

From: Mark Preece
Sent: 29 Apr 2020 14:28:53 +1200
To: monitoring
Subject: Response to queries on low flow sites
Attachments: CAL_2025_Fletcher_NZKS_Additional information for low-flow farm monitoring 20200424.pdf

Kia ora Claire

See attached a letter prepared by Cawthron to address the queries MDC had about the low flow site reports. If you have any other queries, please don't hesitate to contact me

Thanks

Me rongō

Mark

Mark Preece



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24 April 2020

Mark Preece
The New Zealand King Salmon Co. Ltd.
43 Dublin Street
Picton 7220

ID: 2025

Re: Additional information for Forsyth, Otanerau and Ruakaka salmon farms

Dear Mark

The Cawthron Institute has been asked to provide additional information with regards to the 2019 annual environmental monitoring at New Zealand King Salmon's (NZKS) low-flow farms located in Forsyth Bay, Otanerau Bay and Ruakaka Bay. Information is required for compliance purposes and relates to the marine environmental monitoring adaptive management plan¹ and the annual monitoring report².

Location and extent of environmental features within the vicinity and potential impacts on these features

Potential farm-related environmental effects on features within the vicinity of the farm include deposition of farm wastes (i.e. uneaten feed and faecal material) and associated benthic enrichment effects, seabed contamination from heavy metals, and nutrient enrichment and depletion of dissolved oxygen in the water column. The low-flow farms are all situated over soft-sediment habitats and do not have any significant reef habitats within their primary depositional footprint. However, nearby inshore hard substrate habitats (e.g. cobble and boulder habitats) can also be impacted by excessive deposition and nutrient enrichment from farm activities. These habitats are qualitatively assessed for general health biannually as part of the environmental monitoring programme. This assessment was last undertaken in October 2018 for all the low-flow farm sites. As such, this component was not part of the current environmental monitoring round.

What comprises the 'transitional zone'

The permitted levels of effect on the seabed are 'zoned' around each farm in accordance with pre-specified environmental quality standards (EQS) detailed in the respective resource consent. The 'transitional zone' for the low-flow farm sites is situated between 50 m to 150 m from the outside edge of the pens. It is expected that a gradient of effects

¹ McGrath E, Fletcher L 2019. Marine environmental monitoring - adaptive management plan for salmon farms: Ruakaka, Otanerau, Forsyth and Waihinau (2019-2020). Prepared for the New Zealand King Salmon Company Ltd. Cawthron Report No. 3406. 12 p. plus appendices.

² Fletcher L, McGrath E, Newcombe E, Elvines E 2020. Annual environmental monitoring at the Forsyth Bay, Waihinau Bay, Otanerau Bay and Ruakaka Bay salmon farms 2019. Prepared for The New Zealand King Salmon Co. Ltd. Cawthron Report No. 3483. 61 p. plus appendices.

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will occur within this zone (i.e. a decrease in enrichment levels with increasing distance from the farm).

Description of the types, location and area of structures within the 2 ha authorised area and a description of any movement or relocation of structures over the previous year

Forsyth Marine Farm

At the time of sampling (12 November 2019), the Forsyth Bay salmon farm comprised an accommodation/feed barge and four square, steel-framed pens (40 x 40 m) positioned in an end-on-end arrangement. The barge was located at the northern boundary of the 2 ha authorised area, with the pens extending ~110 m to the south (see Figure 1). The spatial area of structures was 160 m² for the barge and 6400 m² for the four pens combined. The farm structures were moved on site in March 2019 (smolt transferred in May 2019) and had remained in the same location since.

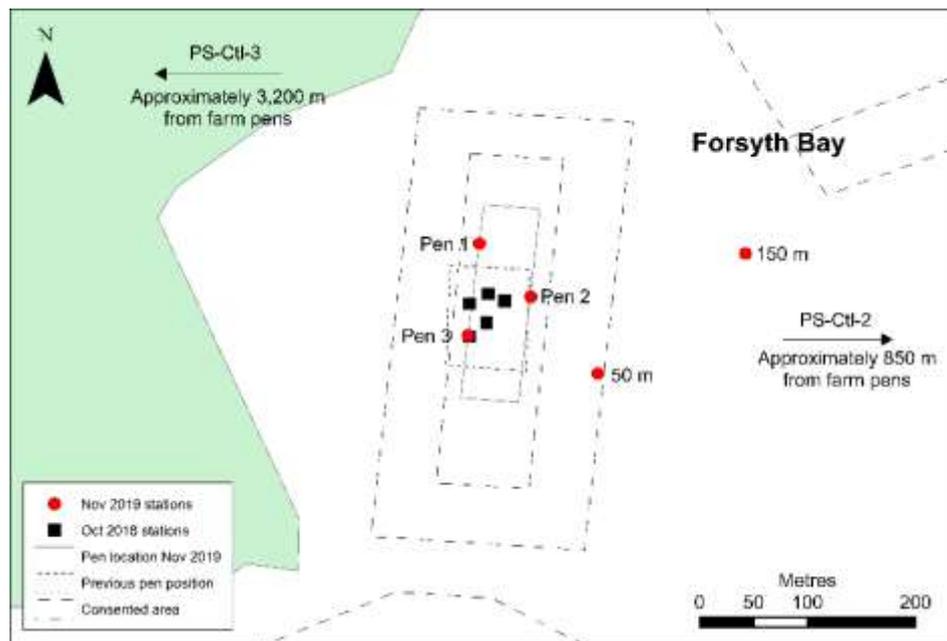


Figure 1. Farm location and sampling stations for annual environmental monitoring at the Forsyth Bay salmon farm site during November 2019. 'PS-Ctl' = Pelorus Sound Control. Position accuracy is ± 5 m.

Otanerau Marine Farm

At the time of sampling (2 November 2019), the Otanerau Bay salmon farm comprised an accommodation/feed barge and 12 square, steel-framed pens (20 x 20 m) positioned in a 3x4 arrangement. The farm was positioned at the northern boundary of the 2 ha authorised area (see Figure 2). The spatial area of structures was 180 m² for the barge

and 4800 m² for the 12 pens combined. There had been no movement or relocation of farm structures since the previous environmental monitoring in October 2018.

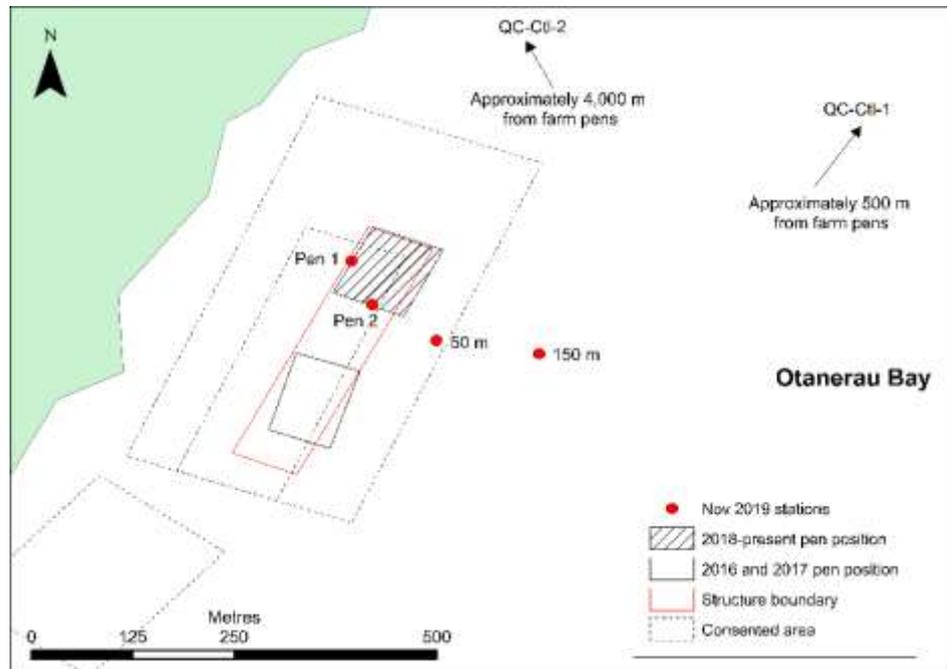


Figure 2. Farm location and sampling stations for annual environmental monitoring at the Otago Bay salmon farm site during November 2019. 'QC-Ctl' = Queen Charlotte Sound Control. Position accuracy is ± 5 m.

Ruakaka Marine Farm

At the time of sampling (2 November 2019), the Ruakaka Bay salmon farm comprised an accommodation/feed barge and 16 square, steel-framed pens (20 x 20 m) positioned in a 2x8 arrangement. The farm was positioned at the southern boundary of the 2 ha authorised area (see Figure 3). The spatial area of structures was 200 m² for the barge and 8000 m² for the 16 pens combined. The smaller trial pens at the northern end of the farm had been removed in May 2019.

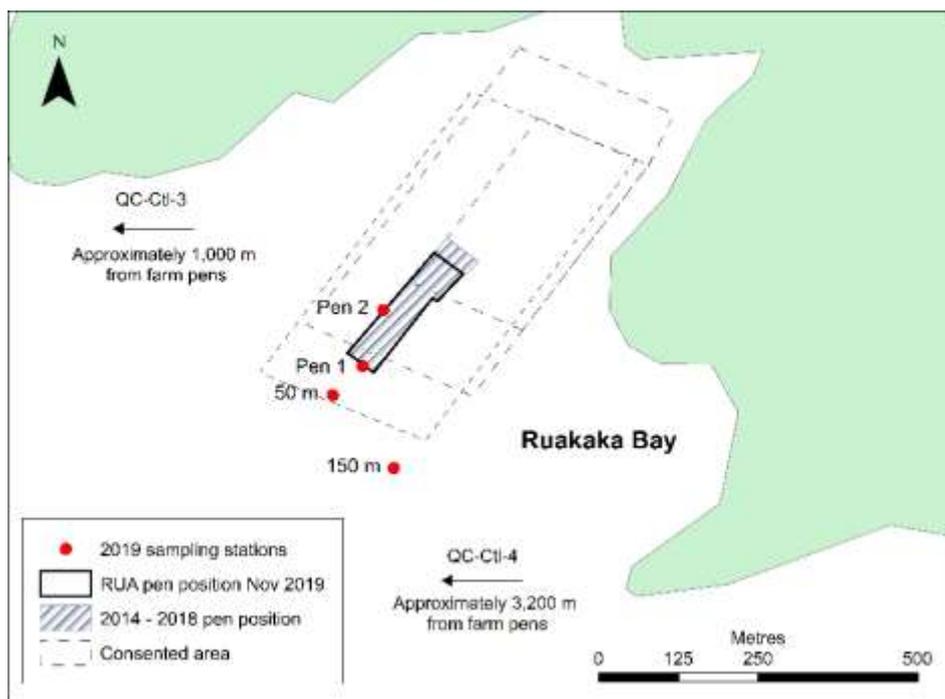


Figure 3. Farm location and sampling stations for annual environmental monitoring at the Ruakaka Bay salmon farm site during November 2019. 'QC-Ctl' = Queen Charlotte Sound Control. Position accuracy is ± 5 m.

Assessment of the adequacy of the monitoring programme

The annual environmental monitoring for the low-flow farm sites assesses two main components: effects of deposition on the seabed and inshore habitat, and effects on water quality. The soft-sediment sampling design generally comprises six compliance monitoring stations: two pen stations within the zone of maximum effects (ZME), one station at the boundary of the transitional zone (50 m), one station at the outer limit of effects (OLE; 150 m), and two reference stations. In the November 2019 monitoring an additional pen station was included for Forsyth as the farm had been recommissioned in May 2019 after being fallowed since January 2016. The soft-sediment sampling design for all sites exceeds the requirements for low-flow farms under the Best Management Practice (BMP) guidelines³, which require a minimum of five stations under Type 2 monitoring⁴. The water column sampling design is based on monitoring the 'worst-case scenario' at the pen edge, and then along the downstream transect to evaluate near-farm mixing. Water column monitoring for all low-flow sites is undertaken at the same time as the benthic monitoring component. We note that there are inherent limitations with single point-in-time sampling, in that it is unable to capture smaller-scale temporal variability, however the timing and frequency has been agreed upon with Marlborough District

³ MPI 2019. Best Management Practice guidelines for salmon farms in the Marlborough Sounds: Part 1: Benthic environmental quality standards and monitoring protocol (Version 1.1 January 2018). New Zealand Aquatic Environment and Biodiversity Report No 219. Prepared for Fisheries New Zealand by the Benthic Standards Working Group (N Keeley, M Gillard, N Broekhuizen, R Ford, R Schuckard, S Ulrich). 33 p. plus appendices.

⁴ The minimum sampling design comprises two stations within the ZME, one station at the OLE, and two reference stations.

Council and NZKS. We consider the overall monitoring programme adequate for the low-flow farm sites.

Here we have provided the additional information in the context of the 2019 monitoring round; however, we note that this information will be included in future monitoring plans and reports in accordance with consenting requirements.

Please do not hesitate to contact us if you require further information.

Yours sincerely,

Scientist



Lauren Fletcher
Coastal Ecologist
Cawthron Institute

Reviewed by



Holly Bennett
Coastal Ecologist
Cawthron Institute