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From: John Campbell [REDACTED]

Sent: 03 August 2022 16:05

To: planningemail - Loch Lomond <planning@lochlomond-trossachs.org>

Subject: Planning application 2021/0357/DET Loch Long Salmon

FOR THE ATTENTION OF Ms. A WILLIAMSON - CASE OFFICER

Please find attached to this email a submission raising a further issue relating to risk in future operation that has come to light very recently as a result of investigation by the Canadian Government of semi-enclosed salmon farming off Vancouver Island. This further substantiates my view that this development should not go ahead either in its present proposed form or at this specific location.

Regards

John M Campbell

Blairbeg House
Lamlash
Isle of Arran
KA27 8JT

Attached letter on page 2

Blairbeg House
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3 August 2022

Letter attached to email: planning@lochlomond-trossachs.org

Ms Alison Williamson – Case Officer
Loch Lomond and Trossachs Park Authority
Planning Department
Carrochan
Balloch
G83 8EG

Dear Ms Williamson

**PLANNING APPLICATION 2021/0357/DET
BEINN REITHE SEMI ENCLOSED SALMON FARM**

It has come to my notice through an online announcement by a campaigning organisation in Western Canada, Clayoquot Action, that the federal agency Fisheries and Oceans Canada has issued a statement regarding the mass mortality of salmon being reared in a semi-enclosed facility similar to that being proposed for Loch Long (*1). The tragic event had at first been thought to be related to jellyfish exposure or an algal bloom but following extensive investigation is now said to have resulted from exposure to ammonia, a major component of fish urine. This immediately points to insufficient replacement of the confined water volume within the impervious skirt of the semi-enclosed fish cage allowing pollutants to accumulate to levels injurious to fish health. Semi-enclosure in contrast with open cage aquaculture incorporates a system whereby water is abstracted from depth, discharged into the confined volume of the cage and discharged via outlets in the cage base. Essentially this ensures a flow-through of water free of disease vectors, sufficiently oxygenated to maintain fish life and with discharge of soluble nitrogen and phosphorus wastes including ammonia to avoid accumulation. This event in Canada suggests flow was insufficient to avoid a condition of chronic toxicity.

The risk of such a condition being experienced at the Loch Long site where the fish are poisoned by their own excretions is put into perspective by comparison with open cage salmon farming. A rough calculation points to a contained volume of a single cage, one of three, being some 39,000 cubic metres with 36,000m³/hr of pumped water being discharged into the cage. Information provided by the applicant points to 50 – 100 minutes to turn over the entire enclosure volume. Taking a recent open cage salmon farm development in the Clyde for comparison and assuming a similar cage dimension and volume within the open net with a measured mean velocity of tidal and current flow of 8cm/sec clearance of the total volume would be a maximum of 10 minutes. The precision here could be disputed but it is plain to see how the margins of safety governing contained

water quality and health are pared away and once again illustrate the wider risk of taking this new design development to full scale at the location where it is proposed without a proper pilot evaluation or demonstration project. The planners do not need reminding that what is being proposed here is a salmon farm of size comparable with the very largest of open cage units operating in Scottish waters.

On paper semi-enclosed salmon farming with collection of solid wastes offers tangible benefits when compared with open cage practices. It is however my contention that aspects of the design introduce higher degrees of risk that remain unquantified in the absence of demonstrable performance at scale. In this respect the head of Loch Long is entirely the wrong place to site such a large-scale experiment.

Yours sincerely

Dr John M Campbell C.Chem C.Env

Reference *1 [facebook.com/ClayoquotAction](https://www.facebook.com/ClayoquotAction)
(Information originally supplied to Clayoquot Action through a request under Canada's Freedom of Information Act to Fisheries and Oceans Canada Ref. A-2021-01465)