PE2109/G: Halt any further pump storage hydro schemes on Scottish lochs holding wild Atlantic salmon

Petitioner written submission, 29 July 2025

Ness District Salmon Fishery Board commissioned a Computational Fluid Dynamics (CFD) study on Loch Ness to examine the cumulative impact of pump storage (PSH) on the hydrology and temperature regime. The report can be downloaded here. Graphics showing the water flow changes arising from the cumulative operation of these schemes were also produced. This link shows the Graphic for Invermoriston to Urquhart Castle area of the loch, and this Graphic for Dores Bay area. As an alternative to reading the report we asked AI to generate a podcast based on the report. This podcast it is quite extraordinary and well worth a listen. It can be listened by clicking on the link at the top of this page https://ndsfb.org/pump-storage-hydro/ .

For the CFD Study a mid-May scenario was set up in the model with an appropriate temperature profile in Loch Ness, with all the pump storage hydro headponds full, and with synchronous generation at the start. Each scheme has different duration, and water volumes, so they soon become out of sync. The wind speed was set at 20kmph and the air temperature was 15oC. The model was then run over a 48hour period. It was assumed that the headpond temperatures were the same as the Loch Ness surface water (10oC) and no allowance was made for any thermal gain from the operation of the turbines. A multitude of different scenarios can be envisaged, but each model run is expensive.

The effect on Loch Ness is profound with cold water currents crossing the loch, changes to the temperature profile, including at depth, and the formation of a vortex in Dores Bay. The model was not run under calm conditions but it is quite likely that a cross-current between Glen Earrach and Foyers will become established. All of this occurring over a single 48hr period.

Ness DSFB were concerned that disruption of the natural hydrology Loch Ness would occur, but we were surprised by the scale of the changes shown in this model. A salmon smolt emanating from the Moriston, or any other tributary, is going to be exposed to conflicting currents, temperature changes, and if they end up in Dores Bay, enter into a vortex, which could become a food trap and a predation hotspot. All of which will make Loch Ness an even more hostile place for salmon smolts, with increased losses during the smolt migration. Dores Bay is also a designated bathing water and the potential formation of a vortex there is significant.

Ness DSFB are of the opinion that this report highlights one of the many unknown threats posed to Loch Ness by pump storage hydro, hence why we think it is essential that there is a public local inquiry. Our concern is primarily related to the ecology, but Loch Ness is such an important asset, not only to the Highlands, but nationally, that the issues need to be understood and debated so that a properly informed decision can be reached.