

29 August 2016

ID: 1625

Dan Lees
Aquaculture Unit
Ministry for Primary Industries
Private Bag 14
Nelson
NEW ZEALAND

Dear Dan

BIOSECURITY ASSESSMENT FOR SALMON FARM RELOCATION SITES

Background

The Marlborough District Council and central government are working with the salmon industry on options to implement the Best Management Practice Guidelines for Salmon Farming¹ in the Marlborough Sounds. One of these options is to relocate some existing salmon farms from 'low flow' environments to more environmentally-appropriate locations (see attached map), to ensure the guidelines can be met in the future. Six existing salmon farms are presently positioned at low flow sites not ideally suited to modern salmon farming. Relocating these farms to more suitable sites is expected to result in better environmental, social and economic outcomes. Nine potentially suitable sites have been identified, which now require an Assessment of Environmental Effects (AEE). The Ministry for Primary Industries (under a Heads of Agreement with New Zealand King Salmon) has contracted the Cawthron Institute to undertake several components of each of the AEEs.

An initial stage in this process was a gap analysis of the existing information regarding the potential farm relocations. This gap analysis was undertaken by MWH (NZ) Ltd² and presented in a letter dated 14 March 2016. The analysis identified, at a high level, the quality of the existing information and the amount of effort or work required for inclusion in an updated AEE. This was categorised into five different levels ranging from where sufficient information exists for the AEE, to engaging a contractor and commissioning a full report. In terms of biosecurity risk associated with the relocation proposal, the gap analysis recommended that all that was required was a minor update or addendum letter confirming the previous conclusions, and whether or not the information and/or recommendations remain relevant. This letter addresses these aspects.

Scope of biosecurity assessment and general approach

This assessment focuses on biosecurity issues relating to 'marine pests', with biosecurity matters relating to disease (i.e. pathogens and parasites) addressed separately. Marine pests are marine

¹ Keeley et al. 2014. Best Management Practice guidelines for salmon farms in the Marlborough Sounds: Benthic environmental quality standards and monitoring protocol. Available at: <http://www.marlborough.govt.nz/Environment/Coastal/Best-Practice-Guidelines-for-Salmon-Farming.aspx>

² Marlborough Initiative - Gap Analysis. Letter to Hamish Wilson (MPI) from Nardia Yozin (MWH NZ Ltd) dated 14 Mar 2016. 7p.

This document may only be reproduced with permission from Cawthron Institute. Part reproduction or alteration of the document is prohibited.

animals and plants that are generally conspicuous or visible to the eye, and which have the potential to cause widespread and irreversible adverse environmental effects. In New Zealand, the term marine pests most commonly refers to problematic non-indigenous species (NIS). MPI has a current list of eleven such species³, some of which are already established in New Zealand waters.

As NIS typically spread beyond their first point of entry into New Zealand, biosecurity in the context of the relocation sites needs to be considered from a regional perspective, rather than on a site-by-site basis. For this purpose, an in-depth report is not required, as biosecurity issues were comprehensively addressed in 2011/12 as part of a proposal at that time by New Zealand King Salmon (NZKS) to develop several new salmon farm sites in the Marlborough Sounds. That proposal was assessed by the Environmental Protection Authority (EPA) via a Board of Inquiry (BOI) Hearing.

To assess the biosecurity implications of the present relocation proposal, it is sufficient to consider the relevance and validity of the conclusions from the biosecurity assessment undertaken as part of the original EPA process. The specific documents produced during that process, which are relevant to the relocation assessment, are as follows:

- Forrest B. 2011. The New Zealand King Salmon Company Limited: Assessment of Environmental Effects - Biosecurity. Cawthron Report No. 1981. 34p.
- Forrest B. 2012. Statement of evidence of Barrie Malcolm Forrest in relation to marine biosecurity for the New Zealand King Salmon Company Limited, June 2012. 24p.
- Forrest B. 2012. Statement of rebuttal evidence of Barrie Malcolm Forrest in relation to marine biosecurity for the New Zealand King Salmon Company Limited, August 2012. 9p.

The assessment below is undertaken based on my understanding that the proposal is to move up to six existing farms to six new locations chosen from nine potential sites. It is assumed that the relocation of cages and infrastructure would primarily occur from low flow to more suitable sites in close proximity (i.e. a few kilometres away). Which of the nine potential sites are most suitable won't be known until the AEEs for each site have been completed.

Assessment and conclusions of 2011 EPA report and related evidence

The general ways that aquaculture could result in marine pest risk arise from:

- The movement of infected vessels, equipment and stock, which can cause or exacerbate the spread of potentially harmful species.
- The provision of habitat on which some marine pests (i.e. biofouling) can proliferate, providing a 'reservoir' for subsequent spread, by both natural dispersal and human activities.

³ The list of MPI-designated marine pests is available at: <https://www.mpi.govt.nz/document-vault/10478>

- Modification of local natural habitats (e.g. through seabed enrichment), which may facilitate the establishment of certain pests (e.g. disturbance-tolerant species).

The conclusion of the biosecurity report and evidence from the EPA process was that the marine pest risk arising from NZKS was a very small part of the wider regional risk. Key related points from the original assessment, which remain relevant to the relocation proposal, are as follows:

- NZKS operations are largely confined to the Marlborough Sounds; hence, unlike many existing anthropogenic activities (e.g. vessel movements, mussel farm gear and stock movements), they do not provide a pathway for the introduction of new pest species to the region or their export from it.
- Although existing salmon farms provide reservoirs on which pest populations can build up and subsequently disperse, there is already considerable potential for marine pests to establish throughout the Marlborough Sounds as a result of existing activities and coastal developments (e.g. ports and marinas, jetties, moorings, mussel farms).
- NZKS operations, such as vessel and equipment movements among farms, have the potential to exacerbate the regional spread of established pests. However, NZKS operations are unlikely to have any appreciable bearing on the ultimate distribution or impact of marine pests within suitable habitats in the region. That is, most marine pest have the capacity to spread and establish within the region, irrespective of where NZKS farms are located.
- Local-scale environmental impacts at each farm have the potential to exacerbate the establishment of disturbance-tolerant marine pests. For example, the small bivalve *Theora lubrica* can be abundant at intermediate levels of enrichment in soft-sediments around salmon farm cages. However, this species *per se* is not considered a biosecurity threat, and is regionally and nationally common. Additionally, the types of disturbance that may facilitate the establishment of such species also occur as a result of many other regional activities (e.g. mussel farming, bottom fishing and other types of coastal habitat modification).

Implications of the relocation proposal

Given that there are no substantive operational changes associated with the proposed farm relocations, the conclusions above remain valid. None of the proposed relocation sites are in 'greenfield' localities not already subjected to ongoing biosecurity pressures. All of the sites are in general areas that already have salmon farms, mussel farms, and other coastal structures (e.g. moorings, and jetties) that are interconnected by vessel movements, as well as nearby natural habitats (including a rocky coastal fringe) that provide 'corridors' for the spread of pest species by natural dispersal processes.

At worst, the proposal could lead to certain pest species establishing in natural habitats at local spatial scales at a slightly faster rate than would occur as a result of existing activities. The types of organisms for which such effects might be evident will most likely be species with biological

attributes that restrict their dispersal distance to within hundreds of metres from their source populations (e.g. attributes such as a short-duration planktonic competency period). However, as was the conclusion reached during the EPA process, the relocated farms are unlikely to influence the long-term distribution and impact of any such species.

A potential biosecurity benefit of the relocation proposal is that, together with existing sites which will remain operational (i.e. Waitata, Richmond, Clay Point, Te Pangu and Ngamahau), NZKS farms would be clustered into two geographically discrete sub-regions; one cluster in Tory Channel and one in outer Pelorus Sound. This situation provides enables more effective area-based management of biosecurity risk that occurs when sites are scattered across the Marlborough Sounds, such as occurs in the existing situation; this point is discussed in the next section.

Mitigation

At the time of the EPA process, NZKS proposed a range of biosecurity provisions (addressing not only marine pests but also disease issues) to be included within a Biosecurity Management Plan (BMP). With respect to marine pests, the BMP was to include a number of measures consistent with good biosecurity practice, including:

- Vector management to reduce the risk of pest spread. Examples include measures to address ongoing risks from vessel movements (e.g. appropriate antifouling), as well as measures to minimise pest spread as a result of intermittent activities (e.g. removal of fouled predator nets to land-based facilities for cleaning or disposal).
- Surveillance to facilitate early detection of potential pest species. This component requires protocols for surveillance and procedures for response if target or 'suspicious' species are detected.
- On-farm practices to contain recognised pests and minimise their spread, such as implementation of an appropriate defouling regime for nets and cage structures (e.g. undertake cleaning at a frequency that minimises the build-up of advanced levels of biofouling).

The above considerations were subsequently incorporated into a comprehensive BMP developed by NZKS⁴, with input from Iwi, MDC and a technical expert. It is important that such a BMP is also implemented for the relocation sites, despite the relatively minor risk with respect to marine pests. In fact, it could be argued that the importance now is greater than it was at the time of the EPA processes, given that there has been increased national and regional action relating to the development and implementation of measures to control the spread of marine pests. For example:

- Marlborough District Council has been attempting to actively slow the spread of two recent incursions of unwanted marine pests⁵ in Queen Charlotte Sound (Picton marina and adjacent Waikawa Bay).

⁴ <http://www.kingsalmon.co.nz/kingsalmon/wp-content/uploads/2015/01/Biosecurity-Management-Plan-24-March-2016.pdf>

⁵ The clubbed tunicate *Styela clava* and Mediterranean fanworm *Sabella spallanzanii* were discovered in Picton and/or Waikawa in 2013/2014.

- The Top of the South Marine Biosecurity Partnership (involving the three top of the South councils, MPI, Aquaculture New Zealand and iwi) is investigating ways to best manage risk pathways, such as targeting recreational vessel biofouling.
- Aquaculture New Zealand (AQNZ) and MPI have been developing a range of approaches to improve biosecurity management in the aquaculture industry. As part of this, AQNZ have produced a sustainable management framework document for the salmon industry that describes related operational practices to reduce risk. The document is available at: <http://www.aplusaquaculture.nz/farmers-information/>.

It is important to ensure that biosecurity measures described in the BMP for the relocation sites are up-to-date, and encompass the range of activities and approaches described in the AQNZ document, and relevant supporting information from MPI (recently finalised) and elsewhere. It is also relevant that as of April 2016 a Controlled Area Notice (CAN) has been put in place for disease management that effectively prevents NZKS from transferring any stock or equipment between two identified controlled zones (an Outer Pelorus zone and a Tory Channel/Queen Charlotte Sound zone). NZKS is able to apply for a permit under the CAN to move structures, stock, etc. but obtaining the permit requires management of the risk. It is suggested that NZKS consider the extent to which these existing CAN requirements can be enhanced as part of their BMP, in order to also minimise the risk of pest transfer around the Marlborough Sounds. For example, additional measures could involve inspection and treatment of biofouling pests on vessels and equipment transferred between the zones.

I trust that the above assessment is sufficient for MPI's needs. However, please don't hesitate to contact me if you require further information.

Yours sincerely

Scientist

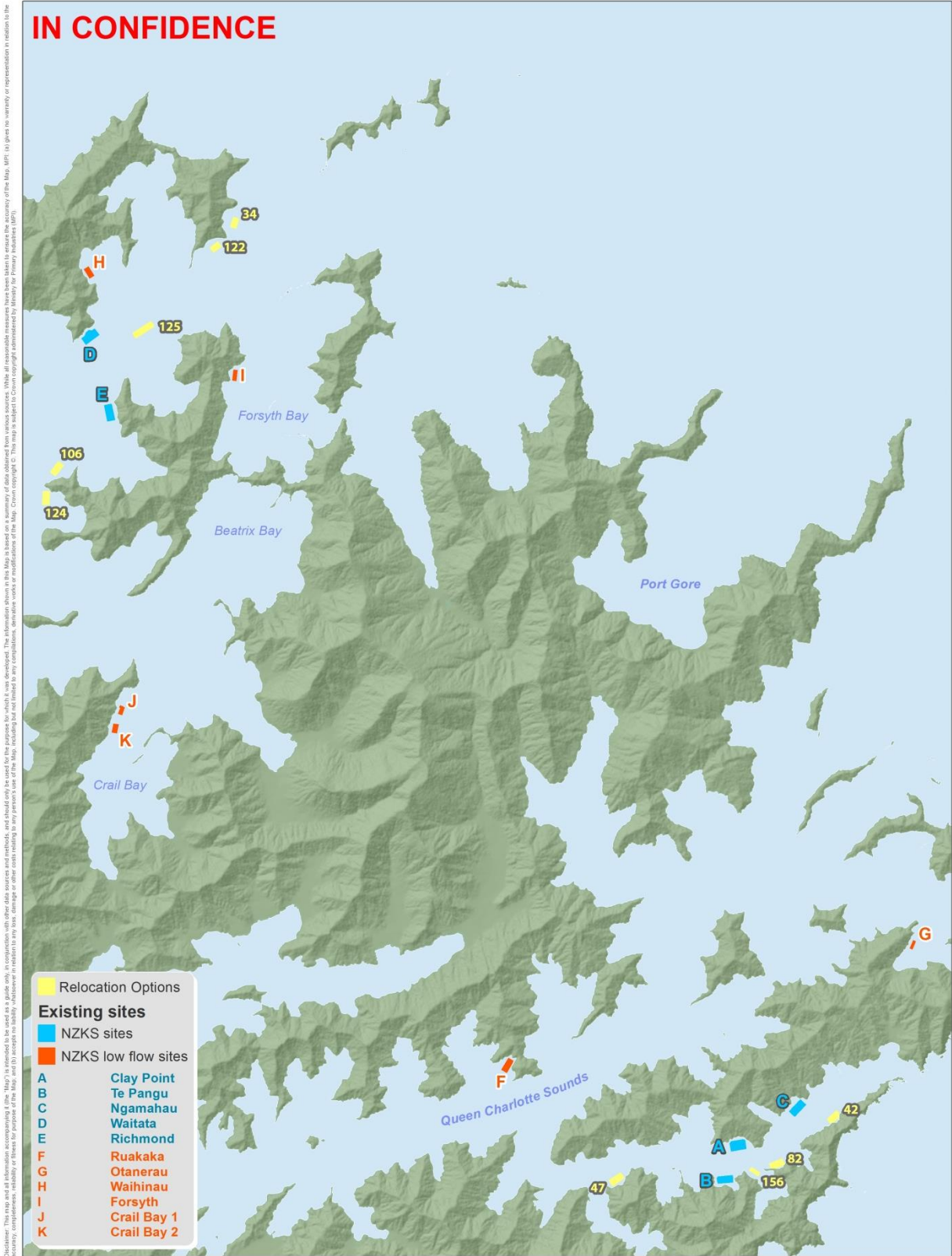


Dr. Barrie Forrest
Senior Marine Ecologist
Cawthron Institute

Reviewed by



Dr. Oliver Floerl
Senior Scientist
Cawthron Institute



Disclaimer: This map and all information accompanying it (the 'Map') is intended to be used as a guide only. It is not intended to be used for any purpose for which it was not developed. The information shown on this Map is based on the accuracy of data obtained from various sources. While all reasonable measures have been taken to ensure the accuracy of the Map, MPI (or) gives no warranty or representation in relation to the accuracy of the Map. The Map is provided as a guide only. It is not intended to be used for any purpose for which it was not developed. The information shown on this Map is based on the accuracy of data obtained from various sources. While all reasonable measures have been taken to ensure the accuracy of the Map, MPI (or) gives no warranty or representation in relation to the accuracy of the Map.

Ministry for Primary Industries
Manatū Ahu Matua



NZ King Salmon (NZKS) existing and potential relocation sites

Date: 14/04/2016
Plan Prepared for: Aquaculture Unit
Produced by: Spatial Analysis Solutions
Ref: r160178

Data Attribution:
This map uses data sourced from LINZ under CC-BY and Hillshade data, 2003, Geographix

This document may only be reproduced with permission from Cawthron Institute. Part reproduction or alteration of the document is prohibited.