Our reference: APP-20181316
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30 October 2018

environment SOUTHLAND REGIONAL COUNCIL
Te Taiao Tonga

Bonisch Consultants Limited
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Dear John,

Response to Further Information under Section 92(1) of the Resource Management Act 1991 - Application to establish three new marine farming sites for shellfish at Big Glory Bay, Stewart Island

Thank you for providing further information related to your application to establish three new marine farming sites for shellfish at Big Glory Bay (BGB), Stewart Island.

As you are aware Rob Davidson from Davidson Environmental Limited and Emma Newcombe from the Cawthorn Institute have reviewed the further information provided on the 17/08/2018. Environment Southland has now received both reviews of the further information provided.

Mr Davidson has raised a number of questions in relation to the further information provided.

Please provide the following further information:

General description of effects

1. On page 5, of his review when considering the relevant monitoring reports within Big Glory Bay, Mr Davidson notes that:

   'The extent of mussel farm impacts away from production droppers is generally accepted in the literature to be approximately <30 m distance. This can mean impacts from shell debris and sediment extend outside the consent. This is not usually regarded as an issue provided there are no biological features of importance in this zone. Little or no data has been presented on the benthic attributes other than the six NIWA sample stations. It is probable that these sites are representative of the whole application sites as depths are consistent.'

Please provide further comment from a science provider confirming that benthic attributes discussed in the further information provided are likely to be representative of the wider application sites? Please include evidence of this confirmation.

2. On page 6 of his review, when discussing the existing shellfish farm monitoring to date in Big Glory Bay, Mr Davidson notes that:

   'The Table provided in the response document provides a brief summary of monitoring since 1997. This fulfils the request for a "brief summary" of what monitoring activity has occurred. It does not outline "the where" and "an overall finding summary" as requested by ES.'

   Please provide a brief outline of where monitoring has occurred since 1997 and outline a summary of findings? This information will assist addressing the question of whether farms in the Bay conform to impacts described for mussel farms in the literature.

   Note: it is not necessary to outline every instance of monitoring, rather a summary of findings sufficient to establish the impacts of mussel farms in the Bay. It is also noted that bacterial mats are related to salmon farm impacts and need not be included in this summary.

Benthic effects

3. On page 6 of his review, when discussing potential benthic impacts of shellfish farming, Mr Davidson notes that:

   'Mussel farm impacts are well documented. The key question is how farms in the Bay conform to the literature and whether the applications are expected to also conform.'

   Please provide further comment from a science provider as to whether the impacts of the proposed farms will conform with the literature? Please include evidence that supports your comments.

Discharges

4. On pages 9 and 10 of his review, when discussing discharges and in particular the requirement within Policy 23(1)(b) of the New Zealand Coastal Policy Statement 2010 to avoid significant adverse effects on ecosystems and habitats after reasonable mixing, Mr Davidson notes that:

   'This has not been well addressed in the response document. The following comments provide some guidance. Shellfish farms result in a detectable impact within 30 m of growing structures. Although it is detectable, it is not usually regarded by biologists as adverse. Adverse is usually reserved for use in situations where detected impacts are at a level that leads to serious or intense change. It can also be used when the impact occurs on a "special" habitat or community type that is sensitive, vulnerable or rare.'

   Please provide further assessment from a science provider that confirms that:

   (a) the literature shows shellfish farms in this type of environment do not lead to adverse impacts; and

(b) "special" or significant habitats or communities are not present under the application sites.

5. On page 10 of his review, when discussing discharges and in particular the requirement within Policy 23(1)(f) of the New Zealand Coastal Policy Statement 2010 to minimise adverse effects on the life-supporting capacity of water within a mixing zone, Mr Davidson notes that:

'This has not been well addressed in the response document. The following comments provide some guidance. In Marlborough, there has been considerable debate about the cumulative effect of mussel farms on food supplies (i.e. seston) for other species. The need for scientific study was recognised as early as 1995 but little work has occurred. In BGB, there are lower numbers of shellfish farms compared to the Marlborough Sounds and there are several salmon farms that produce nitrogen that drives the production of phytoplankton.'

Please provide further information as to how the proposed activity can minimise the effects on the life-supporting capacity of water within a mixing zone?

This may include a discussion related to calculation of CT (clearance time) / RT (retention time) ratio.

Wildlife and habitats

6. On page 12 of his review, when discussing wildlife interactions, Mr Davidson notes that:

'Many seabirds roost on mussel farm floats while some species feed within farms. In Marlborough, considerable contention exists over the potential exclusion of king shags by mussel farms. This question remains unanswered; however, recent Environment Court decisions have erred on the side of caution. The Stewart Island (Otago) shag and Foveaux shag are closely related but these populations are considerably larger than the king shag and the colonies more widespread.'

Please provide further assessment as to whether the foraging habitat of the Stewart Island (Otago) shag, the Foveaux shag, the Dusky Dolphin, and Common Dolphin overlap with Big Glory Bay, and if it does, please provide and assessment as to how the proposed activity will affect that habitat.

7. On pages 12 and 13 of his review, when discussing whether any specific habitat areas will be impacted by the proposed application, Mr Davidson notes that:

'The NIWA study sampled the biota at the three applications using drop camera (n=4 per site) and grab sampler (2 per site). As depths were relatively consistent at each site, it is assumed their samples are representative of the species and substratum over the wider site. Some species of brachiopods are of scientific interest and are a group known to be impacted by mussel faring activities (Davidson and Richards, 2014). The giant lampshell (Neothyrus) was recorded from two of the applications and also CM13-A and CM 13-B (control mouth stations). In their discussion (Page 27), the authors state this species is "common around Stewart Island, especially Paterson Inlet where they are protected in the local marine reserve." The authors also state they can be found under mussel farms where they can be more abundant than adjacent dredge areas. Davidson and Richards (2014) also recorded

giant lampshell under a retired mussel farm in the Marlborough Sounds, however, their abundance under droppers was lower compared to control areas suggesting they were impacted to some degree.

The key issue in this instance is their distribution in Paterson Inlet. NIWA state they are common around the Island and especially so in Paterson Inlet. It is presumed they are suggesting a reduction in their abundance at the present site would therefore represent a small loss.'

Please provide further assessment from a science provider as to whether the abundance of brachiopods and giant lampshell (Neothyrus) recorded at the application sites are above or below densities known from the wider bay area?

8. On page 13 of his review, when discussing the effects of the proposal on indigenous biological diversity, Mr Davidson notes that:

   'Some comment on the use of the area by Stewart Island and Foveaux shag would be helpful to address relevant aspects of the NZCP.'

   Please provide additional comment on the use of the Big Glory Bay area by Stewart Island and Foveaux shag. Please include as assessment as to how the proposed activity will give effect to the direction provided within Policy 11 of the NCZPS.

9. Finally, on page 15 of his review, when discussing the biological aspects that required a response from the applicants science expert, Mr Davidson states that:

   'Of note is the presence of Neothyrus lenticularis (giant lampshell). In Marlborough this species is negatively impacted by mussel farming activities (Davidson and Richards, 2014). This species is however, widespread over many areas in Paterson Inlet (Richardson 1981; Davidson, 2002). Some discussion about the relevance of adversely impacting this species should the farms be approved is suggested (i.e. how does their decline in abundance under the farms relate to the bigger picture of Big Glory Bay and Paterson Inlet). Would the loss be regarded as significant to this species in the Inlet or are they so common and widespread it would represent a small or minor loss?"

   and

   "Based on NIWA and other data presented or mentioned in the application, there appears to be a biological pattern from inner to outer Big Glory Bay. This trend appears to influence grain size as well as surface and within sediment dwelling invertebrates? A brief overview of bay-wide patterns based on a variety of reports and data would be helpful. Questions such as: are the application sites similar to inner, low diversity epifaunal sites or more similar to higher diversity epifaunal sites in the outer bay?"

   Please answer the questions raised by Mr Davidson in the paragraph's above.

Ms Newcombe has also raised a number of questions in relation to the further information provided. Please provide the following further information:

Cumulative effects/carrying capacity

10. On page 3 of Ms Newcombe's review when discussing cumulative effects and carrying capacity, she notes:

    'Although depletion [of phytoplankton] effects of the three proposed farms alone are likely to be minor, the total amount of mussel farming in the bay is unclear from the application. It is possible that the mussel farms cumulatively could have an adverse effect on phytoplankton communities and other filter-feeding organisms that rely on phytoplankton as a food source. The section on ecological carrying capacity addresses this to some extent, in that the authors state that 'Mussel production is consistent, and there does not appear to be any "competition" between the sites for … food supply' (page 9). In the RFI response, the authors state that 'there is an obvious reduction in sites originally growing mussels' as a result of conversions of mussel farming areas to salmon farms. No detail is provided regarding this change. Confirmation of a reduction in bay-wide mussel farming intensity could resolve any concerns about the cumulative effects of depletion of the three proposed farms in addition to the existing farms.'

    Additionally, on page 5 Ms Newcombe's notes that:

    'The application focussed on nutrient enrichment potentially caused by the proposed farms, however depletion effects are a more important consideration for the water column. Depletion effects are not well considered in the application or the RFP. While the effects of small- to medium scale farms are not generally expected to be of concern, the siting of the farms in an enclosed bay with significant existing mussel farming and relatively slow current speeds increases the likelihood of phytoplankton depletion.'

    In this case, it seems that if it can be demonstrated that the three proposed farms would not increase the intensity of mussel farming beyond that of the past farming intensity (due to other farms being converted from mussel to finfish farming) and those historic effects were acceptable, then concerns regarding cumulative effects of mussel farms could be addressed. If an unacceptable degree of uncertainty remains after further information is sought, a staged approach to development (with appropriate monitoring) of the proposed farms may be appropriate.

    Please provide further information on the potential for cumulative effects of phytoplankton depletion as a result of the proposed activity, in the context of Ms Newcombe's comments above, including an assessment as to whether a staged approach to the proposal development would mitigate any potential effects.

Pursuant to Section 92 of the RMA, your application will remain on hold until the further information request dated 5 June 2018 has been fulfilled.

Please contact me if you have any questions regarding this request.

Yours sincerely

Andrew Maclennan
Consents Officer

Your application is here in the consent process: