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19th August 2019

Response to request for further information received 22nd July 2019 from Environment Southland about APP-20191479 - Horseshoe Bay and Horseshoe Nugget

To Whom It May Concern:

This letter is in response to a letter from Courtney Guise at Environment Southland requesting more information about our resource consent application (APP-20191479), which we hope will extend the current consent, granted under ES302167 in 2014, for another five years. This application refers to two sites; Horseshoe Bay and Horseshoe Nugget. We have answered the information requests to the best of our ability. With this response should also be monitoring reports from 2016 and 2017 and a revised proposed conditions document. The information is as follows:

1. *Clarify which location the application is for -*

This application is for the Horseshoe Bay and Horseshoe Nugget sites. Any reference to other sites is in error or due to the use of older documents in the appendices that apply to both sites (such as the 2013 Assessment of Environmental Effects – see Application Appendix vi).

2. *Confirm what species of oyster will be farmed -*

The species of oyster that will be farmed on the Horseshoe Bay and Horseshoe Nugget sites is *Ostrea chilensis* (formerly *Tiostrea chilensis*) that is also known by several 'common' names; Bluff oyster, Dredge oyster, Chilean oyster and Foveaux or Stewart Island oyster. All references to farmed oysters in this application are to *Ostrea chilensis* and differences in the 'common' name used may vary depending on the preference of the author of the particular document.

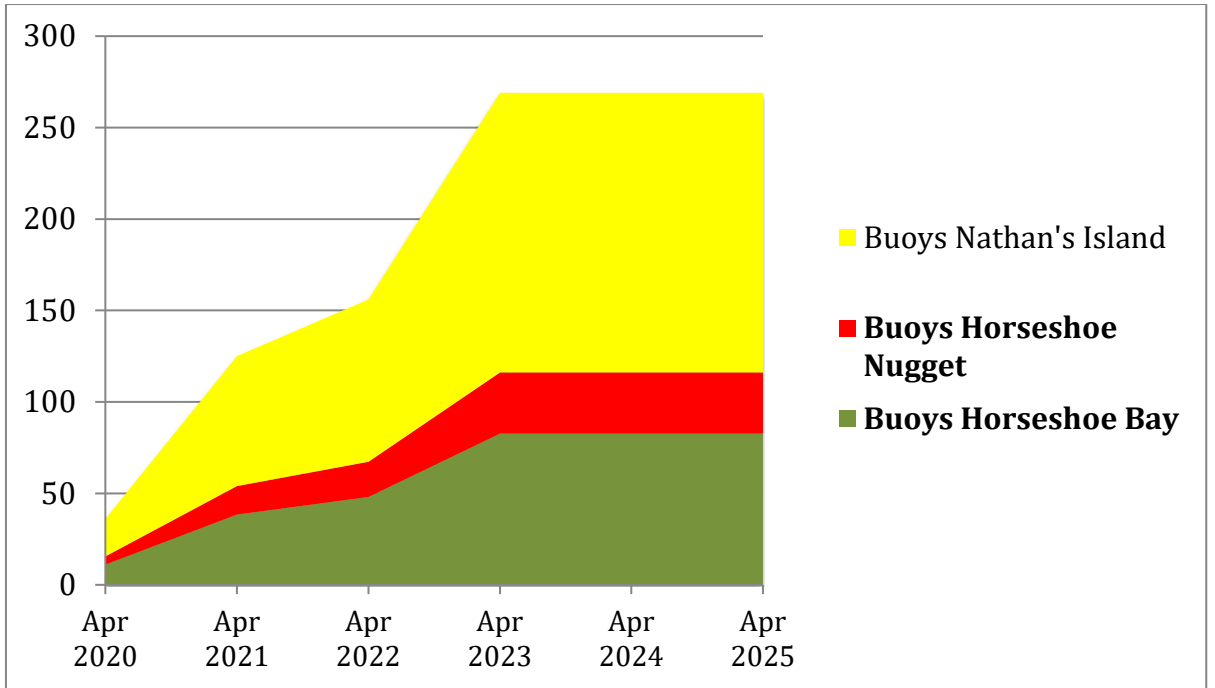
3. *The application is unclear on if there will be a change to the current operation with regard to the number of (cray) pots used and the number of buoys used. I need to make a determination on what the magnitude of the change is. It is helpful if you discuss the difference between the current operation and proposed operation in the assessment of environmental effects. Details that I require to discuss this change are:*

a. *Identify how many buoys have been used on each of the sites, the Horseshoe Bay site and the Horseshoe Nugget site, while operating under the current permit. The previous consent restricted the number of cray pots, and this application requests a restriction on the number of buoys instead. Because of this change, it would be helpful for me to understand if there is going to be an increase or decrease in the number of buoys with the new proposal.*

The number of buoys on the Horseshoe Bay and Horseshoe Nugget sites have fluctuated during the operation of the current permit and have been mostly in step with the number of pots present on each site (one buoy marks one pot). Even at their 'busiest' the two sites would have each had 4 buoys marking the boundaries of the consented space plus 9 buoys for the Horseshoe Nugget site (for a total of 13) and plus 18 for the Horseshoe Bay site (for a total of 22).

Our best-case scenario projections for the next 5 years are outlined in the table and graph below. The total number of buoys required for this level of production has been divided equally between the three sites according to area in order to obtain these figures. The actual number of buoys installed on the site would likely be lower than this for a variety of reasons, however we thought that providing the most optimistic figures would be best in order for Environment Southland to make an informed decision about our application:

Buoys				
	Horseshoe Bay	Horseshoe Nugget	Nathan's Island	Total
Apr 2020	11	4	20	36
Apr 2021	38	16	71	125
Apr 2022	48	19	89	156
Apr 2023	83	33	153	269
Apr 2024	83	33	153	269
Apr 2025	83	33	153	269

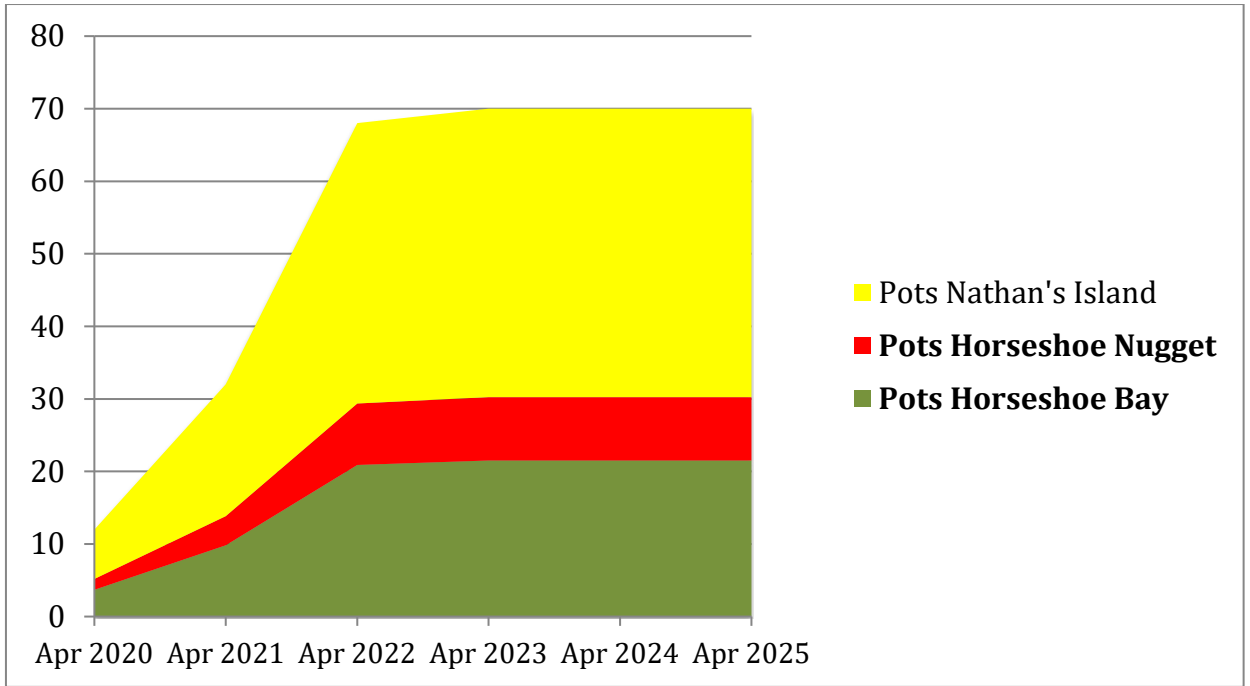


b. Clarify how many cray pots have been used under the current operation and how many will be used going forward under the new proposal at each of the sites; the Horseshoe Bay site and the Horseshoe Nugget site.

Up until this point, the number of pots has been no more than 18 at the Horseshoe Bay site and no more than 9 at the Horseshoe Nugget site, although at times the number may have been much less than this as the sites have not been utilised continuously for the last 5 years.

We have made projections of the number of pots required, based on an eventual production of 200,000 oysters harvested per annum, for the oyster seasons up to April 2025. The total number required for this level of production has been divided equally between the three sites according to area in order to obtain these figures. The results are summarized in the table and graph below:

Pots	Horseshoe Bay	Horseshoe Nugget	Nathan's Island	Total
Apr 2020	4	1	7	12
Apr 2021	10	4	18	32
Apr 2022	21	8	39	68
Apr 2023	22	9	40	70
Apr 2024	22	9	40	70
Apr 2025	22	9	40	70

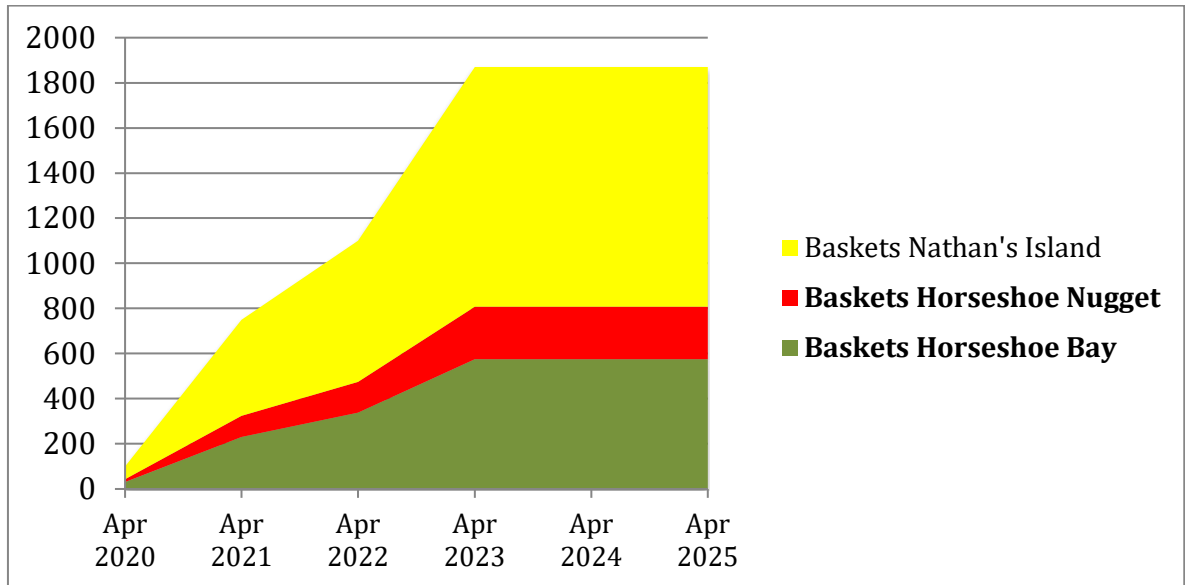


- c. *Identify how many baskets, and how many sets of baskets, you anticipate to use at each of the sites and outline if this differs from what has previously been occurring under the current proposal.*

Up until this point, baskets have only been used as a trial activity at the Horseshoe Bay site in order to test whether oysters grow more effectively at the water’s surface than on the seabed. The baskets are suspended from lines that are anchored between two marker buoys. Approximately 60 baskets are currently being used on the Horseshoe Bay site and none on the Horseshoe Nugget site. In an ideal scenario we would use a mixture of baskets and pots going forward and mitigate the visual impact of the marker buoys by colouring them light grey in coordination with the Council Harbourmaster and by depressurizing them so they do not sit proud of the water.

We have made projections of the number of individual baskets required, based on an eventual production of 200,000 oysters harvested per annum, for the oyster seasons up to April 2025. Baskets are used in stacks of 10 (a stack of five can be seen in Appendix ii of the application, photos 4 and 5), so the totals below should be divided by 10 to obtain the number of stacks. The results are summarized in the table and graph below:

Baskets	Horseshoe Bay	Horseshoe Nugget	Nathan's Island	Total
Apr 2020	31	12	57	100
Apr 2021	231	93	426	750
Apr 2022	338	137	625	1100
Apr 2023	575	233	1063	1870
Apr 2024	575	233	1063	1870
Apr 2025	575	233	1063	1870



4. Discuss any monitoring that was undertaken under the previous permit and what it showed by:

- a. Identify if there were marine farming activities occurring on the sites when monitoring was undertaken

Yes, to our knowledge there was farming activity taking place on the sites when monitoring was undertaken in 2016 and 2017 (these reports have been included with this response).

- b. Provide a copy of the report written by Brian Stewart from Ryder Consulting. The summary report in the application refers to the report written by Ryder Consulting and it would be helpful to have a copy of the actual report.

We have provided the complete report from Ryder Consulting in 2017 and another monitoring report from Ryder Consulting from 2016 that we were previously unaware of. Platinum Fisheries Ltd commissioned these reports while they were operating on the site.

- c. Clarify if monitoring was only undertaken once in 2017.
i. If not, include the other reports or summaries of results.

To our knowledge, monitoring was only undertaken once in 2017.

- d. Identify the location of where monitoring was undertaken by providing map references, GPS points or an accurate map with the sample points marked on it.

There are maps showing the locations of the sampling sites in the two monitoring reports (2016 and 2017) submitted with this information request response. In table 3.3.1 of the 2016 report the GPS co-ordinates of the sample sites are listed.

5. *Details of the proposed monitoring regime:*

- a. *Assess if the control sites are appropriate and whether they should continue to be used as control sites in the ongoing monitoring regime.*

The control sites shown on the map provided in the Ryder Consulting report are appropriate. In order to satisfy the requirements for an experimental control the sites should be near identical in every way to the sites underneath the farms except for one variable, the effects of oyster farming. This means the characteristics of the control sites – i.e. the benthos, benthic infauna and water quality - should be as close as possible to the sample sites under the farms. These control sites satisfy these requirements.

However, just because they are sufficient doesn't mean that we can't strive for improvements. If I had to make some suggestions for improvements to the testing regime in the Ryder Consulting report I would increase the number of samples to six for each site (three 'farm' samples and three control samples) and I would move the control sites slightly further away to make them fully independent of the farm sites. I'm happy to discuss this with the Environment Southland compliance team.

- b. *Identify if the monitoring from the proposed control sites will occur in the same map reference/GPS point every time monitoring is undertaken.*
i. *If not, explain why not*

The testing will continue to be undertaken at the sites in the Ryder Consulting report unless discussions with the Environment Southland compliance team and Ryder Consulting result in us making improvements to the location and number of the sampling sites.

6. *An explanation for why the landscape and seascape at the Nathan's Island site is not "outstanding". This area has been identified in the Boffa Miskell Study Stewart Island: Landscape and Coastal Natural Character Study and shown on Map 9 of that study. The application identifies that these sites don't fit the definition of "outstanding" however it does not explain why. My understanding of the study is that, despite some areas being modified, they can still be an outstanding natural landscape (areas with the least modification, but modified all the same).*

- a. *Include information explaining why the landscape beyond Lee Bay better fits the "outstanding" category*

This was covered in the "Analysis of Policy and Legislation" document that we supplied with the application but the following response should provide a good summary.

In our application we contended that the area of Mamaku Point, while visually attractive, does not fit the definition of "outstanding" as set out in the Boffa Miskell study. We

suggested that the boundary of Rakiura National Park at Lee Bay would be a more logical place for the boundary between landscapes with “high” or “very high” values and landscapes with “outstanding” values.

Between Horseshoe Bay and Lee Bay the coastline is still recovering from intense grazing and as such does not meet the highest standards of naturalness, which should be reserved for the “outstanding” category. The Boffa Miskell study authors in their Landscape Assessment Criteria state that:

“Under the RMA a landscape does not have to be unmodified to be natural, just relatively unmodified”

We agree, however they go on to say:

“Landscape assessments in New Zealand generally ascribe higher landscape values to unmodified areas, but this does not imply that anything less than pristine is devoid of natural values, **just that they are of lesser value**”

Anything of **lesser value** than “outstanding” ought to be “very high” as we argued in our application, and beyond Lee Bay the expressive values and naturalness of the landscape are obviously higher, both from the ground and from the air. The forest is intact and ecologically has succeeded to its ‘climax community’ as signified by the dominance of tall Rimu and other podocarp species in the forest canopy.

In Map 9 of the study the whole area of Mamaku Point from Horseshoe Bay wharf onwards is shaded to indicate that it is considered “outstanding” by the authors of the study. This is despite the area having been modified in the recent past. We believe this is because the report has not been sufficiently “ground-truthed” by the authors. The only site visit listed in the methodology of the study is an overflight of Stewart Island/Rakiura in a fixed wing aircraft. This would not be sufficient to make fine-scale judgements about the character of the island in our view, particularly in the built-up area of the island where the natural aspects of the landscape can change sharply over small distances. In fact, the authors admit that “the level of information on landscape values required a significant component of judgement by the study team”.

There are examples of this disconnect between the situation on the ground and the boundaries in Map 9: Natural Character map and Map 10: Outstanding Natural Landscape. For example the classification of the residential area in the north of Horseshoe Bay as “not outstanding” while the southern end of the Bay, including residential properties and the rubbish dump is classed as “outstanding”. Likewise the sewage treatment plant and the airfield are both included in the areas described as “outstanding” while a single property on Hicks Road, possibly the power station, is not included.

We agree with the large-scale definitions of which areas of Stewart Island/Rakiura should be described as “outstanding”. As locals we respect and care about the island and it is reassuring that most of the island would be protected from harmful coastal developments such as large salmon farms if the conclusions of the study were given the force of law. Our disagreements are merely at the fine scale and restricted to the built up area of Oban township, including Mamaku Point.

I hope this adequately explains our point of view and we recognize that decisions on landscape characteristics are inherently subjective and open to different interpretations.

- b. *If the landscape is identified as being “outstanding”, assess the adverse effects of the activity on the outstanding landscape*

Whether or not it is ultimately decided that the landscape is “outstanding”, the proposed activity will have some adverse effects on the surrounding landscape. I am satisfied from what I have seen of the activity – oyster farming – that these effects would be minor or less than minor.

Emission of noise

For example there is boat engine noise associated with the activity on the farm but it is not abnormal for an area that receives passing boat traffic and since the boats are usually idling while at the farm sites themselves, the noise is minimal. Indeed, these visits to the farm are not on a daily basis. Currently, the boats visit the Horseshoe Bay site once or twice per week on average.

Visual effects

Additionally, the visual effects of the farm sites are restricted to the above-surface objects – floating buoys and boats servicing the farm. These are similar to the cod and crayfish pot marker buoys that are used in the area.

Discharge of contaminants

The activity also involves some minor discharges, predominantly Hypostat (sodium hypochlorite 12.5%, diluted 20:1 in water) that is used on the deck of the vessels to de-foul equipment. Some of this would wash overboard but this is a chemical that is used to sanitise food-processing facilities and to chlorinate drinking water so we believe that it is environmentally benign. In a body of water the size of Horseshoe Bay this would be diluted and break down fairly rapidly in our view.

Placement of structures

Finally, the activity involves the placement of temporary structures (pots with lines attached and baskets hanging from suspended ropes) in the coastal marine area. These structures could potentially be a navigation hazard.

Ecological effects

Since *Ostrea chilensis* is native to the area there is no threat of introducing a new species to the local environment. Oysters are filter feeders so they have a positive effect on water quality and the site has strong tides so any depletion of phytoplankton due to oyster feeding should be minor or less than minor. Oysters need clean water with good phytoplankton densities for growth so preserving these qualities is in the interest of the farm managers. Another potential effect is enrichment of the benthos through shell deposition and deposition of biofouling (seaweed, tunicates etc.) as gear is cleaned.

- c. *If the landscape is identified as being “outstanding”, outline measures which will be taken (if additional to what is already identified in the application), to avoid, remedy or mitigate the adverse effects of the proposal.*

We do not believe that the adverse effects of this activity are any more than minor, let alone ‘significant’. All the same, because we live in a close-knit community and we care about Stewart Island, we have explored ways of mitigating these already minor effects, as detailed below:

Emission of noise

We have performed indicative sound readings of the boat (see page 10) that would be used to service the farm. These readings showed a peak noise emission of 57 decibels (dB), which is well within the limits (90dB) for permitted activities in the Regional Coastal Plan. We do not believe that this requires further mitigation other than being considerate of other boat users and obeying normal navigational rules as is current practice.

Visual effects

The main visual effect of the farm sites is the sight of buoys floating on the surface. We use buoys on the farm for two reasons – to mark the boundaries of the consented space and to mark the locations of pots and baskets of oysters.

To start with, our buoys are relatively small (150-400mm across). Much smaller than the large, black mussel buoys that are used to float ropes on which mussels are grown. We have discussed methods of mitigating the visual impact of our buoys with the Council Harbourmaster. We intend to keep the buoys marking the boundaries of the consented spaces white for visibility (four buoys per site) and we intend to place radar reflectors on these for increased visibility in low-light conditions. However, we will be painting the marker buoys pale grey to blend in with the surface of the water. This is instead of the brightly coloured buoys usually used to mark crayfish and cod pots. We submit that this dramatically reduces the visibility of the buoys at distances over 50 metres, significantly reducing the visual effects of the buoys

Additionally, the previous permit outlined a restriction on the number of pots that could be on the farm sites. In the interest of controlling what we regard as the most important adverse effect of the sites – the visual effect – we have suggested that a limit on the number of buoys might be included in the permit instead. This would be easier for Environment Southland to monitor, through a simple count of the surface buoys. In our proposed conditions, submitted with the original application, we suggested a limit of 100 buoys across all sites. Subsequent projections of our best-case scenarios for production over the next 5 years suggest that this will not be enough. If we use a mix of baskets and pots then a total of 269 buoys might be required. With pots alone the number is much less, at 140. All the same, these buoys will be painted as previously described and be very hard to spot from ranges beyond 50 metres.

A further method for mitigating the visual effects of the buoys that we are currently in the early stages of experimenting with is lowering the pressure of the buoys so that they are semi-submerged rather than floating at the surface. The intention would be to have the buoys marking baskets on rope line pressurised so that they sit just below the surface of the water, and therefore would be completely invisible except to an observer looking

straight down on them. As I say, this is something we are in the early stages of testing but it could be another useful method of mitigating visual impact.

Discharge of contaminants

The effect of discharging small amounts of Hypostat (sodium hypochlorite 12.5%, diluted 20:1) into the coastal marine environment of Horseshoe Bay is so minor that we see no need to mitigate it further.

Placement of structures

The effects of the temporary structures used in this activity on the marine environment are minor. None of the structures are permanently anchored to the seafloor. The lines used to suspend baskets of oysters near the water surface are anchored to the bottom using metal anchors but these can be lifted and create minor disturbance on what is predominantly a sandy benthos, not something more delicate such as epifaunal reefs or coral.

The pots are very similar to the crayfish pots that are already stored in, and used for fishing in, the coastal marine environment of Stewart Island. The anticipated effect of lifting and placing these pots (i.e. when inspecting oysters and de-fouling the pots) would be some rearrangement of sand or substrate where they sit on the benthos. They are too small to impede currents or affect sedimentation.

The structures involved in the activity will create novel habitat for fouling organisms such as seaweed and tunicates, however our 3-4 weekly cleaning regimen will mitigate this by preventing the buildup of these organisms and therefore minimizing any deposition of such material on the seabed.

Ecological effects

The minor ecological effects of suspended oyster farming are mitigated by the placement of farm sites in tidal areas that also are exposed enough to benefit from the mixing of wave action. Deposition of shell is minimal; all oysters are contained within baskets or pots and deceased oysters are returned to the wharf facility for sterilization with Hypostat (12.5% sodium hypochlorite, 20:1 dilution). Mussel farms have increased deposition on the seafloor because the shellfish are not contained within structures and the greater density of ropes and lines encourages more biofouling. In contrast, the activity on these sites is low density and no significant deposition from fouling is anticipated.

- 7. Provide evidence to show that the emission of noise from the vessels is a permitted activity under Rule 5.3.6 of the Regional Coastal Plan. The assessment of the effects on noise is not for the proposed vessels that will be used*

We have asked Planning and Resource Management consultant William J Watt to perform indicative sound readings of the boat (Stingray) used to service the farm and the results have been included with this further information response (see "Assessment of Noise").

In summary, the results showed that peak noise during normal activity was 57dB (well within the limit of 90dB for 'ships in motion' under the operative Regional Coastal Plan).

8. *Clarification of whether the monthly anti-foul regime of oysters and gear is proposed to continue. The application outlines that it is currently done.*

The monthly de-fouling of gear and shellfish will continue. In the summer it may need to be three-weekly in order to keep the baskets and pots clean of fouling. This ensures that there is adequate water flow through the baskets and pots, which the oysters need in order to grow and thrive.

I hope that this information satisfies your requirements and allows you to make a recommendation on the notification of this application.

Kind Regards,

Alasdair Burns (Southern Seafoods Ltd)

