**Submission on: U180102**

**Applicant: Allen Roy Tester and Stephen Eric Cross**

**Activity: Coastal Permit**

**Location: North of Deep Bight, Port Underwood**

**Hearing Date: 26 March 2019**

**Submitter: Port Underwood Association Inc.**

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**Introduction:**

This submission is made on behalf of The Port Underwood Association Incorporated (the Association) membership of which is open to persons having a meaningful interest in Port Underwood. Membership consists of permanent and part-time residents, bach owners, forestry owners, commercial fishers and marine farm owners. Current membership is 117 with each typically representing a household or family group. This represents approximately 90% of the households in Port Underwood. Members rely on the Association to keep them informed of the developments in the Port Underwood area. We do this through newsletters, emails, meetings and personal discussions.

The Association is also charged with representing the members’ views which are gathered through meetings, emails, personal discussions and surveys, and to act on their behalf in matters which affect the area.

The members have made the Association aware that there is a limit to the total amount of area that should be occupied by marine farming in Port Underwood due to the cumulative effects on marine habitat, visual aspects, recreational use, other commercial users, navigation, rural and natural character, and domination of a natural area by industrial structures.

A comprehensive survey of the Association membership was undertaken in December 2012 which included a number questions regarding marine farming in Port Underwood. A response rate of over 65 percent was received. Over 80 percent of the respondents felt that there should be no more marine farming space in Port Underwood. The Association has continued to receive notices of opposition from its members to applications for more farming space in Port Underwood since that survey.

We believe that members of the Association are not opposed to marine farms in principle but are aware that there are appropriate and inappropriate sites for the location of such activities and limits to the size of the farms and amount of public space occupied by marine farms.

The particular aspect of marine farms extending further and further into the open waters of Port Underwood was discussed at the latest AGM. This activity was strongly opposed and clear direction was given to submit against applications that wish to increase the distance of the farmed area from the shoreline. Past survey results, discussions at AGM’s and discussions on this application provide a clear mandate to the Association’s committee to make a strong stand against this application.

**Summary**

We submit that in the face of low tidal flows, prevailing weather conditions, and the large extent of dense mussel farming, all of which will have an impact on the productivity of the natural environment and other marine farms in this area, there will be more than minor adverse effects from this application. We also submit that this application does not sufficiently provide information to prove that these impacts will be inconsequential.

We submit that amenity values in this area will be neither maintained nor enhanced. Nor will it be possible for the adverse effects on the public open space, recreational values and coastal values to be remedied or mitigated.

We submit that cumulative effects on environmental aspects and amenity aspects have not been fully addressed and evaluated and therefore consent for this application can not be granted.

We submit that the carrying capacity calculation presented by the applicants is not based on the affected area of the Western Arm and that a calculation based on the Western Arm area shows a strong adverse effect from the application and existing mussel farms.

We submit that this proposal would have knock on effects on the infrastructure and roading safety over routes used by people residing in, visiting, or working in the Port Underwood area.

We submit that the applicants have failed to pass either of the gateways required for a non-complying activity to receive a consent and therefore we request that the application be declined in full.

**Details of Submission**

**Environmental impacts**

The Port Underwood community has had concerns for the diminishing marine productivity of Port Underwood for a number of years. One aspect of this diminishment is in the lower number and variety of fish and other species present in the Port. For those who are familiar with the Port area this decrease in quantity and species has corresponded to the rise in the amount of space being used for marine farming. We acknowledge that there are a number of other factors that will affect this diminishment such as the climate, the amount of recreational and commercial fishing, and sedimentation and outflow from land based activities. Because there is an additive effect from all causes then all causes need to be addressed. Effects from fishing and land based activities have been researched and actions recommended to reduce the impact of those activities. It is now time to demand that meaningful research on marine farm effects is carried out and actions put in place where required.

**Inshore Marine Habitat**

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Our initial submission raised the concerns of the increased effects this application would have on the marine environment inshore of the combined extension site, including the existing farms and the adjacent farms. This inshore area is considered important for the overall ecology of the coastal marine environment. Looking at the above map, it is not hard to imagine that a ring of mussel farms of this extent would have an effect on the coastal marine environment.

In Mr. Davidson’s Ecological Report Section 5.3.1 he states:

 *Port Underwood is near Cook Strait and receives sediment from the nearby Wairau River. It is likely that Cook Strait and the nearby rivers deliver nutrients to the area.*

At this proposed site, nutrient delivery from the Cook Strait faces a struggle with low water flow and predominant northerly/northwest winds blowing towards Cook Strait. This application will increase an already thick band of high density mussel lines lying along the coastline. As the number of mussel lines increases and become aligned with farms to the north and to the south this will further inhibit the water flow from offshore to inshore accentuating the decrease in nutrient exchange to the coastline.

We are concerned that as mussel farms increase the number of lines by expanding farther offshore that a barrier will be increased which “ring barks” this important inner coastal region. Ring barking a tree is a familiar process which cuts off the exchange of nutrients and kills the tree. We see this ever increasing thick band of mussel lines as doing the same to the coastline of the Tongue.

In Mr. Davidson’s evidence for this hearing in his section *5.1 Anthropogenic impacts and marine farming* he stresses that there are a number of threats to the marine environment of which mussel farming is a lesser one. We agree that there are threats other than mussel farming on the environment but his statements do not provide any useful data on how much of an impact the high concentration of mussel farming is having on the marine environment of the Western Arm. Without any data it is not possible to dismiss adverse effects from mussel farms just by saying they are lesser than something else.

**Effect on fish eggs, zooplankton, marine larvae**

It is known that mussels envelop fish eggs and large plankton, both of which are important to the marine environment, and excrete them as pseudofaeces thus taking them out of the production system. As more are filtered out by an increased band of mussels the fewer there will be to provide a base for the food chain or grow into mature fish and other species. The elimination of zooplankton and the adverse impact on fish stocks does adversely impact residents of Port Underwood as it reduces their ability to fish recreationally and provide fish for their own consumption.

Again to quote from Mr. Davidson’s Ecological report Section 5.2:

 *Relatively few invertebrate species were observed on the silt and clay areas of the consent. Species abundance and diversity increased in the inshore area but was still relatively low compared to most rocky shores in the Marlborough Sounds.*

This must give cause to ask why at this particular inshore area there is a lower abundance of marine life than in other areas of the Sounds. What could be the cause of this lower abundance? The applicants have suggested that this area is not highly recreationally or commercially fished therefore it could be an effect of the high density ring of mussel farms.

In regard to effects from marine farming on fish eggs, zooplankton, and other marine larvae we refer to the MPI publication*, Literature Review of Ecological Effects of Aquaculture – Effects on Wild Fish*, which ends section 5.2.2 by saying: (Highlighting is ours).

***Further research into the effects of shellfish aquaculture on larval stages of wild fish is required*** *to confirm the extent to which increased aquaculture developments* ***(including the effects of multiple farms)*** *will impact wild fish populations.*

And from *12.2.1 Cumulative effects on the benthos and wider ecosystem*

***… however, high densities of mussel farms, such as the ribbon-like developments in the Marlborough Sounds, could lead to additive (cumulative) effects on the wider ecosystem due to alteration of a larger proportion of the benthos.*** *There is also the potential for changes to habitats and/or migration routes of higher-order organisms such as mammals or seabirds (see Chapter 5 and 6).* ***In the case of farm structures, aquaculture involving numerous farms situated along the coast could also have cumulative effects on nearshore currents and waves, which in turn could affect important processes (e.g. larval transport, nutrient exchange) along the shoreline*** *(see Chapter 11).*

In section *9.2 Zooplankton and fish egg predation* of Mr. Davidson’s hearing evidence he describes the natural process of large quantities of offspring and larvae being produced with few individuals surviving to become adults. He offers no actual data as to the effect that the mussel farms in the Western Arm have on this process. If, as described, natural processes diminish the rate of survival then further diminishment by any unnatural situation such as the large blocks of mussel farming, which in this instance completely surround important areas of marine habitat, should not be allowed.

We see no evidence supplied by the applicants that proves that this extension in combination with existing farms with have an acceptable level of impact.

**Cumulative Effects**

Why should we be concerned by “minor” extensions to mussel farms? Because they are not minor! Currently the extensions to mussel farms have more than doubled the area of mussel farming in the Western Arm of Port Underwood. In other words, there is a larger area of mussel farm extensions than there is of parent farms. All of them have been established without any proper study of the cumulative effects on the ecological environment.

The applicants have concurred in paragraph 5.6.2 of their application that cumulative effects from marine farming do occur. They then suggest that any effects from this application can be ignored. We do not agree that this is an appropriate way to assess the effects.

Firstly, the cumulative effects and the size of their impacts in this area, and in particular the ecological impacts, have not been adequately studied and it is therefore impossible to judge what is minor or not. For example, if the cumulative effects are already at an adverse level then any addition impact is more than minor and not acceptable.

Secondly, it is illogical and contrary to the definition of cumulative to only assess a portion of the total potentially harmful activities when assessing effects. To do this leads to the absurd situation where the whole activity is divided into smaller and smaller pieces which are then claimed to have minor effects and thus every piece is acceptable despite an overall negative impact from the whole.

In Mr. Langbridge’s assessment (10.6 through10.9) of the cumulative effect on natural character and amenity values he has separated out this proposed extension and stated that the effects would be minor. He has not made an assessment of the accumulated effects of the total mussel farms present.

To assess the cumulative effects of increasing a modifying activity such as mussel farming, whether the effects are on landscape, amenity, or environment, the baseline for assessment is not the state of existing modifications but the state before any modifications took place. In the case of increasing aquaculture activity the baseline would be the state of the area before aquaculture was introduced. And in the case of the Western Arm where extensions have more than doubled the area used for marine farming we submit that there has been a significant cumulative effect on almost all aspects and therefore no further increase should be allowed.

We quote the MPI publication, *Literature Review of Ecological Effects of Aquaculture – Cumulative Effects*, as it states a number of our concerns (highlight is ours):

*12.1 Introduction*

*The previous chapters have focused on issue-specific ecological effects of aquaculture developments on the marine environment.* ***Our understanding of these effects is largely based on farm-scale assessments and monitoring; the potential for wider-ecosystem effects*** *(e.g. far-field benthic enrichment, effects on fish populations, migrating mammals, etc.)* ***is acknowledged but is far less understood. As aquaculture develops and the number of farms in coastal waters increases, wider-ecosystem issues become more important to consider due to the cumulative environmental effects that could arise from multiple farms combined with additional anthropogenic stressors affecting the marine environment.***

*12.2.5 Summary of cumulative effects from extractive forms of aquaculture*

*Through filter feeding, farmed shellfish have the potential to remove large amounts of plankton from the water column and convert it to shellfish biomass that is harvested (removed from the environment), or into dissolved and particulate waste products that are released into the water column and/or onto the seabed****. Filter feeding by bivalves also has the potential to alter size distribution and species composition of plankton*** *(see Chapter 2).* ***There is compelling evidence that bivalve aquaculture can affect nutrient cycling and the quantity and quality of food (plankton) across a range of spatial scales from local to system-wide*** *(Prins et al. 1998; Cerco & Noel 2007; Coen et al. 2007).* ***In turn, these processes could affect the quantity and quality of food available to other consumers*** *(Prins et al. 1998; Dupuy et al. 2000; Pietros & Rice 2003; Leguerrier et al. 2004),* ***with consequences for local populations of higher trophic level organisms such as fish.***

***The above example suggests that some shellfish aquaculture regions may be farmed close to sustainable production limits during years of naturally low primary production. Ecological carrying capacity limits are likely to be lower than production limits*** *(Jiang & Gibbs 2005),* ***so it follows that ecological carrying capacity may periodically be exceeded by the current level of culture in some areas.***

Marine resources have commonly been seen as a resource that can be tapped without restraint, continually and without limit. This has led to the collapse of marine stocks world-wide and the need to introduce quotas. We do not want to see a crisis point reached through the over-consumption of the available food chain in the Port Underwood marine environment and feel it is more logical to limit any further expansion of mussel farms and undertake a robust and inclusive review of the farmed shellfish/marine environment interaction to prevent any further habitat degradation and the possible collapse of marine stocks.

**Nutrient depletion**

Figure 1 below is from the notification package for U120642 which lies across the Tongue in the Eastern Arm of Port Underwood and details the results of a NIWA modelling of phytoplankton depletion for that mussel farm application. *(Hadfield M. 2014. An assessment of phytoplankton depletion due to Port Underwood marine farms. Prepared for Property and Land Management Services Ltd. NIWA Client Report NEL2014-005. [Council record: 15206310].)* It shows that depletion rates up to 30% can be expected near the mussel farm and depletion rates of 10% up to a kilometre away from the farm.

This study which shows wide spread depletion is based on three farms which are only 32% of the total area of farms in the Eastern Arm. This shows that the effects of mussel farms are strong inshore of and within mussel farms and extend quite a distance from the footprint of the farms. However this study does not include the depletion caused by the many other farms located in the Eastern Arm. Again, a case of limited research which leads to not knowing the full impact of mussel farming in this area. We note that the area of this study, the Eastern Arm of Port Underwood, is similar to the area containing this application, the Western Arm, and thus we would expect high depletion rates in the Western Arm as well.



Fig. 1 Phytoplankton depletion expressed as the surface concentration of processed water averaged over a 90 day period.

We see the above combination of ecological impacts as leading to the decline and possibly the elimination of a number of species in the inshore marine habitat because of extended thick bands of mussel farms around the Tongue.

**Carrying Capacity of the Western Arm, Port Underwood**

The applicants for this extension have been asked to supply more information about the effects of the mussel farms on the carrying capacity of the Western Arm and Port Underwood. To quote Dr. Urlich’s comments about the carrying capacity:

*The proposed extension will add significantly to the number of mussels in the West Arm of the Port Underwood (see figure below). There will be more mussels competing for the same volume of plankton. It will probably affect the growth rate of mussels within the West Arm, and possibly wider biogeochemical processes.*

*I do not think Davidson & Richards can be categorical that the effects on productivity are essentially minor, As they have not presented data or calculations to show that carrying capacity has not been reached in the West Arm, or Port Underwood as a whole. The data to inform that assessment are held by industry; i.e., mussel yield over time, along with stocking rates.*

*The NIWA report referred to above can inform the flushing time calculations, given they calculated flow rates from ADCPs for the East Arm assessment. The point of requesting this information is to understand whether farmed mussels are currently controlling the primary productivity of the West Arm.*

Dr. Neil Hartstein has accepted Dr. Urlich’s position that it is not possible to categorically state that the effects on productivity are essential minor at the proposed Port Underwood extension as no data or calculations were presented in the application to show if the water column carrying capacity has been reached. To address this Dr. Hartstein has provided a calculation based on the Pelagic Effects Criterion of the Aquaculture Stewartship Council (ASC) Bivalve Standard 2012 (version 1.0 Jan.2012) and has used information, some of which is unspecified, from previous work to make assumptions based on the entire Port Underwood area and not the Western Arm which Dr. Urlich specifically mentioned.

Despite a fair amount of background information given to us by Dr. Hartstein he has only provided a carrying capacity calculation roughly based on the entire area of Port Underwood. We submit that for a study of mussel farming in the Western Arm of Port Underwood, Dr. Hartstein has incorrectly chosen the area parameter which would give an appropriate result for the Western Arm. From this we are left with little to no actual data about the effects of mussel farming on the carrying capacity in the Western Arm.

In our view, basing the calculation on the entire Port Underwood area does not follow the recommended method stated in the ASC Standard for defining the correct area of influence. That is, the area in which this application is located. Nor does it address the concern that Dr. Urlich expressed specifically about the carrying capacity in the Western Arm. In response to the calculation by Dr. Hartstein, Dr. Urlich has replied that he is satisfied that the calculation addresses the primary productivity of Port Underwood as a whole. This does not necessarily imply that the same can be said about the Western Arm.

Section 2, Avoid, Remedy, Mitigate Significant Adverse Effects, of the ASC Standard section 2.2 provides the criteria and method to calculate pelagic effects. In this case, does the amount of mussels being farmed exceed the carrying capacity of the area in which those mussels are located?

To quote from the ASC Standard: (highlight is ours)

***There is potential for bivalve farming operations to exceed the ecological carrying capacity of the body of water in which they are located. Ecological carrying capacity has been defined as the stocking or farm density above which unacceptable ecological impacts begin to manifest*** *(Inglis et al. 2000). This happens when the removal of phytoplankton by all bivalve farms in a water body, including the applicant site, outstrips the capacity of the ecosystem to replenish the supply, resulting in adverse conditions for wild and cultured populations. ..****.When carrying capacity is exceeded, farmed areas should have or be part of a bay-scale management plan for addressing potential cumulative pelagic effects from multiple farms.***

We submit that the community is not the only voice to question the effect on carrying capacity in the upper Port Underwood areas. Other mussel farmers have grave concerns. We quote from the submission of the DMAC Family Trust on the application U160860 (which eventually was withdrawn) for a new mussel farm just a little south of this application.

*1. The Trustees of The DMAC Family Trust oppose the application.*

*2. The grounds of opposition include that the proposed marine farm will:*

 *a. Create a navigational hazard*

***b. Adversely impact on the productivity and sustainability of the Trust’s established marine farm***

***c. Give rise to cumulative adverse effects within the local marine environment that are more than minor***

 *d. Be contrary to the Policies and Objectives of the Marlborough Sounds Resource Management Plan.*

We also quote from the Decision document on U120642, an application for an extension to a mussel farm in the Eastern Arm of Port Underwood, an area which has been likened to the Western Arm.

*28. The Committee heard evidence at the hearing relating to the proposal of Mr. Hearn to farm oysters at the northern site. The Committee also heard from Mr. Mark Hadfield who addressed the potential for phytoplankton depletion from the farm.* ***The Committee noted in the application the grounds for the extensions and new space were as a result of other farms being granted in the bay depleting the available food for their existing farm.***

*29. Understandably, the Committee has concerns as to why the applicants would seek to add to the problem of phytoplankton depletion by further increasing the load and water processing capacity of the farms. Such an addition could of course lead to the loss of productivity and viability of the farm. This appears to be a location where the neighbouring marine farms operators do not appear to be working together to address a very localised issue.* ***The future of marine farming in this side of Port Underwood seems to be at risk of collapsing from over stocking of the water column with increased growing of phytoplankton dependant shellfish.***

We note from the previous diagram, contained in the Cawthron report of M. Hadfield, that the effects are most strong in the localised area as would be expected. For the present application Dr. Hartstein has evaluated the entire Port Underwood area. This does not give a true representation of the Western Arm which is the area most affected. He has determined that the results for mussel farming effects (for the entirety of Port Underwood) are above the threshold and therefore there is no concern about the carrying capacity.

We do not agree because Dr. Hartstein’s report does not evaluate the effects of mussel farming in the influenced local area of the application and does not address the question of cumulative effects on the carrying capacity in the Western Arm.

Kenneth Roush (see attached report) has used the ASC method to evaluate the carrying capacity effects in the Western Arm using the ASC recommended area of influence and a second evaluation using the broader area of the entire Western Arm. Both calculations show that there is a high likelihood of strong adverse ecological effects from the mussel farms currently in that area.

**Affect on sedimentation**

We acknowledge that mussel farms are not the sole factor in the depletion of marine species in Port Underwood. We have spoken for years about what we, as long-time residents of Port Underwood, see to be the detrimental effects of increased sedimentation in the water. Scientific studies have finally taken place and validated our observations.

It is known that mussel farms slow the rate of water flow, can change the direction of water flow to being parallel with the mussel lines (in this case generally parallel to the shoreline), and decrease wave action approaching the shoreline. Despite the comments from Dr. Hartstein that the farm will have little or no impact on waves, a comment we find to be incompatible with observations, waves and water chop do exist in the Western Arm and would agitate the coastline of the tongue if the mussel farms were not present. We note the comment from paragraph 6.28 of Ms. McNae’s evidence describing the conditions during her visit to the Port as “conditions in the bay were mildly “choppy”, with a mild breeze, not untypical weather conditions for Port Underwood.”. If the water flow and wave action along coastal areas are diminished by the physical presence of mussel lines, then the sedimentation coming off the local land areas will not be washed away from the inshore flora and areas of cobble. This will lead to the detrimental smothering by sediment of areas that are considered important in the overall ecology of the coastal marine environment. We acknowledge that mussels can filter sedimentation to some extent but we see no data offered in this application as to what the overall effect of sedimentation on the inner coastal area will be.

As mentioned, Sounds communities have for years brought up the detrimental aspect of sedimentation which is a cumulative effect. It has finally been acknowledged after scientific study that it is a problem. We submit that it is now time for adequate studies to be made of other cumulative impacts from mussel farms. A reasonable approach demands that it is time to stop allowing continuous increases in mussel farming space when the full effects of more and more mussel farming has not been determined.

**Amenity Values, Natural Character, and Landscape Values**

We submit that the size and location of the proposed extension will have a negative effect on the amenity value of this area of Port Underwood as perceived by many people. The effects from this application are not insignificant in combination with the existing marine farms in this area and in the fact that approval of this extension will promote further expansion of other farms.

The Port Underwood Association is concerned at how close this farm is to CMZ1, as it clearly will set a precedent for other future consents if the application is granted.

This proposed farm appears considerably closer to CMZ1 than the adjoining farm #8420 to the immediate south of this proposed extension. In section 2.3. of the application “The Proposal” article 2.3.1 reference is made to “align” with other farms along the west shore of the Tongue. We submit this is not correct, and that this proposed extension not only protrudes closer to the CMZ1 boundary than the nearby farm, but also does not align with the farm to the south.

As well, the “zig zag” shape of the clear space between farm #8420 to the south and this proposed extension will, from sea level, create a confusing, blind and thus possibly unsafe entry or exit from CMZ1 to the foreshore around Deep Bight Bay as well as adding to the sense of there being one very large block of mussel lines.

The additional lines, especially when combined with farms on either side, creates the impression of one large massive farm where the multiple farms to the north and south are merged into one large unnatural, commercial intrusion. Port Underwood is characterised as a highly indented coastline with rocky reef fringes and some small beaches. This application along with the adjacent farms creates straight edged barriers which are totally at odds to the character of the Port. There comes a point when the size and range of commercialization over-dominates the naturalness of sea and coast. We believe this application, along with previous extensions goes beyond that point to the detriment of the local community. The increased size is a deterrent to boaties to enter such a large structure because it is not a pleasant, enjoyable surrounding as one would be seeking on a boating trip and it gives a sense of commercial privatization to a large portion of the water space and coastline.

Mr. Langbridge keeping trying to convince us that Port Underwood’s character is one of a working landscape based largely on the presence of forestry and marine farming and these working character values would have formed part of the amenity values that have drawn many current residents to the bay. We do not agree with that view. Many people have the perception that apart from harvest time, forestry is not a working environment but is an area of green natural growth even if it is not considered as native bush. The mussel farms create the man made intrusion and the community of Port Underwood have raised amenity concerns for years as mussel farms are not accepted as beneficial to the amenity and character of the area.

Our opinion is that the separation gaps between mussel farms are minimal in relation to the overall size of the total amount of farms in this area and looking down a narrow opening stretching a distance of hundreds of metres accentuates the depth of the farm. This impact along with the ever increasing bulk of the combined marine farms will be more than minor on the amenities and visual aspects of this area. Mr. Langbridge describes the visual prominence of mussel farms to be most obvious during daylight hours when sea conditions are calm, weather conditions are clear and sunny, floats are sitting high on the water and the sun is at a low angle. He then provides us with photographs when the sea is choppy, the sky is overcast with little sun, it is mid-day with the sun at its highest and the floats are low in the water.

The issue of continuing expansion of mussel farms into the open waters of Port Underwood was discussed at the most recent Port Underwood Association AGM. There was a clear opinion expressed and fully supported that the limit has been reached and no further expansion out from the shoreline should be allowed. We see this application as an extension added on top of previous extensions at this site which just goes too far and will only promote the desire for more applications for additional extensions on the surrounding farms. This promotes a never ending cycle of expansion which is detrimental to the amenity and ecological values of this part of Port Underwood and thus has a more than minor effect.

**Impact on Infrastructure**

We contend that the Applicant has failed to address the transportation policies of the Marlborough Environment Plan in that an assessment has not been taken of the adverse effects on the safety and efficiency of the arterial road network to support the increase in both heavy and light traffic volume to enable the proposed extension.

There is little information as to additional vehicle movements required to establish the proposed extension (equipment and seeding etc.), maintain it though the 20-30 month life cycle and to harvest it throughout the life of the consent. It is not sufficient to only estimate the heavy vehicle movements produced by the yearly harvesting without accounting for the other work requirements and other road users.

We are aware that Marlborough Roads have assessed the Port Underwood Road as probably capable of supporting 50,000 tonnes of vehicle traffic per year, which Marlborough Roads assess at around a maximum of 10 trucks per day. We are also aware that this is managed as a ‘gentleman’s agreement’ with the logging industry (only) to limit logging trucks to 10 per day.

In many respects however, the tonnage estimation of truck movements is not as much of an issue as is the total number of truck movements and the type of truck. From the Marlborough Roads vehicle counting conducted twice per year (September and January), analysis shows that the daily average vehicle counts on the Port Underwood hill road are increasing by more than 10% per year and it is estimated that at busy periods there will be 350 vehicles per day. We expect this trend to continue.

While there is a common thread in submissions for the expansion based on the commercial activity (marine and forestry history) within the Port Underwood area, there is also a community that resides permanently in Port Underwood and a trend of rising vehicle counts both heavy and light. The Port Underwood Hill road is narrow, lacks centre line marking and has both damaged and missing safety barriers. Mussel trucks can not navigate this road without being on the wrong side of the road around many blind corners. Anecdotally, near miss accidents, between light vehicles and heavy vehicles are common.

The current restriction on the number of logging trucks and the refusal to allow some harvesting operations from using the Port Underwood road acknowledges that a problem exists with the usage of this road by heavy haulage vehicles. This is expressed quite clearly in Issue 17D of the MEP which states:

*Impacts on the land transport network often focus on land use activities and subdivision. However,* ***in the Marlborough Sounds there are well-established marine farming and forestry industries that have flow-on effects for the Sounds road network,******especially when harvested produce is transported to processing facilities on narrow and windy roads, for example from Port Underwood to Picton*** *or Elaine Bay to State Highway 6.*

The PUA submits that any proposed increase in traffic has to be measured and assessed, in a cumulative manner not assessed as a single addition from this application, as to the risk posed to other industry road users, members of the public and to the ability of the infrastructure to support the increase. This assessment is necessary to fully inform regulatory design, the planning decision processes and promote community safety and welfare. The transport provisions in the MEP make it clear that the Marlborough District Council must take steps to protect these arterial roads and the people who use them.

**Non-complying Activity**

As stated by the applicants, this is a non-complying activity. Thus section 104D of the RMA must be considered. The section requires that the consent may not be granted unless either the effects of the activity are no more than minor, or the activity is not contrary to the objectives and policies of the relevant Plans.

As a non-complying application it is the responsibility of the applicant to prove that any and all adverse effects are minor. Knowing that mussel farms affect water flow, nutrient levels, light levels, and can affect fish eggs, other marine larva, zooplankton and marine habitats we feel that the applicants have not achieved proving that all adverse effects are minor. It is the responsibility of the applicants, not the submitters, to carry out the research to determine the level of these known effects.

There is a saying in the scientific community that “Absence of evidence is not evidence of absence”. In other words, the lack of information about the effects of an activity does not imply that that activity has no effects.

When the magnitude of the cumulative effects of the group of mussel farms in this area are not known then it is not sufficient to state that any particular part of that group, such as this application, has a minor effect based solely on its size. It is required that the hearing panel is absolutely sure that all effects are minor before approval can be given. We submit that the information available at this hearing does not allow that approval to be given.

Nor can the application be assessed as complying with the objectives and policies of the relevant plans without knowing the true effects of the application.

From the New Zealand Coastal Policy Statement *Objective 1:*

*To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems, including marine and intertidal areas, estuaries, dunes and land, by: •• maintaining or enhancing natural biological and physical processes in the coastal environment and recognising their dynamic, complex and interdependent nature;*

and, *Policy 3(1) Adopt a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse.*

We further refer to the list of relevant policies from the Marlborough Sounds Resource Management Plan listed at the end of this submission. We submit that this application does not comply with the requirements of those policies.

**Proposed Species to be Farmed**

The proposed species to be farmed and harvested are listed in Section 2.3.3 of the application. We question the scientific nomenclature and the appropriateness of including the following species in that list:

Flat Oysters (*Toistrea lutaria*). We have been advised that flat oysters are an unwanted species and as such should not be in this application. It is also noted this species is *Ostrea chilensis*, not *Toistrea* (sic) *lutaria*.

We have also been advised that Pacific oysters (*Crassostrea gigas)* are not indigenous in Port Underwood, are considered an invasive species and therefore their cultivation should not be allowed in Port Underwood.

**Conclusion**

The Port Underwood Association, through the high percentage of Port Underwood persons it represents and through its on going communications and feedback from those members, has a clear mandate to oppose this application.

Members have experienced an environment with diminishing marine species for a number of years and along with that a concern about the degradation of the marine habitat in Port Underwood. While we do not see marine farming as the sole factor in this we do consider it to be a significant contributor because of its size and density in the area. Because there may be numerous factors affecting the environment it becomes even more important to gain knowledge about and reduce any harmful effects from marine farming.

We have listed many aspects of the marine environment that have been acknowledged to be affected by marine farming. There is a failure in this application, and in many marine farm studies, to provide an accurate data set on these effects. Consequently it is not proven, and in many cases not even addressed, that the environmental effects of this application are minor as many of the effects are not surveyed or can not be judged as stand alone effects. A precautionary approach demands that it is time to stop allowing increases in mussel farming space when the magnitude of the combined effects have not been proven or our knowledge is insufficient to accurately assess the effects of more and more mussel farming.

When the environmental carrying capacity of an area is reached or exceeded by the effects of mussel farming then the effects of any increase in mussel farming, no matter how small, becomes significant and the effects are more than minor. Ms. McNae endorses this view in her evidence at paragraph 6.51 where she states:

 *An issue was raised in submissions related to the productive carrying capacity and the sustainable limits of this carrying capacity. This issue is of particular importance because despite the fact that the extension is small, there is always the concern that small incremental expansion at some point will reach a tipping point beyond which the amalgamated effects of expansions of marine farms will have an unsustainable adverse cumulative effect.*

We have shown that a method used by the applicants to determine the impact of mussel farming on the carrying capacity indicates, when applied correctly, that mussel farming dominates the Western Arm to the detriment of the natural environment.

We as residents and frequent users of Port Underwood do not agree that amenity values will not be reduced by this application. The addition of this extension and the location of it will further promote a very large block of mussel lines that have an impact on the natural character and visual amenity of the Eastern Arm of Port Underwood. It will promote the domination of industrialised space to the detriment of open natural waters. It will promote expansion efforts on the part of other marine farms which will further alienate the use of this area by the general public. Consequently it would not maintain or enhance the public open space, recreational values, the wider coastal marine values and other amenity values.

Port Underwood Road heading into Picton is steep, winding, narrow and lacking centre line marking (which is of little consequence for large truck/trailer units as they are continuously using both sides of the road to navigate the tight corners). Our concern is not only the total tonnage that is transported along this road but also the safety of all travellers. Any increase in large heavy vehicles is going to increase the potential for accidents and injuries along this type of road. Marlborough District Council has an obligation through its own plan and through the RMA to protect the integrity of this roading network and the people that use it by restricting the overuse by large, heavy vehicles.

The applicants have not addressed a number of issues with certainty or their view is that individually the effects are minor. We as residents and frequent users of Port Underwood do not claim to be registered as experts with the courts but we do know what affects us and our neighbourhood. We submit that when all the effects are tallied together the result will be more than a minor adverse effect on the Western Arm of Port Underwood and the people who use the area. The only way to avoid the adverse effects is to decline the application. We see no method in which the effects can be remedied or mitigated.

We feel that it is important to point out that in the current MSRMP, CMZ2 is designated a zone where applications for marine farms can be made and the effects studied. There is no inherent statement in the plan that marine farms should occupy all of CMZ2. In fact, the classification of any application beyond 200 metres from shore as non-complying demands that extra care in assessing the application is required. It is our opinion that this indicates that the 200 metre mark is where we have to start being concerned with what Ms. McNae describes as the tipping point rather than the CMZ2 limit line. Mussel farms in the Western Arm have clearly gone well beyond the 200 metre line and we feel beyond the tipping point.

We note that this application has a non-complying activity status. As such the gateways that must be passed before consent is given are:

Section 104D 1(a) – Where the adverse effects of the activity will be minor.

Section 104D 1(b) – Where the activity is not contrary to the objectives and policies of the relevant plan.

We submit that the activity will be contrary to objectives and policies contained in the existing and proposed plans and the applicants have not been able to show conclusively that all effects will be minor and therefore the hearing panel can not come to a conclusion that this application passes the gateway tests.

We therefore request that this application be declined in its entirety.

We thank you for the opportunity to present the views of the Port Underwood community on this application.

Ken Roush, Chairman

Port Underwood Association

Relevant Policies

**New Zealand Coastal Policy Statement**

Objective 1: To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems, including marine and intertidal areas, estuaries, dunes and land, by:

•• maintaining or enhancing natural biological and physical processes in the coastal environment and recognising their dynamic, complex and interdependent nature;

Policy 3(1) Adopt a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse.

Policy 6(2) (b) recognise the need to maintain and enhance the public open space and recreation qualities and values of the coastal marine area;

Policy 7 (2) (2) Identify in regional policy statements, and plans, coastal processes, resources or values that are under threat or at significant risk from adverse cumulative effects. Include provisions in plans to manage these effects. Where practicable, in plans, set

thresholds (including zones, standards or targets), or specify acceptable limits to change, to assist in determining when activities causing adverse cumulative effects are to be avoided.

Policy 11 To protect indigenous biological diversity in the coastal environment: (b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on: (i) areas of predominantly indigenous vegetation in the coastal environment; (ii) habitats in the coastal environment that are important during the vulnerable life stages of indigenous species; (iii) indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands, intertidal zones, rocky reef systems, eelgrass and saltmarsh; (iv) habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes;

Policy 13 (1) To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use, and development: (2) Recognise that natural character is not the same as natural features and landscapes or amenity values and may include matters such as: (b) biophysical, ecological, geological and geomorphological aspects; (d) the natural movement of water and sediment; (g) a range of natural character from pristine to modified; and (h) experiential attributes, including the sounds and smell of the sea; and their context or setting.

Policy 22 (2) Require that subdivision, use, or development will not result in a significant increase in sedimentation in the coastal marine area, or other coastal water.

**Marlborough Sounds Resource Management Plan**

Public Access 8.3 Objective 1 That public access to and along the coastal marine area, lakes and rivers be maintained and enhanced. Policy 1.2 Adverse effects on public access caused by the erection of structures, marine farms, works or activities in or along the coastal marine area should as far as practicable be avoided. Where complete avoidance is not practicable, the adverse effects should be mitigated and provision made for remedying those effects, to the extent practicable.

Coastal Marine 9.2.1 Policy 1.1 Avoid, remedy and mitigate the adverse effects of use and development of resources in the coastal marine area on any of the following: a) Conservation and ecological values; b) Cultural and iwi values; c) Heritage and amenity values; d) Landscape, seascape and aesthetic values; e) Marine habitats and sustainability; f) Natural character of the coastal environment; g) Navigational safety; h) Other activities, including those on land; i) Public access to and along the coast; j) Public health and safety; k) Recreation values; and l) Water quality.

Policy 1.2 Adverse effects of subdivision, use or development in the coastal environment should as far as practicable be avoided. Where complete avoidance is not practicable, the adverse effects should be mitigated and provision made for remedying those effects to the extent practicable.

Alteration to the Foreshore and Seabed 9.4.1 Objective 1 Protection of the coastal environment by avoiding, remedying or mitigating any adverse effects of activities that alter the foreshore or seabed. Policy 1.1 Avoid, remedy or mitigate the adverse effects of activities that disturb or alter the foreshore and/or seabed on any of the following: a)Conservation and ecological values; b) Cultural and iwi values; c) Heritage and amenity values; d) Landscape, seascape and aesthetic values; e) Marine habitats and sustainability; f) Natural character of the coastal environment; g) Navigational safety; h) Other activities, including those on land; i) Public access to and along the coast; j) Public health and safety; k) Recreation values; and l) Water quality.

**Marlborough Environment Plan**

Objective 8.1 – Marlborough’s remaining indigenous biodiversity in terrestrial, freshwater and coastal environments is protected.

Policy 8.2.9 – Maintain, enhance or restore ecosystems, habitats and areas of indigenous biodiversity even where these are not identified as significant in terms of the criteria in Policy 8.1.1, but are important for: (a) the continued functioning of ecological processes; (b) providing connections within or corridors between habitats of indigenous flora and fauna; (c) cultural purposes; (d) providing buffers or filters between land uses and wetlands, lakes or rivers and the coastal marine area; (e) botanical, wildlife, fishery and amenity values; (f) biological and genetic diversity; and (g) water quality, levels and flows.

Policy 8.3.1 – Manage the effects of subdivision, use or development in the coastal environment by: (c) avoiding significant adverse effects and avoiding, remedying or mitigating other adverse effects where the areas, habitats or ecosystems are those set out in Policy 11(b) of the New Zealand Coastal Policy Statement 2010 or are not identified as significant in terms of Policy 8.1.1 of the Marlborough Environment Plan.

Policy 8.3.2 – Where subdivision, use or development requires resource consent, the adverse effects on areas, habitats or ecosystems with indigenous biodiversity value shall be: (b) avoided, remedied or mitigated where indigenous biodiversity values have not been assessed as being significant in terms of Policy 8.1.1.

13 Use of the Coastal Environment Policy 13.2.6 In determining the extent to which coastal amenity values will be affected by any particular subdivision, use and/or development, the following shall be considered: (a) individual and communities values about the area subject to application; (b) the amenity related attributes of the area; and (c) in regard to the changing nature of the coastal environment, the extent to which amenity values would be so affected by the proposed subdivision, use or development that those values could no longer be maintained or enhanced.

17 Transportation Objective 17.3 – An efficient land transport network that recognises and provides for different users.….. It is therefore important to plan and manage the land transport network efficiently to enable people to access different parts of the District at the same time as providing for through traffic.

Issue 17D – Land use, water and subdivision activities can have adverse effects on the sustainable use of the land transport network. The sustainability of the land transport system, especially in terms of the road network, can be adversely affected by adjacent land use activities (including subdivision of the land) and activities that occur in the coastal marine area. … These changes can result in activities that generate high volumes of traffic or increases in heavy traffic, for which the existing road network is unsuited. …The intensification of land use and increases in traffic volumes can also have an impact on the movement of pedestrians and cyclists. Impacts on the land transport network often focus on land use activities and subdivision. However, in the Marlborough Sounds there are well-established marine farming and forestry industries that have flow-on effects for the Sounds road network, especially when harvested produce is transported to processing facilities on narrow and windy roads, for example from Port Underwood to Picton or Elaine Bay to State Highway 6. It is also important to recognise that the Council has a statutory function under the RMA for the strategic integration of infrastructure with land use through objectives, policies and methods (Section 30(1)(gb)). Infrastructure includes roads so it is necessary that the following provisions are consistent with the Council addressing its functions under this section of the RMA.

Objective 17.4 – Conflict in providing for subdivision, use or development activities and with use of the land transport network is minimised. As the land transport network has been identified as a significant resource, it is important that it is able to function without being adversely affected by subdivision, use or development activities. The objective aims to ensure that any conflict arising from these uses is minimised in terms of the impacts on the land transport network. This objective is also relevant in the context of Policy 4.2.2 (Chapter 4 - Use of Natural and Physical Resources), which seeks to protect regionally significant infrastructure such as the district roading network from the adverse effects of other activities.

Policy 17.4.1 – Manage the density, scale and location of subdivision and/or activities to maintain the planned function of the roading network. A major method in the MEP for managing the efficiency of the road network is through identification of a road's function, which is established by the road hierarchy. It is important that subdivision or activities that generate traffic (whether on land or in the coastal marine area) are managed so that their location, density and/or scale does not impair the function of a particular road. Management will occur through district rules that describe where there is a need to consider the impacts of activities on the function of a road through the resource consent process.