled activity status for the continuation of this activity) over the addressing of environmental bottom lines, concerns or issues[1].

2.3 This baseline proposition assumes that existing aquaculture can be accommodated environmentally appropriately. However, the harsh reality is that systemic failures in aquaculture consenting over the last few decades has seen aquaculture activity significantly expanded without any regard to cumulative effects[2]. In the process all areas that might be considered appropriate for aquaculture have already been applied for (and more). As we submit below, the net outcome of a proper analysis of appropriate activity, taking account of cumulative effects and environmental bottom lines, is necessarily a reduction of the existing level of activity (and thus the proposed AMA's) in some areas.

2.4 In order to achieve its aspiration of accommodating all existing aquaculture Council has nonetheless applied a higher threshold of effect and risk to the management of existing aquaculture than would be appropriate for the management of new aquaculture[3]. This may be founded on a proposition that existing activity is somehow protected from the same degree of environmental scrutiny by the New Zealand Coastal Policy Statement 2010 (NZCPS) Policy 8. In our view the social and economic values of proposed renewal activities are the same as

[1] The only material exception to this was with regard to locating activity in areas rating as outstanding under NZCSP policies 13 or 15.

[2] See **Appendix 1** for some specific examples of historical failures to consider cumulative effects.

[3] In various places throughout the Section 32 Report it is made clear that the Council is demanding a level of evidence of effect that is different to that as would be required for new farming activity. See, for example page 57 "*The Council does not have sufficient robust scientific evidence to support .. a decrease in the current levels of farming* and at page 27 "*Council does not have evidence that this is being caused by any significant adverse environmental effect…that would justify the adverse economic and social costs of reducing the size of the industry*."

those for proposed new activities and as such a proposition to elevate renewal activity for protection under NZCPS policy 8 is unsupportable. All aquaculture activity, whether new or renewal activity, must meet the same environmental standards and principles.

2.5 At a schematic level V1 is about locking down existing aquaculture activity for a plan generation. This renders the determination of the risk of effects of existing aquaculture critical. We thus submit that the proposed array of Aquaculture Management Areas (ÁMA's) in V1 has not been determined with a proper regard to the risk and potential significance of cumulative environmental effects. This includes a failure to properly assess the risk of ecological carrying capacity being exceeded and to apply requisite precautionary principles to a continuation of existing farming activity. V1 also fails to have any regard to the significant cumulative effects of existing activity on other natural landscape or natural character values.

2.6 In some instances Council's baseline proposition has presided over more site specific adverse effects of existing aquaculture, such as navigational impedance or safety, recreational access and visual amenity.

2.7 The proposals also make an unsupported assumption that all existing consented mussel farm activity is in good areas to farm. More particularly, no attempt at all has been made to isolate or cull existing activity areas that are either slow-grow or otherwise of relatively low aquacultural value. This is undoubtedly because farm yield information for different areas was withheld from the ARWG by the industry. Anecdotal reports nonetheless suggest that areas such as the shallow parts of the Kenepuru Sound and the low flush bottom ends of bays in the Beatrix Basin are relatively low yield areas and as such are not 'appropriate areas' for mussel farming activity.

2.8 V1 also makes an unsupported assumption that the ribbon of appropriate area for aquaculture can be extended by 33% - i.e. from one being 150m wide under the MSRMP to one being 200m wide under V1. As we note below, Council has not undertaken an assessment of the cumulative effects on natural character or natural landscape values of the existing spread of aquaculture activity within bays. This may already be dominating natural character or natural landscape values in some places and thus be beyond acceptable limits of development. As such, we cannot see any basis made for an increase to the band of area considered 'appropriate' for aquaculture activities.

3. Cumulative Effects - Resource Management (National Environmental Standards for Marine Aquaculture) Regulations 2020 (NES)

3.1 The NES regulations took effect on 1 December 2020 and effect a streamlined consent renewal process for existing aquaculture activities in appropriate areas. A fundamental presumption of the NES is that *cumulative effects have been addressed at the regional planning level when determining what are appropriate areas for aquaculture*[4]. There is

[4] This is inherent in the fact that the NES does not allow the consideration of cumulative effects in resource consenting decisions for existing activity. **Appendix 2** provides more

no longer any ability to have regard to cumulative effects at a re-consenting level.

3.2 It is thus fundamental, indeed critical, that V1 properly recognises and addresses all cumulative effects on all values, whether those be natural landscape, natural character, visual amenity, recreational, navigational or other values, of the existing level of aquaculture.

3.3 This also includes cumulative effects on ecological or biodiversity values. Whilst the NES facilitates some consent conditions for the 'adaptive management' of ecological or biodiversity effects, the NES does *not* facilitate the adoption of a precautionary approach on ecological or biodiversity grounds when re-consenting. Therefore, we submit, this must, if appropriate, be adopted at the local planning level. As we explain below, a precautionary approach is required in some areas, particularly where the signals are toward potentially significant adverse effects. V1 fails in this regard.

4. Ecological Carrying Capacity

4.1 It is incumbent on Council to preserve the natural character of the coastal marine area (Section 6 Resource Management Act 1991 (RMA), in doing so to have particular regard to the intrinsic values of ecosystems (section 7 RMA), to ensure that significant adverse effects on indigeneous ecosystems and habitats are avoided in coastal environments such as estuaries (NZCPS 11.b.iii.)[5], and also to avoid significant adverse effects on natural character values (NZCPS 13(1)(b)).

4.2 Despite this, there is no policy at all for addressing the cumulative pelagic effects of mussel farming. Commentary on Policy 13.22.1 instead states that:

> *"Key indicators for understanding water column effects include chlorophyll-a, particulate carbon, and particulate nitrogen. Because there is currently minimal long term data on these indicators, it is not possible to include an adaptive management regime for water column effects at this time*.
>
> *Council is undertaking monitoring with the intention of the data collected informing an adaptive management regime (similar to that used for benthic effects) in the future.*

4.3 This, in our view, is a grossly deficient response to the issues. Firstly, it appears to overlook that collecting data on these key water quality elements from now on is not going to offer any meaningful insight into how the existing activity is already cumulatively impacting on these key water column elements. This fact is acknowledged in Council's recently commissioned report *Measuring mussel farming effects on plankton in*

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detail on the NES' contemplation of cumulative effects being fully managed at a planning level.

[5] Council does not appear to have considered whether its proposals meet the protection thresholds required for estuaries in NZCPS 11.b.iii. This is not mentioned in proposed policies, is not included in Appendix 3, Biodiversity, of the Section 32 Report and does not appear to have been a consideration anywhere else in that report.

the Marlborough Sounds Newcombe E, Broekhuizen N 2020 Cawthron Report No. 3550 (the NB Report)[6].

4.4 Secondly, and most significantly, it ignores the evidence that is already available of what are potentially significant adverse ecosystem and biodiversity effects from the existing level of mussel farming activity – particularly in some low flush but relatively intensively farmed areas of the Sounds - such as Clova Bay[7]. Council's approach appears to be one of taking no action with existing farming activity unless and until the potentially significant effects are definitively determined to be actually occurring[8]. This, we submit, is not the required precautionary approach for these areas and is not acceptable.

4.5 There are various postulations throughout the Section 32 Report that purport to further substantiate this Council position. We explore these in **Appendix 4**, and indicate why, in our view, none of them in any way substantiate the Council's position.

4.6 There is a plethora of literature on the sort of effects that cultured mussels might have on indigenous ecosystems[9]. However, it is also now well accepted that, despite repeated calls to monitor the rapidly expanding Sounds aquaculture industry for these effects, no empirical monitoring has actually ever been done. As the NB Report makes clear, this renders it very difficult to now attempt to definitively determine what the effects of the existing level of mussel farming activity actually are.

4.7 This does not condone Council's blind eye. Rather, it mandates the use of computer models and scientifically based calculations for the management of cumulative effects – a point that is widely acknowledged by the science fraternity. See for example, the NB Report[10], the Ministry for Primary Industries in its 2013 *Literature Review of Ecological Effects of Aquaculture*[11](MPI 2013 Report) and also Dr Mead in his report[12].

4.8 The most recent and comprehensive model available for measuring cumulative effects remains the NIWA Biophysical Model[13]. This reports alarming results in some areas. For example, it predicts that existing mussel farming in (say) Clova Bay is taking 90%+ of zooplankton out of the system. If this is correct then the effects will ramify quite significantly through the food chain to higher trophic levels such as fish species[14]. Whilst the NB Report suggests that this model might be over-

[6] See para 2 on page 40 "*if the site already contains farms and has never been monitored before the farms were introduced, it will not be possible to use the newly-acquired simple monitoring data alone to determine whether the existing farms are having a meaningful effect.*"
[7] These are summarised in the reports attached from Dr Brian Stewart dated 3 December 2015 and the Dr Shaw Mead report dated 25 February 2021.
[8] For example, see page 62 of the Section 32 Report "The Council does not have *definitive evidence* about the extent of the adverse ecological effects of marine farming in Marlborough"
[9] See the *Mead* and *Stewart* reports.
[10] See for example paragraph 4.1.3
[11] See Table 12.2.5, Chapter 12 page 8
[12] See in particular page 6
[13] *A biophysical model for the Marlborough Sounds, Part 2: Pelorus Sound June 2015*
[14] See bottom paragraph Page 9 of the Dr Mead report.

predicting zooplankton depletion, it does not suggest any currently available alternative for estimating it and, more to the point, there is certainly no suggestion in the NB Report that the NIWA Biophysical Model is fundamentally wrong or that it is over-predicting by the orders of magnitude that would be necessary to alleviate concerns with the predictions in the likes of Clova Bay[15].

4.9 This is in contrast to the position apparently adopted by Council, which is to the effect that the results are too uncertain due to limited filed data for model calibration and validation[16]. This, we submit, is another manifestation of Council looking for a definitive determination of effects when that is not mandated in the face of unknown but potentially significant effects. Council also rebuts reference to the NIWA Biophysical Model on the basis that it costs too much to run[17]. This is not supported by any cost-benefit equation, it begs the question of why the model was run in the first place, and in any event it does not condone a failure to take heed of the model's predictions that have already been run and reported.

4.10 The adverse NIWA Biophysical model predictions for the likes of Clova Bay are corroborated by an application of the Aquaculture Stewardship Council (ASC) Bivalve Standard Version 1.1 March 2019 (ASC Standard). This internationally recognised model calculates a safe level of bi-valve culture by reference to variables such as tidal exchange, currents, water volume, bi-valve farming intensity and primary production time (i.e. phytoplankton growth time). We have commissioned a computer model to apply the ASC Standard at the relatively fine scale of 3 hectare cells. This is a considerably more relevant and accurate depiction of the ASC Standard than the somewhat blunt basin wide calculations that were considered by TAG for the ARWG[18]. We have had this computer model reviewed by Dr Mead who reports (page 8) as follows:

> *"I have reviewed the computer model that KCSRA have developed from the ASC Standard empirical model and believe that it provides a far more targeted and accurate depiction of the ASC pelagic effects of mussel farming than the spreadsheet-based broad area calculations that have otherwise been done to date (e.g. Attachment 6). The assumptions used in the ASC model are reasonable, and the outputs also closely align with the NIWA bio physical model with respect to the distribution and intensity of impacts (Figure 3 below). In addition, the model provides a very useful tool for the spatial allocation of bi-valve farming in the Sounds*."

The result of this computer model run are illustrated below and in more detail at **Appendix 6**.

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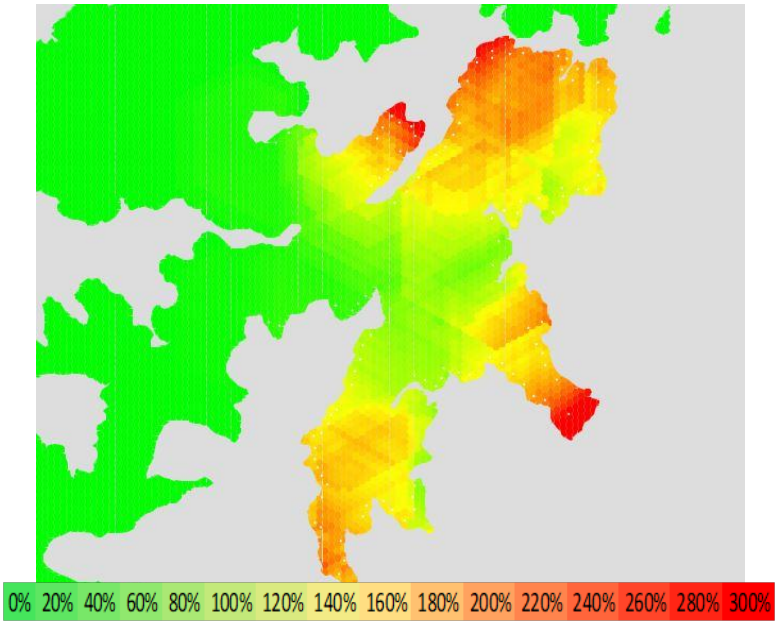
[15] Dr N Broekhuizen affirmed in *RJ Davidson Family Trust* (ENV-2014-CHC-34) that the Biophysical Model might be overpredicting, but not massively. Dr Broekhuizen also affirmed in answers to questions from R Schuckard (May 2015) that changes predicted by the model are large enough to indicate material changes to the wider food web.

[16] See page 68 Section 32 Report.

[17] Se page 68 Section 32 Report.

[18] Council had these blunt calculations reviewed by NIWA. All input permutations used by NIWA showed that, at the least, Clova Bay was being over-farmed to a material degree.



4.11 This ASC Standard model shows Clova Bay and the bottom parts of Beatrix Bay and Crail Bay as being potentially significantly over-farmed, with deep red representing areas that are farmed at up to *three times over* the ecological carrying capacity of that particular body of water. These areas are more or less entirely consistent with the areas of the Beatrix Basin that return as *potentially significantly over-farmed* by the NIWA Biophysical Model[19]. It is pertinent to note that one of most at risk areas is the ecologically significant marine site 3.14 in Clova Bay. This is recognised for its large estuarine fringe and intact offshore subtital habitat – a relatively uncommon combination in Marlborough. It has also been identified as a fish nursery in studies, a value that local residents advise persists today.

4.12 Our submission, supported by expert evidence[20], is thus that the balance of evidence is to the effect that the existing level of farming is having a potentially significant adverse ecological effect in some areas, including in particular those areas that are returning the extreme adverse results under both the NIWA Biophysical Model and under the computer model run of the ASC Standard.

4.13 As the NB Report advises, we are faced with very limited options for scientifically measuring or determining how these predictions might actually be manifesting in food web changes. As the MPI 2013 Report

[19] See extract of the Biophysical Model as Figure 3 on page 8 of the Dr Mead report

[20] Refer to the papers accompanying this submission from **Dr Mead** (for example, item 4, page 12 "*In my opinion the models affirm that bivalve farming has an adverse cumulative effect on indigenous ecosystem functionality. The models confirm that the existing level of farming is having a potentially significant adverse effect on the intrinsic ecosystems of some areas*) and **Dr Stewart** (for example page 13 "*There are strong indications that the low flush areas of Clova Bay, Crail Bay and Beatrix Bay are being farmed beyond what might be considered an acceptable ecological carrying capacity.... indications are that ecological carrying capacity is being exceeded in the central Pelorus area.*")

nonetheless aptly instructs[21], the management options for cumulative effects in this scenario are as follows:

1. *Setting of conservative limits for development based on knowledge (**including modelled predictions)** of likely carrying capacity of growing waters, which would be influenced by characteristics such as flushing times, natural levels of primary production, natural populations of filter feeders, and anthropogenic loading of nutrients.*
2. *Informed spatial planning and site selection to minimise effects. In multiple farm situations, modelling can assist in understanding the spatial distribution of effects under various development scenarios.*
3. *Staged development in the presence of long-term regional monitoring of background conditions and environmental change (SoE monitoring).*

4.14 Item 3 is not available where we have pre-existing activity. However, items 1 and 2 are. The ASC Standard prescribes the best available objective standard for farming to an acceptable ecological carrying capacity. It effectively sets the limit for bi-valve aquaculture as the point at which mussels filter the water faster than 3 times the time it takes for the natural system to manifest phytoplankton. This effectively preserves a sufficient algae buffer stock to realise a certain level of primary production and, importantly, to cater for other filter-feeders in the environment. Put another way, the ASC Standard is effectively saying that bi-valve farming is safe providing it doesn't demand more than 1/3rd of the ecosystem's natural primary production capacity.

4.15 The ASC Standard thus stipulates a safe level of aquaculture that is significantly greater than, for example, the level postulated by Cawthorne Institute in 2005[22] - which effectively suggested aquaculture was safe providing it didn't demand more than 20% of natural primary production. There appears to be no reason peculiar to New Zealand that renders the ASC Standard inappropriate. It is a relatively clean and objective cumulative effect tool that does not produce unduly conservative results.

4.16 The Section 32 report appears to rebut the ASC Standard because of a lack of agreement on inputs[23] and because of a perceived need to further validate the potential effects by more empirical study[24]. We explain why we do not see these Council positions as appropriate in Appendix 4

4.17 We have uncertainty or a lack of information re effects on indigenous biodiversity and we have modern models and calculations very clearly indicating that we could be facing potentially significant adverse effects. As such, it is appropriate that the precautionary principle is adopted[25]. To effect this a hypothetical question should be asked before an AMA is determined as appropriate for an area - *how much activity would be consented today if farms were removed and a single new application was*

[21] See Table 12.2.5, Chapter 12 Page 8
[22] Jiang and Gibbs supra
[23] See page 56 Section 32 Report
[24] See page 36 Section 32 Report
[25] This is contemplated by the NES – see Paragraph 4.4.3.1 and Footnote 98 on Page 49 of the NES section 46A Report

made to farm the area ? The answer, we submit, would be a level of activity that is dictated by today's knowledge and standards – and this, we submit, falls back to the ecologically directed limits as prescribed by the models and tools we have available to us today. Notably, the NIWA Biophysical Model and/or the ASC Standard. These are bottom line requirements. The economic and social implications of a reduction in existing activity are not, we submit, relevant.

4.18 As such we submit that V1 should adopt, as a Sounds wide ecological carrying capacity standard, the pelagic carrying capacity provisions as prescribed in paragraph 2.2 of the ASC Standard[26].

4.19 Application of the ASC Standard is a relatively simple exercise. It would be effected by way of setting "filtration limits" for each at risk area. These are easily determined by reference to the adult filtration rate of the species being consented and then converted into hectares that can be consented. Implementation would be by way of adjusting AMA's so as to accommodate no more than the maximum level of filter feeding capacity as determined by the ASC Standard for the area of influence of the AMA.

4.20 We address allocations later in this submission. At this point however, it might be apt to record that, in our view, there are no issues of equity to address where adoption of the ASC Standard means that an AMA cannot accommodate all existing activity. This is because existing consent holders hold their existing activity rights as of privilege - they have no future entitlements. As such, issues with the allocation of "adjustments" across existing consent holders are a fiction. Put shortly, an allocatee has no place to begrudge whatever allocation is granted to them to apply for more free use of public water space – irrespective of what current level of activity rights they might be privileged enough to have been granted historically. Nonetheless, and as we submit further below, Council should incorporate into its allocation regime a discretion to prorate reductions in activity levels across all or a group of existing marine farmers in such manner as MDC deems appropriate.

4.21 The ASC Standard does not address the impact of cultured mussels at higher trophic levels, particularly on zooplankton. The NB Report makes it clear that modelling the effects of mussel farming on zooplankton communities is likely to be the most feasible way of estimating the cumulative effects of mussel farms on zooplankton populations[27]. Re-running the NIWA Biophysical Model with mussel farming set at the filtration limits prescribed by the ASC Standard (i.e. at a demand of no more than 33% of primary production) might be expected to show a reduction in the model's extreme zooplankton predictions in the at risk areas. Moreover, the adaption of farming to ASC Standard levels in at risk areas would likely afford an opportunity to undertake "***larger scale field manipulations***". These are recommended by the NB Report as an

[26] See 2.2.2 page 15 of the Aquaculture Stewardship Council ASC Bivalve Standard Version 1.1 – https://www.asc-aqua.org/what-we-do/our-standards/farm-standards/the-bivalve-standard/

[27] Paragraph 4.1.3

effective way of more empirically determining the effects of mussel farms on zooplankton and higher trophic biodiversity[28].

4.22 Attached for completeness as Appendix 6 are indicative modified AMA maps for the Beatrix Bay and Kauauroa Bay, Crail Bay and Clova Bay. These illustrate modifications to the AMA array for this area that we submit are appropriate in order to adequately protect the intrinsic ecosystems and biodiversity of the particular areas identified..

Benthic Effects

4.23 V1 proposes to address cumulative ecological effects through a system that is adopted from the Benthic effects standard at paragraph 2.1 of the ASC Standard. This functions around benthic surveys of free sulfides. The methodology proposed is at least objective. However, we do not agree with the proposed policy for a number of reasons.

4.24 Firstly, there is no cumulative limit prescribed for benthic modification. As it stands V1 condones the enrichment of an entire ecological catchment providing that it is all only enriched up to a level that is no more than ES4. The enrichment of an entire catchment to an ES 4 level is, quite obviously, a significant adverse effect and as such is clearly inappropriate.

4.25 What appears to have been over-looked is that the ASC Standard for benthic effects is *not*, of itself, a cumulative effect tool. The ASC Standard contemplates that both the pelagic standard and the benthic standard will be applied. This is fundamental, because it is the pelagic standard that actually acts as the limiting function at a cumulative effect level. It is of some concern to us that V1 proposes to adopt only the half of the ASC Standard that does not actually deal with cumulative effects.

4.26 If, and contrary to our submission, the pelagic standard is *not* adopted by V1, then we would submit that at the very least the pelagic effect standard safe harbour rule (being a relevant water body should carry no more than a 10% coverage of bi-valve aquaculture)[29], must be adopted as part of the V1 benthic standard[30].

4.27 Secondly, the determinants of an ES 4 level are not fully disclosed, including if and to what extent changes in community structure are considered acceptable. Our submission is that unnaturally induced changes in community structures can adversely effect publicly held values in the ecosystem and also challenge the resilience of indigenous biodiversity. As such, these effects should be avoided if potentially significant, or otherwise remedied or mitigated. We submit that the prescribed ES 4 test may stand as deficient in this respect.

5. Other Broad Scale Submission Points

5.1 Landscape and Natural Character

[28] See paragraph 4.1.2
[29] See 2.2.1 on page 15 of the ASC Standard.
[30] See paragraph 2.2.1 of the ASC Standard.

5.1.1 AMA's have been determined by reference to what is proposed in the other chapters of the proposed Marlborough Environment Plan (PMEP) as high or outstanding natural landscape or outstanding natural character areas. However, these areas have, in turn, been assessed as they stood at the particular date of the assessment – complete with the modifications of the existing but finite termed aquaculture activities. No assessment has been made of the degree of adverse effect that the existing but finite termed aquaculture activity was having on the natural landscape and natural character baseline values of these areas at that time.

5.1.2 A fundamental purpose of activity having finite consent terms is the periodic re-assessment of it's environmental effects, including cumulative effects. In our view the failure of Council to consider whether activities proposed for an AMA, whether singularly or cumulatively, will or are having adverse effects on what would otherwise be an area of outstanding natural landscape or outstanding natural character value, confounds this fundamental resource management principle. It is thus incumbent on Council, we submit, to assess the appropriateness of an AMA by reference to whether or not the area at issue *would have* outstanding natural landscape or natural character values under the NZCP *without* the proposed AMA (or, in other words, without the existing activity). Council has not undertaken this assessment. We submit that the proposed array of AMA's are thus inappropriate to this extent.

5.1.3 In our view it is also incumbent on Council to determine whether or not the activity proposed for AMA's will have a *significant* adverse effect on the natural landscape or natural feature values of any area with natural landscape or natural character values - with that assessment taken from a baseline naked of the proposed AMA activity (NZCPS 7, 13.1(b) and NZCPS 15(b)). Council has not undertaken this assessment either. As such we submit that the proposed AMA's are also inappropriate to this extent.

6. Coastal Management Units

6.1 We see some merit in the concept of breaking down the geographic area of the Sounds into Coastal Management Units (CMU's). However, the boundaries of a CMU cannot be taken as a geographical limit to the area of effect that an activity within them may have. How much and how far the effects of an activity might extend are matters of fact. They are not matters that a plan can dictate with maps.

6.2 There are nonetheless various instances within the proposals where CMU's appear to be used to inappropriately circumscribe the areas of influence of an activity. For example, Policy 13.22.1(a)(iv) ignores sites potentially affected by benthic enrichment if they are close enough to another enriched site to be potentially adversely enriched but nonetheless not actually mapped within the same CMU as an identified enriched site.

6.3 Because of this we submit that it be made clear in the provisions that the utility of CMU's is limited to planning and consenting administration and

that CMU's should not be taken as indicating boundaries to the reach of effects of activities.

7. AMA Location

7.1 For the purpose of minimising visual amenity effects and navigational safety issues we submit that all AMAs should commence no closer than 100m from mean low water mark unless that is determined as inappropriate for *environmental* reasons. We submit that it is not appropriate, for example, for an AMA to commence closer to shore if only for the purpose of meeting Council's aspiration of "accommodating existing farms".

7.2 We also submit that for the purpose of ensuring navigational safety and minimising visual amenity effects that AMAs should not extend beyond 250m from mean low water mark. This includes AMA's that appear to only be proposed beyond 250m for the purpose of accommodating Council's aspiration of accommodating existing aquaculture activity.

7.3 This extends to proposals to create AMAs in Richmond Bay. These appear to have been created only for the purpose of accommodating displaced existing consent holders from other areas. This policy is mis-founded. Existing consent holders have no future entitlements. This means that if their existing activity is found to be inappropriate they are in no different a position to any other member of the public. The perceived need for AMA's in Richmond Bay is thus a fiction and as such a proposal to create public water space for allocation to these specific members of the public (to the exclusion of others) is inequitable and inappropriate. Thus, if (and only if) aquaculture can be environmentally accommodated in Richmond Bay (which we dispute) then the allocations for activity within those new AMA's must be publicly tendered.

8. Site 8553

8.1 Site 8553 is within a Coastal Marine 1 zone under the current Marlborough Sounds Resource Management Plan (MSRMP) but is proposed as an AMA by V1. This denies the publicly held values in this area that under-pin its zoning as an inappropriate area for aquaculture under the MSRMP. These values have not diminished. They have, we submit, in fact grown as public use and occupation of the area has increased since the MSRMP was promulgated.

8.2 On the other side, the utility of the area for aquaculture (it is authorised for spat catching only) was questioned when the original spat catching consent was granted for the area back in 1995. This saw Consent Order requirements imposed to keep records to support a claimed vital importance of the site to the industry as a spat supply. Those records of use were never kept[31].

8.3 The utility of this Site for spat catching is, both from our own observations and from conversations with industry participants, now minimal. The site is now hardly used at all – with the last decade seeing

[31] The Consent Order also required an annual clean of the seabed beneath the farm structures. This was also never complied with.

no more than very minor use. The site has not been used at all for the last 2 or 3 years.

8.4 Site 8553 is nested within, if not encroaching on, an Ecologically Significant Area[32]. The area has other high public values at issue here as well, including recreational access, navigational safety and impedance, visual amenity, and dominance of natural character and natural landscape values. These were all clearly articulated to a hearing panel to renew a consent for activity at this site in 2016-2017. That consent was granted because it was a controlled activity and *could not be declined* - an unfortunate anomaly of the MSRMP whereby aquaculture was consented as a controlled activity in an area recognised as inappropriate for aquaculture.

8.5 We attach a report from Dr Michael Steven (February 2018). This concludes at paragraphs 75 to 77 – which, for ease of reference, I repeat as follows:

> *75. In my opinion, the continued operation of the CMZ1 spat farm will result in unacceptable levels of cumulative adverse effects in circumstances in which the potential for the restoration of natural character is significant (potentially, raising natural character from Moderate to High, as indicated in Table 1). Given the density of marine farming within the Clova Bay CMZ2 zone, the CMZ1 zone offers a significant opportunity to provide a counterpoint of High natural character within the most ecologically and visually sensitive part of Clova Bay.*
>
> *76. I consider that the continuing presence of spat farming within the CMZ1 zone of Clova Bay crosses the threshold of acceptable levels of cumulative effects on the natural character of Clova Bay generally, and the CMZ1 zone in particular. Interventions or modification that result in a reduction in natural character to the next lower level on the scale (or even lower) may be regarded as having passed that threshold. In other respects too, including landscape quality and amenity, the threshold of unacceptable adverse effects may be regarded in - more colloquial terms - as being the point at which the straw breaks the camel's back. I consider this threshold to have been reached - and indeed passed - in the Clova Bay CMZ1 zone.*
>
> *77. As Mr Bentley states in his S42A Hearings Report (Topic 5 Natural Character) at p.54; "Aquaculture, along with other modifications, has dictated the extent of natural character mapping, including the effect they have cumulatively". I concur with Mr Bentley regarding the effects of marine farming on the natural character of the Sounds. I have stated in expert evidence before the Environment Court that I regard many parts of Pelorus Sound as having reached the threshold of unacceptable cumulative adverse effects on landscape and natural character. I consider Clova Bay to be a clear example of this failure of strategic planning within the Marlborough Sounds.*

[32] Ecologically Significant Marine Site 3.14

8.6 We refer you to Appendix 5 for more background information on aquaculture activity at Site 8553 in Clova Bay. The inappropriateness of Site 8553 for aquaculture activities was, we understand, very clearly articulated to the ARWG by KCSRA representatives. It is thus of some concern to us that it has been proposed as an AMA by Council with no apparent basis.

8.7 We submit that there are significant environmental issues with any aquaculture activity within what is currently the Coastal Marine Zone 1 at the head of Clova Bay, including Site 8553. As such, the proposed AMA over Site 8553 should be removed from V1.

9. AMA Mapping Accuracy

9.1 For some AMA's it is not entirely clear from the maps whether or not it is intended to commence from at least 100m from mean low water and/or whether or not it is intended to extend beyond 300m from mean low water.

9.2 Subject to our submission that all farms should be contained within the 100m to 250m band above, we submit that the few AMA's that are exceptions to these principles should be specifically scheduled to avoid doubt.

9.3 We also submit that 'mean low water' should be objectively defined in order to avoid confusion or disputes over where an AMA's geometric location should be actually measured from. We submit that 'mean low water' should be defined as *mean low water springs* as this point can be objectively determined by reference to chart datums.

10. Proposed Provisions

10.1 *Opening Commentary to the Aquaculture Chapter*

i The specific reference to the provisions of NZCPS 8 in paragraph 3 of the opening commentary to the aquaculture chapter reads as superfluous and strained and may be taken by some to put an inordinate value on existing aquaculture activity over other aquaculture activity or other values in the Sounds marine space. This is inappropriate and this sentence should be deleted.

ii Paragraph 4 of the opening commentary talks of appropriate aquaculture locations but not appropriate densities. This should be corrected.

iii Paragraph 6 of the opening commentary refers to Council determining to maintain the current amount of aquaculture activity by reference to surface area but makes no attempt to qualify this by reference to existing activity needing to meet appropriate environmental standards. This is misleading. It should be made clear here that the meeting of existing activity level is *aspirational only* – being contingent on the meeting of environmental standards and requirements and that as such it may not be possible to maintain all existing aquaculture within the Sounds.

10.2 *Issue 13N*

i Issue 13N puts up *uncertainty of future resource consent outcomes* as a key issue and then renders this down in the commentary to a question of "*security of occupancy*". These are unavoidable functions of undertaking an exploitive activity in a highly valued marine environment. They are issues that can't actually be addressed without necessarily compromising environmental standards. In our view this means they fail at a fundamental level and as such they should be removed as Issues from V1. The Issue that *should* be raised here is that of *consenting process efficacy* – seeking to maximise the efficiency of the environmental assessment process, such as through the adoption of bay by bay assessment processes, without compromising on the environmental assessments and thresholds that the activity necessarily demands.

10.3 *Objective 13.21*

i This objective should refer to marine farming in appropriate locations *and densities*.

ii With regard to the commentary on this objective, and as alluded to above, we dispute any proposition that Council has considered the potential adverse effects of existing marine farming on values through a comprehensive spatial allocation process and through policy. The process adopted by Council was to give primacy to the maintenance of existing activity levels over environmental standards or concerns to the effect that values have not been properly considered at all.

10.4 *Policy 13.21.1*

10.4.1 We agree that marine farming outside of AMAs and within the enclosed waters of the Sounds is inappropriate.

10.4.2 As recorded at section 6 above, the utility of CMU's for managing marine farms is limited to administrative. They do not represent landscapes and nor can they represent boundaries to the area of influence on other values of activities that are undertaken within them. Areas of influence are matters of fact that cannot be circumscribed by maps. This should be clarified in the commentary to the policy.

10.4.3 Proposed policy (f) (*Where Necessary to Relocate*) is inappropriate and should be deleted. This is because the appropriateness of any area for aquaculture must be determined by reference to environmental values *alone*. There is no mandate in NZCPS Policy 8 or elsewhere to determine AMA's by reference to a requirement to maintain existing aquaculture, howsoever socially or environmentally significant a piece of existing aquaculture might be perceived to be[33]. Policy (f), as drafted, does not

[33] Our interpretation of the decision in *Environmental Defence Society Incorporated* v *The New Zealand King Salmon Company Limited* [2014] NZSC 38 [17 April 2014] is to the

contemplate meeting environmental standards at all. Moreover, policy (f) stands to clash with other environmentally focused policies – such as policy 13.21.3.

10.4.4 In this light policy (f) is flawed and highlights why any capacity for aquaculture activity within the Sounds should be assessed generically and against the same environmental standards – whether earmarked to make up for existing activity or not. It is worth also noting that existing consent holders carry no entitlement. As such, creating new AMA space with a view toward only allocating it to displaced existing consent holders from elsewhere is inequitable – the wider public is just as entitled to the use of that public marine space as someone who has previously had a consented activity elsewhere.

10.5 *Policy 13.21.3*

10.5.1 Policy 13.21.3 demands the establishment of AMAs to accommodate the area of existing marine farms and takes the unsupported position that this can in fact be done within environmental standards and parameters. This is not facilitated by NZCPS Policy 8 and is, in our view, an inappropriate position to take. As such, we submit that this policy commence with the qualifier "*To the extent possible within environmental standards and other parameters*, AMAs (other than ASAs) are established….

10.5.2 We are concerned that Issue 13O, which outlines the potential adverse effects of marine farming, is structured within V1 so as to only apply to the *ongoing management* of marine farms once they are in place. The inference seems to be that these issues are not relevant to the question of where and how much marine farming is appropriate in the first place - as is determined through Policies in 13.21.3 and 13.21.4. This is inappropriate – the issues identified in 13O are actually more relevant to the question of where and how much marine farming is appropriate than they are to post implementation management of marine farming. We thus submit that Policy 13.21.3 should be amended to also require specific regard to the matters outlined in Issue 13O.

10.5.3 We make the following additional submission points on Policy 13.21.3:

- Considerations should include the utility or suitability of the particular area to aquaculture activities – with reference to the likes of product yield history, water currents and water depth. See Appendix 3 for some areas that have questionable aquacultural utility.
- Boat traffic, particularly recreational boat traffic, navigates on a "point to point" basis within the Sounds (e.g. from one headland to another, or from a turn point on a reach to a headland further on).

effect that whilst the significant existing contribution of aquaculture to social, economic and cultural well-being must be *recognised* by including in policies some provision for aquaculture activities in *appropriate places* that must be done subject to the environmental directives given in the NZCPS to avoid, mitigate or remedy environmental effects.

This is not least because, and particularly at times of low light, navigation is generally effected by reference to landmarks. It has been generally accepted historically, and is anticipated by most recreational boaties in the Sounds, that structures will not be placed within proximity of point to point navigation lines in the Sounds. As such, it should be clarified that for the purpose of paragraph (c) "recognised navigation routes" includes *any point to point line of navigation that is likely to be used by recreational boaties for open speed navigation*. See Appendix 3 for an illustration of some areas where existing aquaculture is impeding point to point navigation. Some encroachments are marginal but some are unacceptable.

- Paragraph (e) inappropriately demands that adverse effects are both significant and known with certainty before they are taken account of, and it also fails to account for cumulative effects. This is inappropriate, and certainly so when dealing with critically endangered and important marine species. As such, paragraph (e) should be rewritten to something along the lines as follows: "*Outside of areas that are likely, singularly or cumulatively, to have a more than minor adverse effect on the feeding or breeding activities of NZ King Shag, elephant fish, dolphins, high value recreational fish species such as cod, sole, flounder, snapper or kawahai, and other important species*"
- Paragraph (f) should be corrected to account for buffer zones – e.g. by adding the words "or their buffer zones" after the following wording "ecologically significant marine sites"

10.6 *New Policy 13.21.3.1*

10.6.1 As highlighted above, the NES demands that AMA's be determined by reference to cumulative effects and that they adopt, where appropriate, a precautionary approach where the effects of proposed activity on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse. V1 does *not* address these matters.

10.6.2 This must be corrected and the best way, we submit, is probably by way of a separate policy. As such, we submit that a policy along the following lines should be added after Policy 13.21.3:

> Policy 13.21.3.1 - The size or area of any AMA or AMAs shall be determined with regard to the following criteria:
>
> a) The containment of filter feeding aquaculture to within the pelagic effects standard as prescribed by paragraph 2.2 of the Aquaculture Stewardship Council ASC Bivalve Standard version 1.1 March 2019.
>
> b) The avoidance of significant adverse effects on natural character values or natural landscape values.

c) The avoidance of any other significant adverse effects on indigeneous ecosystems and habitats.

d) The Issues outlined in Issue 13O.

10.7 *Policy 13.21.4*

10.7.1 This policy is about protecting a range of values with significance in the coastal environment by protecting them from having AMAs added by way of plan change through new policy 13.21.4. The policy highlights the Queen Charlotte CMU as qualifying for this protection because it has *particularly high recreational, scenic, and amenity values*. However, the policy does not identify any other area of the Sounds as worthy of such protection.

10.7.2 The function of this policy is to pre-empt any argument that the values from aquaculture in in an area are greater than the publicly held values held in that area. We do not object to such a policy – it provides certainty to both sides and protects publicly held values from imbalanced decisions driven by well-resourced aquaculture applications.

10.7.3 However, we submit that there are other areas of the Sounds that are just as worthy of this protection as the Queen Charlotte CMU. Not affording the same protection to these areas is simply arbitrary and thus inappropriate policy.

10.7.4 We acknowledge that a lot of the Pelorus and Kenepuru Sound is, in theory, effectively protected by the criteria for a plan change that are listed in Policy 13.21.5, particularly areas mapped as being of high natural character or outstanding landscape value. However, there are parts of the Pelorus and Kenepuru that are currently recognised as inappropriate for aquaculture because it is a given that aquaculture activities will have a significant adverse effect on their other values, such as navigational safety, recreational opportunities, ecological systems, or cultural, residential or amenity values[34].

10.7.5 These other values are held just as highly as those in the Queen Charlotte CMU and the communities holding these values are just as deserving of the protection from well-resourced aquaculture applicants as the communities in the Queen Charlotte CMU are.

10.7.6 Accordingly, we submit that the following areas (currently CMZ 1 areas under the MSRMP) be added to Policy 13.21.4(a):

- Tuhitarata Bay, in Beatrix Bay
- The head waters of Clova Bay
- Hopai Bay in Crail Bay
- The north side of Kenepuru Sound from Skiddaw Bay around to Mills Bay
- The south side of Kenepuru Sound from Broughton Bay to the Kenepuru Heads

[34] Refer MSRMP 9.2.2 Zoning – Methods of Implementation

10.8 *Policy 13.21.5*

10.8.1 This policy identifies the considerations for the addition of new AMA's by way of plan change.

10.8.2 We have a number of issues with this policy. Most significant is the failure of the policy to recognise Issue 13N – particularly the community uncertainty about the future location and potential growth of marine farming. This is pertinent given it is recognised that the inner Sounds is already very much full[35], indeed over-farmed in some areas. A policy directed at plan changes must recognise this. Policy 13.21.5 does not. Rather, Policy 13.21.5 will render the community even more exposed to aquaculture pressures than it is now and contradicts Issue 13N.

10.8.3 What is needed is an *extraordinary activity threshold* that must be met before more AMA's can be added within the Sounds. We submit that policy 13.21.5 be amended to the effect that a new AMA must be for an aquaculture activity that cannot, for biophysical or hydrodynamic reasons, be undertaken within the existing AMA space in the Sounds. In other words, if somebody just wishes to do more mussel farming then they cannot apply for new AMA space by way of plan change. They must do so within the existing AMA space (i.e. by trading in or being allocated, purchasing or leasing existing resource consent rights in an AMA).

10.8.4 Other submission points on Policy 13.21.5 are as follows:

(1) We submit that a cumulative effect paragraph must be added to the policy before paragraph (a). This new paragraph should provide that a new AMA must not be created if it is likely to result in or contribute to the exceedance of any of the cumulative effect thresholds identified in proposed new Policy 13.21.3.1 above.

(2) Paragraph (a) should not refer to a CMU as effects can cross CMU boundaries. Rather, it should refer to the 'area of influence'. An area of influence is self-explanatory – it is the area that the activities actually influence.

(3) As noted in section 4 above, paragraph (a) is crafted on the ASC Standard for *benthic* effects and does *not* facilitate any regard to cumulative effects. The new paragraph submitted for in (1) above (which includes application of the ASC Standard for pelagic effects) must be included to effect any cumulative limit.

(4) Paragraph (c) is far too narrow and is inappropriately worded. Any speed restriction is a significant effect as it forces boats off the plane – a major impedance irrespective of how far the speed restriction extends. We submit that this paragraph should be rewritten as follows: " *" the location of an AMA and subsequent marine farm will not narrow any navigable channel resulting in a speed restriction nor otherwise have any more than minor adverse*

[35] See, for example, page 45 Section 32 Report – "*The policy reflects that the council considers the inshore waters of the Marlborough Sounds to be at capacity for marine farms*.."

effects on navigation, including by encroachment on lines of point to point navigation"

(5) It is not appropriate that regard only be had to amenity values to the extent that they are affected by lights or noise from proposed farm activity. Paragraph (e) should thus be amended to require regard to be had to the matters referred to at Issue 13O, including visual amenity broadly.

(6) In paragraphs (b)(ii), (d) and (e) "significant" effects should be replaced by "no more than minor" effects. A plan change in an environment that is already considered to be full should demand adverse effect thresholds that are, at the very least, as stringent as they are when applying for a non-complying resource consent under section 104D(1)(a).

10.8.5 There is reference to a Values Report 2018. We submit that it should be made clear:

- That values are dynamic matters of fact that cannot be dictated by a plan and that the Values Report has not been notified and consulted on and as such it does not form part of V1.
- That the Values Report is also not intended to be comprehensive, nor is it intended to be a representation or constraint on Council's view on the values for any area, and nor is it intended to be representative of the values held by the communities or other stakeholders in areas.

10.9 *Policy 13.21.6*

10.9.1 This policy is about offshore CMU aquaculture activity. We note the comment regarding the Values Report above and submit that the reference to a Values Report in Policy 13.21.6 should be deleted.

10.9.2 In Paragraph (b) "recognised navigation routes" should, for this purpose, be defined in the same was as proposed for policy 13.21.3 above.

10.9.3 Paragraph (c) inappropriately demands that adverse effects are both significant and known with certainty before they are taken account of, and it also fails to account for cumulative effects. This is inappropriate, and certainly so when dealing with critically endangered and important marine species. As such, paragraph (c) should be rewritten to something along the lines as follows: "*Outside of areas that are likely, singularly or cumulatively, to have a more than minor adverse effect on the feeding or breeding activities of NZ King Shag, elephant fish, dolphins, high value recreational fish species including cod, sole, flounder, snapper or kawahai, and other important species*"

10.9.4 Paragraphs (g) and(h) set a threshold for effects of 'significant'. This is inappropriate. The threshold for effects such as these should be no more than minor.

10.9.5 A new paragraph should be added requiring that applications for marine farms under this policy must also demonstrate that the proposed activity will comply with the pelagic effects standard as prescribed by paragraph 2.2 of the Aquaculture Stewardship Council ASC Bivalve Standard version 1.1 March 2019.

10.10 *Policy 13.21.7 – Authorisation Methodology*

10.10.1 We make the following submissions with respect the Policy 13.21.7:

10.10.2 We support the policy of managing demand for coastal marine space by way of an allocation scheme.

10.10.3 It may be appropriate in some circumstances to control the issue of authorisations in order to manage environmental issues, including cumulative effect issues. Policy 13.21.7 needs to facilitate this so that the allocation system can be so utilised if required. As such, we submit that Policy 13.21.7(b) be amended by adding the wording as indicated below:

> *For space in AMAs created as part of the notified variation to the plan, other than FAMAs, and subject to any need to control or regulate activity in order to manage environmental issues including cumulative effects, authorisations for marine farming*…..

10.10.4 Existing consent holders have been granted their existing resource consent rights as of privilege and carry no future entitlement to apply for or receive further resource consent rights[36]. The allocation of rights to existing consent holders for free (as opposed to tendering the consent rights) creates a new privilege. This stands to create a perception of inequity amongst existing consent holders in circumstances where a reduction from the existing level of activity is required or where it is difficult to accommodate existing activity contiguously or otherwise in a location or array that an existing consent holder is currently accustomed to. We are thus concerned that this policy stands to frustrate the V1 process, both in terms of getting V1 settled into the PMEP and in terms of getting the V1 environmental settings right. Because of this we submit that Policy 13.21.7(b) should be amended as follows:

(1) The second sentence in paragraph (b) should be changed to read: "*Subject to paragraph (g), Council shall have discretion as to where and to what extent an existing consent holder is granted an allocation right or rights in an AMA. In exercising this discretion Council shall adopt the following principles*:

[36] The function of section 165ZH(2) of the Resource Management Act 1991 is the management of high demand for consents for coastal water space. It is a management system that affords a windfall or privilege on existing consent holders. The adoption of an allocation system ends that privilege but does not offend any entitlement or rights.

(2) At the beginning of each of paragraphs (b)(i) to (iv) add the words: "*Where possible and to the degree that Council in its discretion determines,"*

(3) Add a new paragraph (ba) as follows:

(ba) *Council may elect to move to publicly tender some or all authorisations for an AMA or AMAs created as part of the notified variation to the plan if and to the extent that Council considers the allocation procedure under paragraph (b) to be impractical or inefficient to implement*.

10.10.5 The sheltered waters of the Sounds are highly valued for their ease (if not yield) of aquaculture activities. The water space is effectively a public asset and as such there are significant issues with equity and the efficient resource use when water space is *not* publicly tendered as contemplated by section 165H of the RMA.

10.10.6 The Section 32 report analysis on public tendering is effectively limited to recording that it would result in too much disruption to the existing industry. This is an inadequate analysis. Whilst disruption of the industry may be a relevant issue, it is unnecessarily elevated as an issue by Councils appeasement of the fiction that existing consent holders have future consent rights. In any event, disruption of the industry is not a relevant factor beyond the implementation of V1. Our submission is thus that Council has made an inadequate assessment and has failed to meet the threshold required by section 165H(1) of the Resource Management Act 1991 to allocate consent rights other than by way of tender.

10.10.7 The section 32 Report estimates the value of the current mussel farms within the Sounds at between $120m to $180M[37]. This is effectively the net value of the resource consents – it is after deducting the value of the infrastructure. This value, therefore, is effectively the value of the free use of the public water space. Other valuations put consent right value at around $150K per hectare[38]. This puts 3,200 hectares at a value closer to $500m.

10.10.8 These valuations effectively represent the present value of the rental income that would be received if allocations were tendered out. Using the same 6% yield as used by Council in its Section 32 report, this converts to an **annua**l rental income under tendered allocation rights of anything between **$7.2M and $30M**.

10.10.9 A Tender Allocation system will not remove water space or other resources from the industry - and nor will it somehow hinder economic activity. It will merely shift a portion of the profits currently accruing to

[37] See page 151
[38] For example, See part A page 2 Sanford Ltd application in U200309 for 16ha farm

resource consent holders over to the public in return for the use of the naked public resources. Council has not considered why up to $30M of annual rental income should not be collected from the industry and publicly distributed and/or utilised through a tender allocation system[39].

10.10.10 This would certainly assist with bridging some of NZ's growing wealth gaps - and at the same time create a bit more local economic activity. A Tender Allocation system will also engender a more efficient industry. Inefficient farmers will not succeed and uneconomic water space will be brought to the surface – it will not be tendered for.

10.10.11 A Tender allocation system will not place uncertainty on the industry. There would be no dis-incentive to invest because rentals or license payments will be naturally set by the market at levels that will facilitate requisite returns on investment. Industry infrastructure such as marketing channels, processing factories and servicing boats will all still be required – whether such are engaged through ownership of resource consent rights, sub-lease of resource consent rights or under contract to holders of resource consent rights. And there is no disincentive to engage in research and development (R&D) – investing in R&D will bring the same competitive advantages - irrespective of whether consent rights are held, leased, contracted, free or tendered.

10.10.12 As such, in our view it is not in the wider public interest to retain an allocation system that is simply tied back to historical consent holders. We can see nothing to justify the continuation of a "modified grand parented" allocation system *beyond first term consent allocations under V1*. This applies to private plan changes as well. Neither being an historical consent holder nor effecting a private plan change should afford anybody a perpetual right to the free use of the public domain[40]. Accordingly, we submit that the following new policy (g) is required:

(g) *Allocations for second term resource consents in AMAs created as part of the notified variation to the plan or by private plan change shall be publicly tendered.*

10.10.13 We support paragraph (c) of Policy 13.21.7

10.10.14 Policy (d)(ii) is ineffective. Firstly, it refers to Policy 13.22.1 as a reference for the current scale of marine farming. As we have recorded in

[39] 50% of tendered rentals or fees goes to the Crown and 50% to the Council.

[40] Coastal Occupancy Charges are not relevant in this regard. They are fundamentally different to market rent or license fees payable for resource consents under a Tender Allocation system. Coastal Occupation charges are made to recover a set of budgeted costs (such as environmental monitoring) and are levied *because* somebody occupies public marine space. They are like rates. Rent or license fees payable under a Tender Allocation system would instead be market based and would be payable *for* the right to occupy the public marine space. This is fundamental – tenders for market rent will identify inefficient areas of farming. The market value of an allocation would ordinarily be calculated after deducting costs that will arise because of that right, such as rates or coastal occupancy charges. Section 165V of the RMA effectively requires that tender money be treated in gross and that coastal occupancy charges be treated as part payment of the market determined tender payments.

section 4 of this submission, Policy 13.22.1 does *not* address cumulative effects and offers *no* indication as to whether or not the existing scale of marine farming in an area is acceptable. The policy also looks to a CMU as the reference area for effects. This is not appropriate as the area that an activity effects may cross a CMU boundary or may be a bigger or smaller area than a CMU. Thirdly, it looks for a threshold of significant adverse effects which is too permissive for highly valued coastal marine space. Accordingly, we submit that paragraph (d)(ii) be replaced with the following:

> *Filter feeding aquaculture in the relevant area of influence is and will remain within the limits prescribed in the pelagic effects standard in paragraph 2.2 of the Aquaculture Stewardship Council ASC Bivalve Standard version 1.1 March 2019 and the additional marine farming activities can be undertaken without more than minor adverse effects on the human use values of the relevant area.*

10.10.15 Subject to our comments on public tendering above, we support paragraph (e).

10.10.16 Paragraph (f) should commence with the words "Subject to paragraph (g)".

10.11 *Issue 13O*

10.11.1 Issue 13O outlines some of the issues that marine farming raises in the Sounds. We support Issue 13O. However, note our submission point above to the effect that these Issues must also be brought into objective 13.21 and policies 13.21.3, 13.21.4 and 13.21.5 for the purposes of determining where and how much aquaculture is appropriate.

10.12 *Objective 13.22*

10.12.1 This is about the management of marine farms once they are established. We submit that the wording be amended by adding "avoiding or" before "minimised" in the first sentence.

10.13 *Policy 13.22.1*

10.13.1 This policy is about monitoring the cumulative benthic effects of mussel farms. However, and as we have pointed out in Section 4 above, it uses a process modelled on the benthic standard in the ASC Standard – a system that is *not* intended to function, of itself, as a cumulative effects limitation tool. Put another way, Policy 13.22.1 addresses how much a farm can pollute the sea floor, but it does not address how much of the sea floor farms can pollute. V1, as it stands, condones the enrichment of the entire sea floor up to a level of ES4. This is clearly inappropriate.

10.13.2 The system proposed by Policy 13.22.1 is intended to be operated in conjunction with the pelagic effect standards of the ASC Standard. It is the pelagic effect standard that operates as the cumulative limitation tool in the ASC Standard.

10.13.3 We thus submit that references in Policy 13.22.1 to the management of *cumulative* effects are incorrect and should be deleted.

10.13.4 We submit that a further policy should be added requiring monitoring and the review of consent conditions to ensure the *containment of filter feeding aquaculture to the pelagic effects standard as prescribed by paragraph 2.2 of the Aquaculture Stewardship Council ASC Bivalve Standard version 1.1 March 2019*.

10.14 *Policy 13.22.2*

10.14.1 This policy requires the removal of structures upon the cessation of activity. This policy should extend to a forfeiture of consent rights where activity is abandoned for 5 years or more.

10.15 *Policy 13.22.3*

10.15.1 This policy is about adaptive management for new marine farms. We support the adoption of a precautionary approach for new farms. However, the threshold for movement in paragraph (c) should be *no more than minor effects*, not significant effects.

10.15.2 We take the opportunity highlight the contradiction that this Policy raises within V1. It, quite rightly, prescribes a precautionary approach for the addition of one new marine farm activity. However, at the same time V1 is facilitating the renewal of all existing activity as a controlled activity when it is in the same field and is facing the same uncertainty and potentially significant adverse effects.

10.16 *Policy 13.22.4*

10.16.1 This policy is about rendering aquaculture an inappropriate activity (prohibited) outside of AMAs. We support this policy.

10.17 *Policy 13.22.5*

10.17.1 This policy is about review conditions. We make the following submissions with regard to this policy:

i) There is no need for reference CMUs in this policy. CMU's are not relevant parameters to ecological effect assessments.
ii) The threshold for a response in paragraph (b) should be more than minor effects, not significant effects.
iii) Assuming the ASC Standard pelagic effect standard is, as we submit, adopted as a cumulative effect tool, then there should be a clause added requiring a review toward the adoption of better models or measurement systems for water column effects if and when they become available.
iv) It would be remiss to not note in the commentary that long term monitoring and data collection are unlikely, of themselves, to assist with the meaningful determination of the effects of existing farming[41].

[41] For example, see para 2 on page 40 of the NB Report "*if the site already contains farms and has never been monitored before the farms were introduced, it will not be*

10.18 *Policy 13.22.6*

10.18.1 This policy is about managing debris and litter from marine farms. Our focus here is plastic discharges from marine farm activities.

10.18.2 From time to time Association members have raised concerns about the issue of significant plastic discharges from marine farm operations into the marine space and visibly polluting the foreshore. In addition to the ubiquitous mussel buoy there is also a constant stream of synthetic plastic based rope of varying size (length and filament). That material is commonly a direct result of the manner/technique of harvesting methods used by marine farmers and also more from "accidental" discharge as ropes fray etc. Bare in mind we have thousands of hectares of marine farm - each a potential source. However despite this level of concern the Association had not until recently focussed on this significant adverse effect.

10.18.3 What changed? At the head of Clova Bay there is a designated Ecologically Significant Marine Area (ESMA 3.14). As a result of recent excellent resident citizen science research the issue of plastic rubbish illegally discharged from Clova Bay based marine farms and thereby fouling and significantly degrading ESMA 3.14 has come to prominence. The issue was quantified by carrying out a systematic survey of the plastic debris and collating the results by quantity and source. Accompanying this submission is a report entitled *Shelly King – Records and Summaries of Beach Clean Data, Clova Bay 2020*. This gives the initial results of that research. It records the collection of **15,358** items of synthetic rubbish from around the ecologically significant head of Clova Bay over a 6 month period, **almost 60%** of which is irrefutably from aquaculture. This *excludes* 255kg of small pieces of mussel farm plastic and other litter plus 17 mussel buoys that were removed in a coordinated beach clean on one day in July 2020.

10.18.4 As can be seen unconsented plastic discharges from marine farm operations are by far and away the main culprit. For further information members of the hearing panel could also visit this link;

https://www.instagram.com/thefrayedknotproject/

10.18.5 It is most unfortunate, we submit, that the significant adverse cumulative impacts on the environment on a supposedly protected area like the ESMA 3.14 from a plastic intensive operation like marine farming has been seemingly overlooked by Council to date.

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possible to use the newly-acquired simple monitoring data alone to determine whether the existing farms are having a meaningful effect."

10.18.6 The Association decided direct action was needed and formally raised the matter with the Compliance section of Council. As it transpired this issue was all news to them and at writing are looking into the matter.

10.18.7 Accordingly, the Association is most disappointed to see that whilst the policy section of Council is clearly aware of the issue (we note the feed back from Te Atiawa at page 26 of the section 32 report) they have seen fit not to take a leadership role via V1.

10.18.8 This we submit is long overdue and could easily be done now. For example, by creating a policy and associated rules in V1 to outline a pathway to stop/replace the use of synthetic material with an associated time line to stop this significant adverse effect. Instead Council policy appears to basically shrug their shoulders at the issue and place it in the too hard basket. The bottom line is that this pollution is significant and it has to stop.

10.18.9 Council concede they have not discussed the matter with industry to see what, if any, longer term solutions the industry is working on and give a guiding hand/incentive to urgently progress any such research /work. Where is the ethical stewardship expected of an authority such as Council in this approach? Instead, the approach seems to be to place reliance on some vague policies like Policy 13.22.7.

10.18.10 We submit that this is not good enough and clearly in breach of the likes of section 7 of the RMA and various policies under the NZCPS. We urge the policy section to develop some policy for insertion into V1 as a matter of urgency. We would be happy to assist.

10.18.11 Just to be clear, it is suggested by the industry (and indirectly by policy 13.22.17) that the unconsented discharge of plastic material from marine farming operations can be mitigated by management practices or clean ups. However, the beaches and shores of the Sounds (and Clova Bay is no exception) are often littered with mussel buoys and literally countless bits of rope and other marine farm related discharges (Refer to the Shelly King Report appended). The much industry vaunted clean up efforts are clearly patchy and sporadic at best. Clova Bay, for example, has been clearly ignored. Given the increasing amount of fine filament material we wonder if clean-ups are actually feasible?

10.18.12 Further, the problem seems to be getting worse as poor management practices (such as the clumping of unused mussel buoys at mussel farm sites) are adopted by operators. The Association submits the scale of the problem has got beyond the industries approach to be workable. We need, it is submitted, to stop the problem at source – move away from this use of synthetic material.

10.18.13 In addition to the physical presence of this discharge there is the serious issue of the adverse effects of fine filament plastics released by

the proposed activity polluting the marine ecosystem. By way of example, we note that the ingestion of marine litter, particularly plastics (petroleum derived), is all too common among seabirds and can cause death by dehydration, blockage of the digestive tract, or toxins released in the intestines.

10.18.14 We submit this is not good enough and clearly in breach of the likes of section 7 of the RMA and various policies under the NZCPS. We urge the Council policy section to develop some policy for insertion into V1 as a matter of urgency. We would be prepared to assist.

10.18.15 At the hearing we will wish to advance this serious issue further. In the interim we strongly suggest the Council Policy section sit down and have a long overdue discussion on the issue with the Council compliance section.

10.19 *Policy 13.22.7*

10.19.1 This policy is about the layout, positioning, design and operation of marine farms and associated structures.

10.19.2 We support most of the standards imposed but make the following submissions:

i) There is requirement to have a gap of at least 50m *between farms* to allow for public access to the foreshore. There should also be gap of at least 50m wide *through a farm* for every 200m of surface structure. This is because some farms are over a kilometre long and as such there is a need to ensure that there are appropriate breaks in structures within farms to facilitate public coastal access.
ii) There should be more objective standards set to control amenity impacts, such as a prohibition on night vessel activity (light or noise) in at least moderately populated areas such as the Kenepuru Sound or the Beatrix Basin.

10.20 *Policy 13.22.8 – Change of Layout*

10.20.1 This policy stands to facilitate a “spreading” of lines beyond the standard of 15m-20m specified in Policy 13.22.7. It seeks to control the effects by limiting its application to situations where such spreading will not impact on outstanding natural landscape values and will not have a significant adverse effect on natural and human use values.

10.20.2 Paragraph (ii) is inadequate on a number of fronts. Firstly, it sets an effects threshold of *significant* when it should be no more than minor. Secondly, it looks to assess impacts from a CMU perspective. As noted effects should be assessed from a perspective that is relevant to the effect. As such, the reference to CMUs should be deleted. Thirdly, it over-looks situations where the area may already be suffering from cumulatively significant natural character or natural landscape effects –

in which case any further effect at all would not be appropriate. As such, a third paragraph should be added as follows:

(new paragraph iii) Natural character or natural landscape values are not already, or will not become as a result of the spreading, significantly adversely effected by development.

10.20.3 We do not see any need for the paragraph (iii) as is proposed by V1 (i.e. the spreading has positive effect on natural and human use values). Firstly, it is difficult to conceive of when the spreading of lines further apart might actually be of any positive amenity value. Secondly, Paragraphs (i), (ii) and (new paragraph iii above), against the V1 paragraph (iii), appear to be mutually exclusive. If a spreading proposal *does* have positive amenity effects then paragraphs (i) to (new paragraph iii above) won't be triggered – as these paragraphs each require adverse effects. Thus paragraph (iii) as proposed by V1 should be deleted.

10.20.4 Paragraph (c) facilitates more intensive marine farming with an increase in total area occupied by farm structures providing only that the monitoring and assessment carried out with Policy 13.22.1 shows that additional marine farming activities can be undertaken. For the reasons already given Policy 13.22.1 does *not* address cumulative effects at all. Moreover, there are significantly more potential adverse effects from having more area occupied by structures and longer lines than just cumulative ecological effects.

10.20.5 As such, we submit that any application for more area or more intensive marine farming within an AMA must meet the criteria as outlined in our proposed new policy 13.21.3.1, with the threshold test with regard to issues identified in Issue 13O being *no more than minor*. Security of structures is another issue that should be accommodated – longer lines within a consented site will generally only be achievable by effecting more acutely angled anchor lines - and this increases the fragility of the structures and brings accordant risks to the public and the environment.

10.20.6 As an aside, we take "area occupied" to be a reference to surface area, as any change to consented area itself would require a new resource consent. However, it may be worth being more specific in the provisions when referencing 'area' or 'area occupied'.

10.20.7 In our view it is inappropriate for the commentary to this policy to state that the effects of changing the layout of structures for an established farm 'will be only minor' and these comments should be deleted. This policy goes much further than that and stands to facilitate potentially significant adverse effects, not only cumulative ecological, natural character or landscape effects, but also with site specific effects such as navigation, public access and safety, recreational use and visual amenity.

10.21 *Policy 13.22.9*

10.21.1 This policy is about enabling changes of species that can be farmed. The issue we have with this policy is that it is possible that a new species to be farmed will have a higher filtration rate or other demand on the water

column (or benthic environment) than the species that are currently consented and accounted for in cumulative effect thresholds.

10.21.2 As such, we submit that there needs to be a further standard added to this enabling policy to the effect that the new species must have the same or lesser demand on primary production (i.e. base community structure such as phytoplankton or zooplankton) than the currently consented species, and must also have the same or lesser depositional impact on the benthic environment.

10.22 *Method 13.M.37 – Monitoring Programme*

10.22.1 This Monitoring programme method reflects the deficiencies in the ecologically focused policies. There is no threshold of acceptable change to water column qualities identified at all, there is no method for identifying the degree of change to water column qualities, and there is no indication of how beginning to collect data on Chlorophyll-a, particulate carbon and particulate nitrogen now is going to answer these questions in the future. As we have submitted, monitoring these elements from now on is not going to offer any meaningful contribution to the determination of the effects of the existing aquaculture activity[42].

10.22.2 A more pragmatic and appropriate Method would be that as recommended in the NB Report as "***larger scale field manipulations***"[43]. The issues identified by the NB Report with farmer resistance with this method would not exist if, as we have submitted, an at risk area(s) is/are necessarily farmed down to an acceptable level under the pelagic effects ASC Standard. This will afford an ideal opportunity to undertake the recommended field work and to empirically measure the degree of community change that occurs with the changing intensity of cultured bi-valve activity.

10.23 *Method 13.M.39 – Allocation Guide*

10.23.1 We refer to our submission points on Policy 13.21.7. In short, this allocation procedure is unduly feeding a perception of water space ownership or rights that do not exist. In our view Council owes it to the wider public to take more ownership of the Sounds water space and to not appease misconceptions of entitlement held by existing consent holders.

10.23.2 As we have indicated in our submission on 13.21.7, we submit that Council needs to allocate the first round of consent rights by discretion and adopt more of a take it or leave it approach to the allocation decisions it makes.

10.24 *Anticipated Environmental Results*

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[42] For example, see para 2 on page 40 of the NB Report "*if the site already contains farms and has never been monitored before the farms were introduced, it will not be possible to use the newly-acquired simple monitoring data alone to determine whether the existing farms are having a meaningful effect*."

[43] See paragraph 4.1.2

10.24.1 We submit that the anticipated environmental results table should reflect an AER and/or Monitoring Effectiveness should encompass *not exceeding the standards for benthic or pelagic effects as specified in the Aquaculture Stewardship Council ASC Bivalve Standard Version 1.1*

10.25 *Controlled Activities*

10.25.1 At a fundamental level we submit that controlled activity status and non-notification determinations are inappropriate for aquaculture activities in the Marlborough Sounds. Controlled activities cannot be declined and as such are inappropriate when dealing with an exploitive activity in highly valued public domain. This mistake was made with the MSRMP and should not be repeated again. It is wrong because, as time has shown, the public are more effective guardians of the Sounds than Council has been and, more significantly, it is wrong to purport to determine now, in an environment of rapid change on all sides, what is going to be appropriate development in the future.

10.25.2 This activity status undoubtedly derives from the erroneous Issue 13N – its only function being to meet an impossible desire to put water-space security above core RMA environmentally focused standards and democratic processes.

10.25.3 As already noted, in our view the only issue that is actually open for discussion at a resource management level is *consenting efficacy*, not water space security.

10.25.4 As such, we submit that there are no grounds made for the adoption of controlled activity status for any Sounds aquaculture activity and neither are there any grounds made for the non-notification of consent applications for aquaculture activities within the Sounds[44].

10.25.5 We submit that a rapidly changing environment and public demands and values means that consenting for aquaculture within AMAs in the Sounds should be, *at the least*, limited discretionary. Moreover, all consent applications for aquaculture in the Sounds should be notified unless it is dictated by the NES that they should not be notified.

10.25.6 It might be suggested that the scheme of V1 is to determine settings up front once at the plan level for the benefit of certainty for all. This does not address the need to facilitate changing aquacultural and public values in the meantime – there is likely to be some quite significant changes in both sets of values in the Sounds over the next 20 years. Moreover, it overlooks that there is no policy or mechanism to prevent consents from being renewed under these enabling provisions in advance of future plan reviews. As V1 stands it will thus likely effect a lock-out of public value and environmental considerations for at least two consent terms – i.e. 40 years. This cannot be allowed to happen. In this regard we submit that there must, at the least, be an explicit policy adopted of either restricting consent terms or restricting the issue of future

[44] We note that similar proposals for controlled activity status for aquaculture were recommended to government by the Sir Doug Kidd led Aquaculture Advisory Ministerial Panel in 2010 in the lead up to the 2011 RMA aquaculture provision reforms. This recommendation was declined by the government.

authorisations where the term of a prospective consent is likely to transgress a future plan review.

10.25.7 *Rule 16.4.3* effects controlled activity and non-notification status for consents that are ostensibly replacing an earlier consented activity - but it can be for a completely new farm in a completely new area – so long as it is representing a degree of activity that is already being undertaken somewhere in the Sounds. The NES does not necessarily apply to these activities. Moving activities around the Sounds, albeit within AMAs that have been through a plan change process, is still fraught with unforeseen mico-issues – such as effects with navigation, coastal access, ecological matters and recreation. As such, we submit that such applications should be, at the least, limited discretionary with notification as it will inevitably be a complete relocation or a significant relocation.

10.25.8 We also submit that there is no provision to control structures to effect public access to the coast – this necessary to ensure that there are 50m wide access lanes through the farm to the shore if lines in a farm exceed 200m in length. There should also be discretion over the use of synthetic structures, such as plastic ties and structure rope, and over operation times to protect amenity and to avoid noise at inappropriate times.

10.25.9 *Rule 16.4.4* applies to replacement consents for the same area in an ASA. The activity status should be limited discretionary. We also submit that there should be provision to control structures to effect public access to the coast – this necessary to ensure that there is 50m wide access lanes to the shore if lines in a farm exceed 200m in length. There should also be controls over the use of synthetic structures, such as plastic ties and structure rope, and over operation times to protect amenity and to avoid noise at inappropriate times.

10.25.10 *Rule 16.4.5* applies to replacement consent within an AMA. This should be limited discretionary. We also submit that there should be discretion over structures to effect public access to the coast – this necessary to ensure that there is 50m wide access lanes to the shore if lines in a farm exceed 200m in length. There should also be discretion or controls over the use of synthetic structures, such as plastic ties and structure rope, and over operation times to protect amenity and to avoid noise at inappropriate times. There should also be discretion or controls over genetic and biosecurity issues and also to manage farming density or intensity if required because new species bring different filtration rates or different benthic deposition capacity.

10.26 *Restricted Discretionary Activities*

10.26.1 *Rule 16.5.2* applies to qualify new farms in an ASA as limited discretionary. We submit that these applications should be notified with discretion specifically reserved in full to manage cumulative effects on natural character or natural landscape values and to manage the attainment of ASC Standard pelagic and benthic standards. Discretion should also be specifically reserved over structures to effect public access to the coast – this necessary to ensure that there is at least 50m wide access lanes through to the shore if lines in a farm exceed 200m in length. There should also be discretion over the use of synthetic

structures, such as plastic ties and structure rope, and over operation times to protect amenity and to avoid noise at inappropriate times.

10.26.2 *Rule 16.5.3* applies to qualify a new farm in an AMA as limited discretionary. We make the same submission for this policy as we do for Policy 16.5.2 above.

10.26.3 *Rule 16.5.4* applies to an qualify an extension of surface area of an existing farm within an AMA as limited discretionary. We submit that these applications should be notified with discretion specifically reserved in full to manage cumulative effects on natural character or natural landscape values and to manage the attainment of ASC Standard pelagic and benthic standards. Discretion should also be specifically reserved over structures to effect public access to the coast – this necessary to ensure that there is at least 50m wide access lanes to the shore if lines in a farm exceed 200m in length. There should also be discretion over the use of synthetic structures, such as plastic ties and structure rope, and over operation times to protect amenity and to avoid noise at inappropriate times.

10.27 *Discretionary Activities*

10.27.1 *Rule 16.6.14* - We agree that residual "within AMA" activities should be discretionary.

10.27.2 *Rule 16.6.15* – No consideration has been given to the potential risks of the discharge of feed or medicinal or therapeutic compounds associated with conventional long line bi-valve filter feeder farming. This is pertinent given the activity covers such a potentially wide area. We submit that this should thus be a prohibited activity unless and until there has been comprehensive study undertaken of the potential environmental risks of such a wide reaching practice.

10.28 *Prohibited Activities*

10.28.1 Rule *16.7.9* – we agree that marine farming should be a prohibited activity outside of an AMA.

10.29 *Occupation and Allocation of Coastal Space*

10.29.1 *Rule 16.8* – we agree with a rule that applications cannot be made without authorisations.

10.29.2 *Rule 16.8.1* – we agree with Council suspending the receipt of applications and effecting the ability to process and hear together applications in common area.

10.29.3 *Rule 16.8.2* – we refer to our submissions on Policy 13.21.7 and submit that Rule 16.8.2 should be amended to follow those submission points, including with regard to allocations being publicly tendered from the second AMA consent term and beyond, that allocations should also only be made if and to the extent that marine farming activity is and will be in accordance with the pelagic and benthic effect standards of the ASC Standard. Council must also reserve discretion to allocate first term

AMA authorisations by tender if and to the extent that the procedure proposed of allocating first term consents to existing consent holders becomes too impractical or inefficient to implement.

10.30 *Consequential Changes to Other PMEP Provisions*

10.30.1 *Policy 13.2.3* – We agree that marine farm lapse periods should be 3 years.

10.31 *Policy 13.20.2*

10.31.1 We disagree with a grandparenting allocation mechanism after the first term of AMA consents. Facilitating perpetual use entitlements is inequitable and inefficient. All AMA consents should be tendered after the first AMA consent term.

11. Mapping Overlays

11.1 For the reasons given above we submit that the extent and location of CMU's and AMAs has not been appropriately determined and as such the CMUs and AMAs as depicted in the proposed overlay maps do not represent appropriate CMUs or AMAs.

Yours Sincerely

Andrew Caddie

President
Kenepuru and Central Sounds Residents' Association

APPENDIX 1

Historical Consenting Errors with Cumulative Effects

The Beatrix Bay/Clova Bay/Crail Bay complex (the 'Beatrix Basin') epitomises an historical disregard for cumulative effects in consenting decisions.

Site 8557 in Clova Bay was extended out to around 330m from shore in November 1999. The only real consenting analysis given for this was that the Bay "*already had some marine farms in it*". A large extension to close-by Site 8555 was then approved in the year 2000, taking the farm out to close to 400m from shore. This approval was rationalised by the Council hearing panel on the basis that the area was a 'working environment'[45], that it would align the farm with the newly extended close-by Site 8557, and that it would validate existing structures (that were presumably unconsented). Shortly after Site 8556 (in between sites 8557 and 8555) was approved to go out to around 320m from shore – unsurprisingly, the main reason given for this being that the farms on either side of it had been extended out.

This particular historical consenting fiasco saw the amount of marine farming undertaken by these three contiguous marine farms *more than double* from around 15ha to around 32ha – with each consent primarily rationalised by the existence of the others. Perhaps unsurprisingly, this particular area now shows as one of the most over-farmed areas in the Inner Sounds under cumulative ecological effect models such as the ASC Pelagic Effect standard and the NIWA Biophysical Model.

As the notion of cumulative effects began to be accepted it seems hearing authorities eased over to a somewhat nebulous position of acknowledging the notion but determining that they could not have regard to them. An example of this can be seen in the June 2008 decision on U061298. Here the Hearing Panel, in response to claims of inappropriate cumulative effects, passed the issue off on the basis it had "*no jurisdiction to consider the general appropriateness of marine farming activity in Clova Bay*".

This approach then seems to have prevailed - for example see the 2009 decision in U090242. Here the specific raising of cumulative effect issues was met with a response from the hearing panel that it actually had to ignore them: "*The Committee's jurisdiction in this case extends solely to the extension area that is the subject of this application*."

This consenting philosophy is, in our view, clearly technically incorrect and it has since been widely accepted that "effects" to have regard to include "cumulative effects"[46]. Ignoring cumulative effects renders areas sacrificial to limitless incremental development.

Unfortunately, until then this inappropriate consenting approach had prevailed at a broad scale – effectively appeasing decades of applications for more and more marine farm additions and extensions. In our view this is one of the main

[45] At the time this was a common justification made for adding more resource consents. However, there is no such notion in the statutory framework and adopting this logic simply defied the recognition of cumulative effects and inherently rendered bays as sacrificial once they had farms in them.

[46] For example, see paragraph 233 in *RJ Davidson Family Trust* v *Marlborough District Council* (ENV-2014-CHC-34)

reasons why there is currently an over-allocation of space to aquaculture activity within the Sounds.

APPENDIX 2

Cumulative Effects and the Resource Management (National Environmental Standards for Marine Aquaculture) Regulations 2020

The following are some examples of where, in the *Report and recommendations on the submissions and the subject matter of the proposed National Environmental Standard for Marine Aquaculture June 2020* (NES 46A Report) it is made clear that the NES contemplates cumulative effects being dealt with through the plan change process:

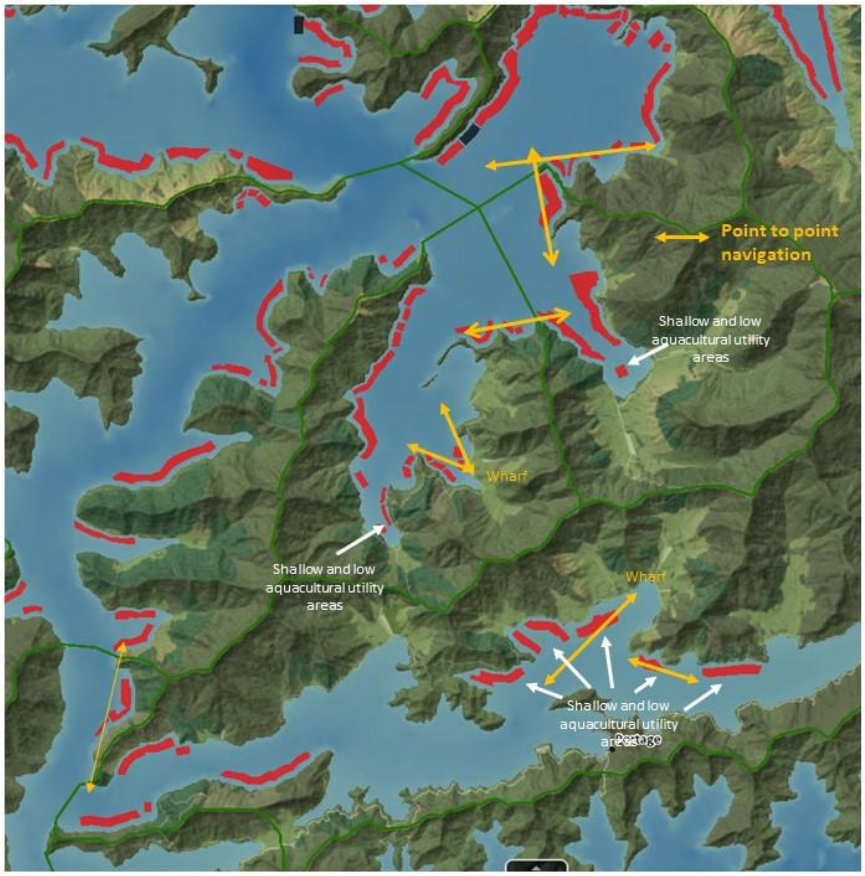
- *"A key principle of the NES is that public engagement on, and decisions about, whether existing aquaculture is appropriate or inappropriate should be made strategically and up front during the plan-making process, in accordance with Policies 7 and 8 of the NZCPS 2010"*[47]
- *"Effects on water quality are best addressed, if necessary, through the plan development stage rather than on a consent by consent basis"*[48]
- *"..the likelihood of existing marine farms having significant adverse effects on areas of natural character, natural features, and natural landscapes is low. That is particularly so where, as is often the case, the existing marine farm is one of a group of marine farms each with a different consent expiry so that at any one time the "existing environment" always contains one or more existing marine farms.*[49] The inference given here is that that the cumulative effects of existing activity in terms of NZCPS 13(1)b and 15b are best dealt with at the plan development stage.
- *"Policy 14* (Restoration) *therefore appears to best be addressed, in the context of existing aquaculture, through strategic planning during the plan development stage, rather than on a consent-by-consent basis*[50]
- NZCPS 11 Indigenous Biodiversity 11(b) – "*These issues are either addressed through the matters of discretion proposed (if site specific issues) or are best addressed at the plan development stage (if broader scale issues.)*[51]
- NZCPS 11 – Indigenous Biodiversity – "*With regard to indigenous biodiversity not being well understood.....where there is uncertainty or a lack of information re indigenous biodiversity, it is appropriate that the precautionary principle is adopted.*[52]

[47] Paragraph 4.1.3.3 on page 17 of the NES 46A Report
[48] See Water Quality row on Page 29 NES 46A Report
[49] Page 43 and 44 NES 46A Report
[50] Page 44 NES 46A Report
[51] Page 51 NES 46A Report
[52] Paragraph 4.4.3.1 and Footnote 98 on Page 49 NES 46A Report

APPENDIX 3

ANNOTATED AMA MAP

Indicative Point to Point Navigation Issues and Low Aquacultural Value AMA Areas



APPENDIX 4

Section 32 Report
Councils Position on Cumulative Ecological Effects

1. The NB Report

1.1 The recent NB Report is referred to in several places in the section 32 Report with particular reference to a time series study[53] - the inference apparently taken by Council is that this suggests that cultured mussel levels might not be inappropriately affecting phytoplankton abundance. This study reports finding no evidence of a correlation between chlorophyll anomalies over time (a proxy used for phytoplankton abundance) and the expansion of the marine farming activity over that time.

1.2 This relied, at least partly, on shrinking phytoplankton stocks in the Sounds being correlated with nationally shrinking phytoplankton biomass, and not with increasing mussel farm intensity. We refer to the Dr Mead Report, page 7 in this regard:

> "*The decline of chlorophyll concentrations around much of New Zealand's coastline over the past 20– 30 years has previously been linked to New Zealand's intensification of dairy farming and the associated poor management of the associated land-use impacts (Pinkerton and Gall, 2015), and is in no way associated with the decline in the Marlborough Sounds, where land-use practises have been improving over the same time period, as evident from the increasing depth of siechi disk visibly (i.e. the waters of the Sounds have gotten clearer over the past 3 decades).*"

1.3 In any event the NB Report time series does not actually offer any insight into whether or not the growing mass of cultured bi-valves have been inappropriately effecting the indigenous ecosystem[54]. If there *was* a cultured bi-valve driven change in the absolute mass or density of phytoplankton availability then, in theory, it would signal that the point had been reached whereat the bi-valve demands for phytoplankton were greater than what the ecosystem could manifest. This is commonly referred to as a *production carrying capacity*.

1.4 Pelagic cumulative effects are actually about the *ecological carrying capacity*. This is about the *share* of the natural energy sources of the ecosystem that cultured bi-valves can take out without disrupting the indigenous ecosystem to an unacceptable degree. This cannot be determined by looking at the absolute level of phytoplankton in the

[53] For example, see page 63.

[54] See accompanying Dr S Mead report, page 6 "*However, it is important to note that the recent report that considers "Measuring mussel farming effects on plankton in the Marlborough Sounds" (Newcombe and Broekhuizen, 2020) should not be considered in any way an assessment of carrying capacity, ecological or production, in the Marlborough Sounds; neither is referred to in the text, the report is directed at changes to plankton*."

ecosystem, or looking at how much the absolute level of phytoplankton in the ecosystem has changed over time.

1.5 The share of energy that can be taken from the system by cultured bi-valves has been defined more particularly as the level of cultured mussel activity that can be carried within the system without *significantly changing the major energy fluxes or structure of the food web*. This has been *estimated* at around 20% of the production capacity of the bay – i.e. at around 20% of the level of cultured activity that *would* see a reduction in the absolute mass of phytoplankton[55].

1.6 This is best illustrated by way of a simple analogy. An African plain of natural perennial grasses is grazed at various times by passing wild stock, such as zebra, wildebeest and impala. A farmer introduces cattle onto the plain who compete with the passing wild animals for the natural grasses. The amount of natural grass produced by the plain of course remains constant so the more cattle that are moved onto the plain the more roaming wild animals that need to go elsewhere for their food. Eventually so many cattle are put on the plain that they consume all of the grass as fast as it grows. This is the production capacity. Until that point there is a constantly replenishing full stock of grasses. But by that point all of the wild animals have been displaced. There has been no reduction in the absolute amount of natural grasses produced by the system but there has been a draconian effect on the indigenous food chain.

1.7 It is the essentially the same equation with the marine environment. Because phytoplankton is constantly manifesting then the point at which cultured mussels actually reduce its absolute abundance is effectively the point that mussels are consuming it faster than the system can manifest it. This is well beyond anything that is acceptable from an ecological perspective – although there are empirical studies suggesting that this point is now being reached at times in the Beatrix Basin[56].

2. Restoration of Function of Historic Shellfish Beds

2.1 Council also refer to the possibility that cultured mussel farming might be providing an ecosystem service by way of effectively replicating historic mussel beds.[57] This may derive from a recent report commissioned by the Marine Farming Association Inc (Ecosystem Services Report)[58].

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[55] *Predicting the carrying capacity of bivalve shellfish culture using a steady, linear food web model* Weimin Jiang, Mark T. Gibbs, Cawthron Institute, Aquaculture 244 (2005) 171-185.

[56] For example, J. R. Zeldis et all showed in their 2008 study *ENSO and riverine control of nutrient loading, phytoplankton biomass and mussel aquaculture yield in Pelorus Sound, New Zealand* that oceanic and riverine driven nitrogen and seston biomass supply was behind an inter-annual variation in mussel yield. This indicates that cultured bi-valves were pushing the area to its *full production capacity* when the natural levels of nitrogen and seston biomass were low.

[57] See page 62 Section 32 Report

[58] *Provision of ecological and ecosystem services by mussel farming in the Marlborough Sounds* Jeanie Stenton-Dozey, Niall Broekhuizen, NIWA Report 2019020CH February 2019.

2.2 The “replication” proposition postulated in the Ecosystem Services Report is based on an assumption that an *upper* estimate of 2,000 ha of historical mussel beds (Handley 2015) actually existed. However, subsequent coring studies found that nothing like this has actually existed[59].

2.3 There is thus virtually no possibility at all that anything like the degree of bi-valve activity that is currently being cultured in the Beatrix Basin has naturally existed historically.

2.4 The Ecosystem Services Report also does not attempt to create an historical replication for some of the more extreme effects of the existing degree of cultured activity, such as zooplankton depletion or plastic pollution.

2.5 As reported by Dr Mead[60], an ecosystem services model is aspirational but at this point that is where its relevance ends.

3. The Relevance of Other Stressors

3.1 Council also appears to postulate that Marine farming is only one contributor among other stressors on the coastal marine environment, including excess sedimentation, sea floor disturbance, biosecurity incursions and fishing pressure[61].

3.2 We are not sure of the relevance of this. Firstly, it is not plausible to suggest that the effects of sedimentation, sea floor disturbance, biosecurity incursions and fishing pressure somehow negate the adverse effects of cultured bi-valve farming. It would seem to follow that the existence of these other stressors should, if anything, render us even more inclined to properly manage the stressors that we can – such as the adverse effects on the system of aquaculture.

3.3 Secondly, whilst there is a need to isolate the effects of one stressor from another stressor modern assessment tools, such as the NIWA Biophysical Model and the ASC Standard, are specifically tailored to identify *only* the adverse effects of aquaculture activity.

4 Baselines

4.1 Council also suggests that the baseline condition of the coastal marine area and the cumulative effects from past and existing activities (including land-based activities) are not well known and that there are important knowledge gaps including natural versus human nutrient inputs, the impact of waste products from multiple marine farms, and the combination of effects from marine farming, land-based pollution, and fishing.[62].

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[59] See Handley, Gibbs et al. 2017 - A 1,000 year history of seabed change in Pelorus Sound/Te Hoiere, Marlborough
[60] See Page 9
[61] See page 62 Section 32 Report
[62] See page 62 Section 32 Report

4.2 This seems to suggest that historical anthropogenic modification of the environment affects what is an acceptable level of aquaculture effect today. We are not sure that this is correct. In our view what is most relevant is the degree of effect of an *existing aquaculture activity today* on the *existing indigenous environment as it stands today*. This is what both the ASC Standard and the NIWA Biophysical Model address.

5 TAG Advice to the ARWG re ASC Standard

5.1 ASC Standard

5.1.1 With regard to the ASC Standard, Council refers to minutes of an ARWG meeting in July 2018 and states that "*The TAG decided that due to the minimal available long term data on the natural parameters for the area, a greater level of scientific certainty should be present before any trigger thresholds are determined using this method*."[63]

5.1.2 The reference to the minimal available long term data on natural parameters is, we presume, a reference to the base qualities of the water column that V1 proposes to monitor going forward, being chlorophyll-a, particulate nitrogen and particulate carbon.

5.1.3 The (perceived) issue behind this apparent need for long term data appears to be the fact that there is large year to year natural variation in these variables and that as such it will be difficult to isolate changes in them caused by aquaculture. As noted above, this concern confuses changes in the absolute natural or "production" capacity of the system with the "relative depletion" of the aquaculture that sits within the system. The relevance of the natural variability of these properties is limited to demonstrating that, *at some times*, there will be more base elements naturally generated by the system than at others – and that, accordingly, *at some times* the effect of aquaculture on the ecosystem will be less than at others. The natural ecosystem will be less affected by the presence of cultured bi-valve activity when the natural system is peaking and these base elements are at their positive extreme. However, the ASC Standard is designed to ensure that the natural ecosystem is not adversely effected by the presence of excess bi-valve culturing over the balance of time – over those wider periods of time when natural primary production is running at average or below average primary production.

5.1.4 The ASC Standard is thus very clear as to the appropriate management response when the pelagic standard is exceeded – a reduction in farming intensity is needed to achieve certification[64]. A need for more data on natural variability seems to be misplaced. Moreover, and as already noted, monitoring these qualities going forward is not actually going to help with any meaningful determination of the effects of the existing aquaculture on these qualities.

5.1.5 We understand that the advice of TAG was also to the effect that, in the absence of sufficiently long time series, the ASC Pelagic Effects criterion does provide a useful 'triage tool' (if run at a scale informed by biophysical science). A 'triage tool' is described by TAG as an 'orange

[63] See page 36 Section 32 Report
[64] See Page 31 ASC Standard

flag' demanding more detailed modelling or a management response. Our understanding is that this advice is given in the context of a perceived need to *definitively determine* the effects of existing aquaculture[65]. This is an inappropriate threshold to meet in the face of unknown but potentially significant adverse effects. In our view the TAG advice indicates that the ASC Standard is an appropriate precautionary measure.

5.1.6 In our view Council is therefore wrong with its perceived need to monitor before applying the ASC Standard and/or is erroneously applying a standard of definitively determined effects before acting with precaution.

5.1.7 One of the areas of practical concern raised with the ASC Standard is nonetheless the divergent positions on appropriate 'inputs' that the ASC Calculation requires[66]. In particular, the water filtration rate of adult mussels, the number of adult mussels per meter of dropper line, and the area and volume of water bodies that are influenced by the respective mussel farms.

5.1.8 The computer model we have commissioned largely addresses these issues. It applies mussel numbers per dropper line, dropper lines per hectare of farm, and filtration rates that are relatively consistent with those adopted by the Marine Farming Association in the *Ecosystem Services Report*. It applies water currents derived from the NIWA Hydrodynamic Model, and average depths and volumes of water derived from bathometric charts. The model also addresses concerns raised around the ASC Standard needing to be focused at a biophysically appropriate level - the computer model undertakes multiple and full ASC Calculations at a 3 hectare cellular level. This provides a *significantly* more accurate application of the ASC Standard than the blunt CMU wide level spreadsheet calculations that we understand were reviewed by TAG for the ARWG[67].

5.1.9 The inputs of the computer model can also be easily and instantly changed to accommodate and compare any residual differences arising with alternative input positions. This, in our view, renders the ASC Standard an efficient and effective tool upon which a precautionary approach can be based. We have indicated in Appendix 6 an adjustment to AMA's in the Beatrix Basin to facilitate bi-valve farming at the levels prescribed as safe by the ASC Standard pelagic effects standard.

[65] We understand that advice given by TAG in July 2017 effectively affirmed that it was recommending further work before acting on the ASC Standard so as to *definitively characterise* the water column effects of bivalve farming.
[66] See page 56 of the Section 32 Report
[67] A NIWA review of these blunt spreadsheet calculations indicated that the Clova Bay area is farmed significantly beyond the ASC Standard under all permutations of input assumptions undertaken.

APPENDIX 5

Background to Aquaculture Activity at Site 8553 – Clova Bay

Taken From Statement from Trevor Gary Offen
Application File U140566
Hearing Blenheim, 16 December 2016

1. Background

1.1 The general background of this site is as outlined in our personal submission[68] and in the recent High Court judgement in relation to this Site[69]. I summarise and elaborate on some fey factors as follows:

a. The original 1994 application was strongly denied by the Marlborough District Council ('MDC') on navigational and amenity grounds[70].

b. The application was appealed by the Marine Farming Association ('MFA') to the Planning Tribunal. This was done jointly with a second application for another spat catching site that MFA had also applied for at the same time and that was also in the head of Clova Bay (U941090). This second site had been approved by MDC for 35 years but for emergency use purposes only[71]. This required that the MFA's other spat catching site at the mouth of Clova Bay (in the CMZ 2) was at full capacity and that Kaitaia spat was not available.

c. Subsequent negotiations saw the second site relinquished and this subject Site 8553 consented for a 20 year term on a seasonal use basis[72]. Records were to be kept and provided each year on actual use[73]. There were also real concerns held over benthic littering because of a common practice of cutting plastic mesh weight bags, ropes, trimmings and ties off spat lines as they were placed and retrieved from the water. As result there were also strict littering conditions imposed including a requirement that MFA remove and dispose of all farm debris from the area at any time as directed by MDC and that in any event the sea bed beneath the farm was to be restored to its original pre-farm state at the end of each season – i.e. in August each year[74].

d. Subsequent to this the head of Clova Bay was zoned a Coastal Marine Zone 1 (CMZ1). This was because the area was identified as being somewhere where marine farming will have a *significant adverse effect* on navigational safety, recreational opportunities, natural character, ecological systems, or cultural, residential or amenity

[68] See page 131 of the Hearing Package
[69] See paragraphs 2 to 6 on pages 96 and 97 of the Hearing Package
[70] Pages 87-88 of the Hearing Package
[71] Page 89 of the Hearing Package - condition 11 of U941090
[72] 15 January to 31 July each year.
[73] 1995 Consent Order - condition (q) at page 84 of the Hearing Package
[74] Conditions (l), (m) and (n) of the 1995 Consent Order – page 83 of the Hearing Package.

values[75]. However, the marine farm at Site 8553 was also subsequently designated a controlled activity (if certain tests are met) by virtue of a pre-1996 marine farm 'grandfathering' rule[76].

e. Thus, whilst the navigational, recreational, visual amenity and other values the public holds in the head of Clova Bay were appropriately recognised in the operative plan through the CMZ1 zoning, the mutual intentions of reviewing the 1995 Consent Order marine farm after 20 years were potentially frustrated by the subsequent introduction of a pre-1996 marine farm grandfathering rule.

f. The result of the above is that there is a marine farm in Clova Bay that is located in an area where marine farming is prohibited because there will be *significant adverse effects on navigational safety, recreational opportunities, natural character, ecological systems, or cultural, residential or amenity values* - but for which a resource consent might not be refused for farms originally there before 1996 – providing they are for the same purposes, the same species, the same area and use the same structures as originally applied for.

g. There are in fact 22 such marine farms in the Marlborough Sounds (out of more than 500). MDC has proposed addressing this anomaly under its Marlborough Environment Plan. The proposals for addressing this anomaly were publicly tabled for submission by MDC in 2014[77].

h. This planning anomaly has been acknowledged by the Environment Court on a couple of occasions. For example, in *Knight Somerville*[78] the Court observes "*This farm predates the current Sounds Plan marine zoning. Renewal of the farm's consent is a controlled activity which seems odd given that marine farming is otherwise prohibited*." In an earlier Port Gore decision the Court had held that these 22 marine farms in the Sounds represent a planning anomaly and, perhaps more to the point, that an ability to apply for a consent for these particular farms cannot be taken to suggest that farming on these sites is thus to be considered appropriate[79]. Rather, the zoning they are in suggests that farms in these zones do not meet the objectives and policies of the various planning instruments.

i. Key to the negotiations behind the agreed 1995 Consent Order was the purported vital necessity for a large spat catching area at this site in the Marlborough Sounds, and, as was particularly important at the

[75] See paragraph 9.2.2 of the Marlborough Sounds Resource Management Plan ('MSRMP') objectives and policies
[76] Rule 35.2.5 of the MSRMP
[77] See MDC published document *Reviewing Marlborough's Regional Policy Statement and Resource Management Plans - Report for Public Consultation on Proposed Framework for Marine Farming* (1 July 2014)
[78] Decision No. [2014] NZEnvC 128
[79] See paragraph 233 - *Port Gore Marine Farms Ltd* v *Marlborough District Council* Decision No. [2012] NZEnvC 72

time, to also provide a vital back up to a then threatened wholesale supply of spat from Kaitaia beach due to a temporary control ban on spat movement from Northland to Marlborough[80].

j. The marine farm no longer serves these particular purposes. It is suggested by the applicants that the site is nonetheless still important, however even if this is so it is now important in a fundamentally different way. We are told that it now helps with supply diversification and helps smaller players who don't have access to larger wholesale spat supplies that have since been developed, such as at Wainui Bay and in Golden Bay and Tasman Bay, and that it can also provide a local spat supply that can help achieve year round harvesting[81]. We are also told that Clova Bay is a good spat catching area. As residents we hear anecdotally to the contrary with regard to this particular site. Indeed we see it sitting largely unused for most of the time[82]. The applicant is also very reluctant to provide any data on how much spat is actually caught at this particular site[83]. In our view this reluctance is not well explained[84].

k. I also note that since the 1995 Consent Order the applicant has significantly increased its other spat catching capacity in Clova Bay. More particularly, since 1995 site 8559[85] - which is the other MFA spat farm at the mouth of Clova Bay referred to before - has been increased from a 14.3 hectare spat catching site permitted for use over 10 months a year to now being a 23.4 hectare spat catching site operating over 12 months of the year. This farm is in the Coastal Marine Zone 2 – i.e. where mussel farming is *not* a prohibited activity. Taking into account the 12 month use at Site 8559, the extensions and variations to this site since 1995 have increased the MFA's Clova Bay spat catching capacity by an amount that is more than twice the capacity of the farm that we are here about today. In comparison, whilst industry output has increased by around 44% since 1995[86] the spat catching area in Clova Bay alone has increased by more than 71%[87]. This in the context of the concurrent development of very

[80] For example, see paragraphs 23.1 to 23.6 of the appendix to the evidence of James Jessep dated 1 December 2016

[81] See paragraphs 14a to 14e James Jessep evidence dated 1 December 2016, paragraphs 43 to 46 Jonathon Large evidence, and section 3 of the application documents at page 22 of the Hearing Package.

[82] See photo taken June this year at page 128 of the Hearing Package (one line out of 22 being used) and Attachment 1 to this statement taken April this year (also showing only 1 line being used).

[83] See paragraph 60 Jonathon Large evidence.

[84] See paragraph 60 a. Jonathon Large evidence.

[85] See MDC public records for marine farm coastal permits MPE 461 and MPE 446.

[86] 45,000 tons in 1995 per paragraph 2 of third last page of James Jessep evidence (Addendum to James Jessep 1995 Evidence) - compared with an average 65,000 tons today (per Marlborough District Council website).

[87] Taking account of the season use of the subject site and the increase from 10 months to 12 months for Site 8559.

significant other spat sources over this period as well, such as in Wainui Bay and Tasman Bay and Golden Bay. In our view the importance of this subject site to the industry is now clearly significantly less than what was claimed in 1995.

l. As it turned out key conditions of the consent were never complied with. MDC failed to request the required records on actual use of this spat catching site (as were required under condition (q) of the 1995 Consent Order) and it also seems that the applicant failed to actually keep any such records. Further, MDC never demanded the removal of any debris from the site (condition (m)) and MFA failed every year to collect the debris from under the farm site at the end of each season (condition (n)).

m. So, in short, stakeholders in the area agreed to allow a spat farm in the head of the bay in 1995 for a 20 year term to address a critical industry spat supply issue. Key community focused conditions have never been met. The marine farm no longer serves its original purposes and in our view it serves significantly lesser purposes now. It has substantial adverse environmental effects – as we elaborate on below.

APPENDIX 6

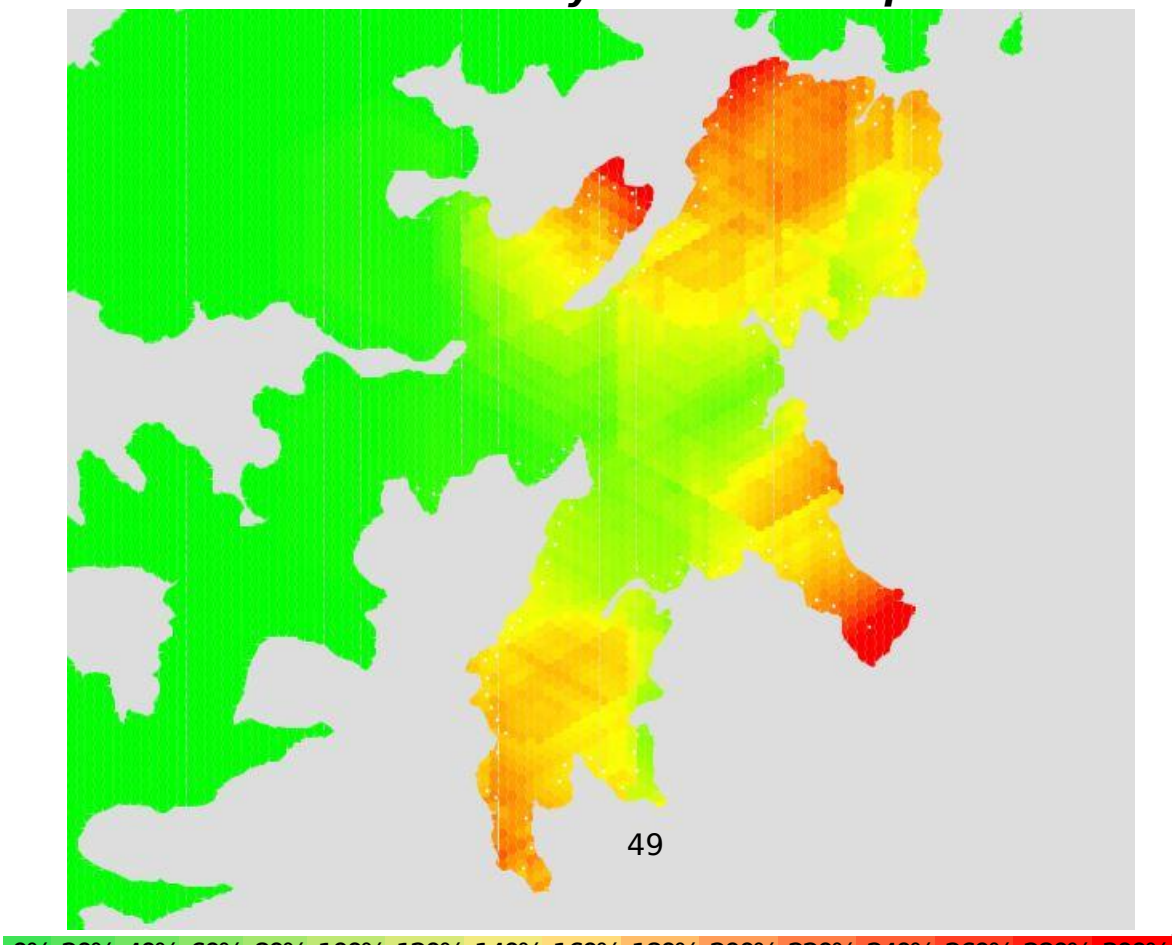
ASC Standard Pelagic Effects Computer Model

The following pages depict application of the ASC Standard pelagic effects standard using a computer model run at a scale of 3 hectare cells. The graphic below (Model 1) illustrates the position under currently consented activity levels. The graphic on the second page (Model 2) illustrates the position with consented activity adjusted so that no area returns as being at more than 150% of the safe farming level under the ASC Standard. The graphics on the third, fourth and fifth pages illustrate the adjustments made to AMAs so as to return the ASC Standard position as illustrated in Model 2.

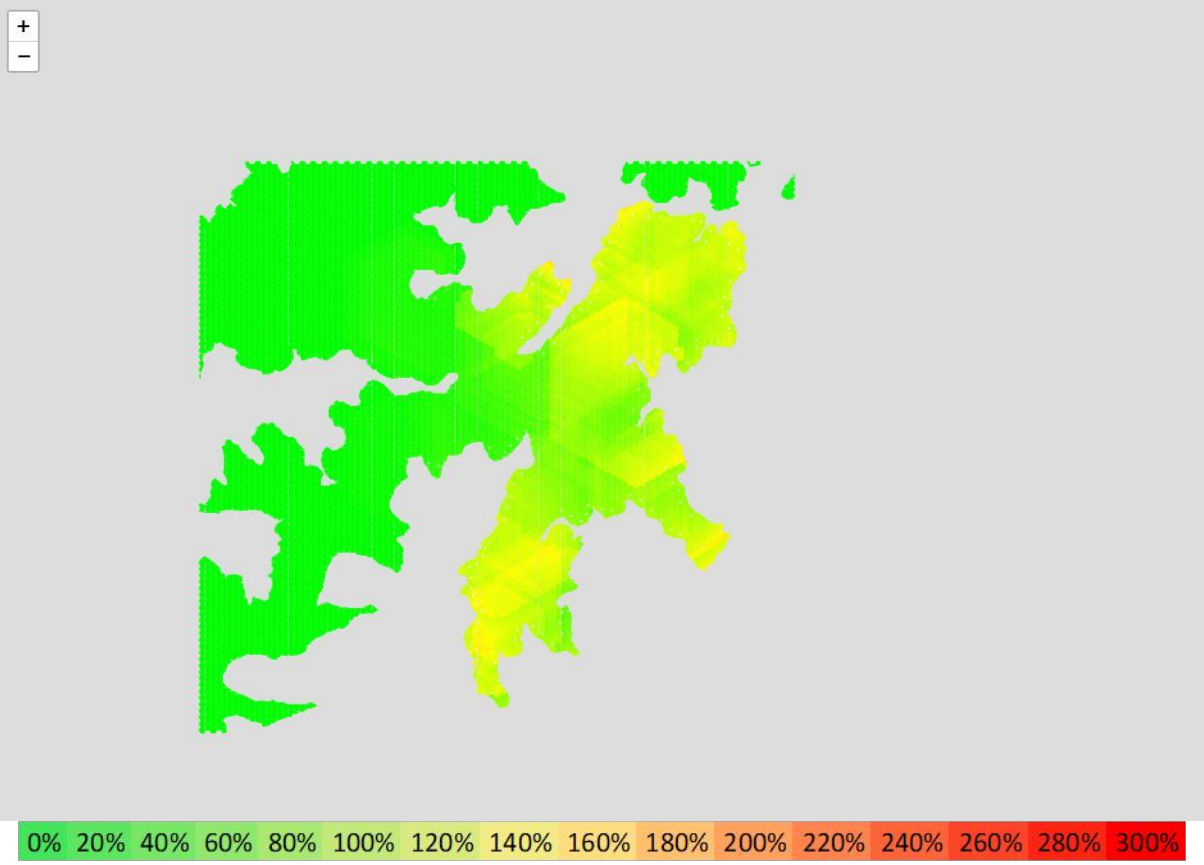
Key inputs used for all model runs are:

Mussels per hectare of consented farm	2.2m
Adult Mussel Filtration Rate	200 liters/day
Area of Influence	The area as determined omnidirectionally from a cell on a radius of 2.25km
Average Water Depth	27m
Average Tidal Exchange	1.7m
Average Dropper Line Lengths	15m
Primary Production Time	2 Days

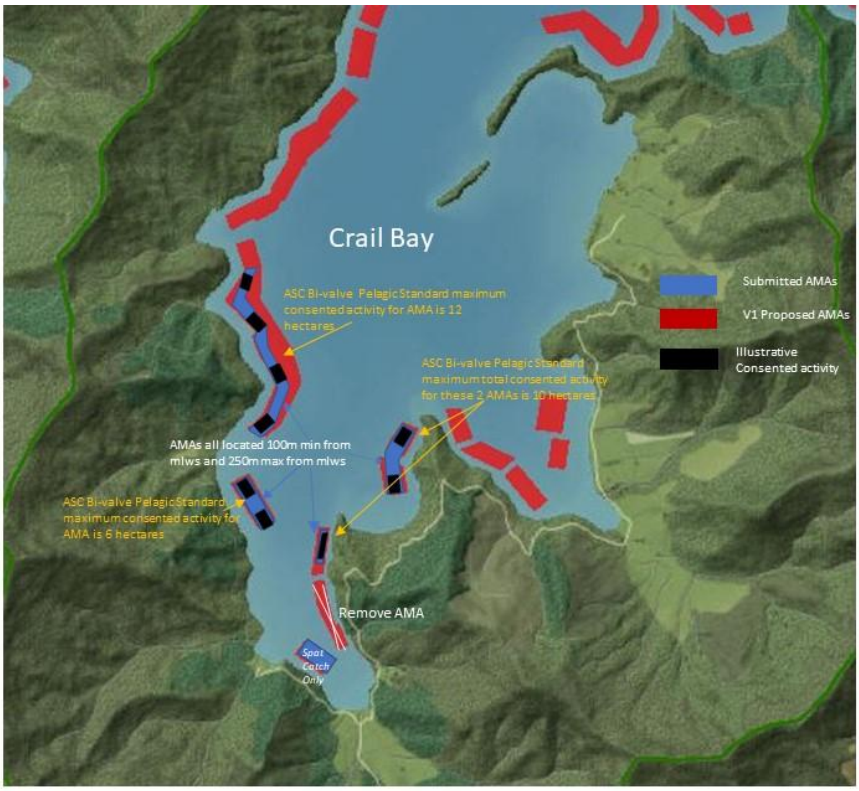
Model 1 - Currently Consented Aquaculture



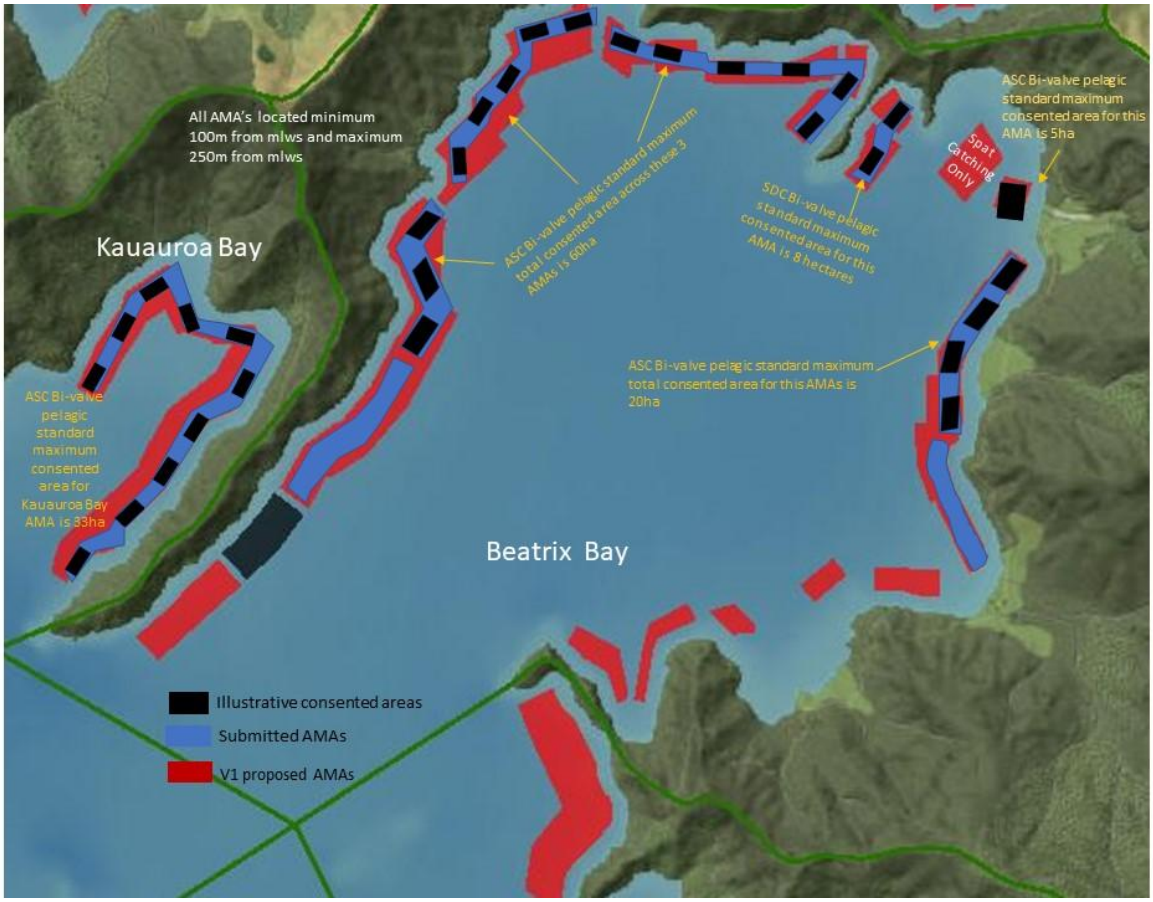
Model 2 – After Adjustments to AMAs as Submitted in Beatrix, Kauauroa, Crail and Clova Bays to meet ASC Bivalve Pelagic Effects Standard



Adjustments to AMAs Submitted for Crail Bay to meet ASC Bivalve Pelagic Effects Standard



Adjustments to AMAs Submitted for Beatrix and Kauauroa Bay to meet ASC Bivalve Pelagic Effects Standard



Adjustments to AMAs Submitted for Clova Bay to meet ASC Bivalve Pelagic Effects Standard