

Water level management in upper Lunan Water – Progress report on HECRAS modelling

Lunan Catchment Management Group meeting, 25th November 2019

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Remi Trenkmann, the ENGEEES intern student, has now successfully calibrated and validated the non-steady state version of HECRAS for the upper Lunan Water. This is to be found in his report (attached).

We are now exploring potential changes to the hydraulic structures currently in place (see Figure 1), as an alternative to a dynamic structure (ie tilting weir) as this may be more acceptable to riparian owners.

Modification to spillway d/s Balgavies Loch

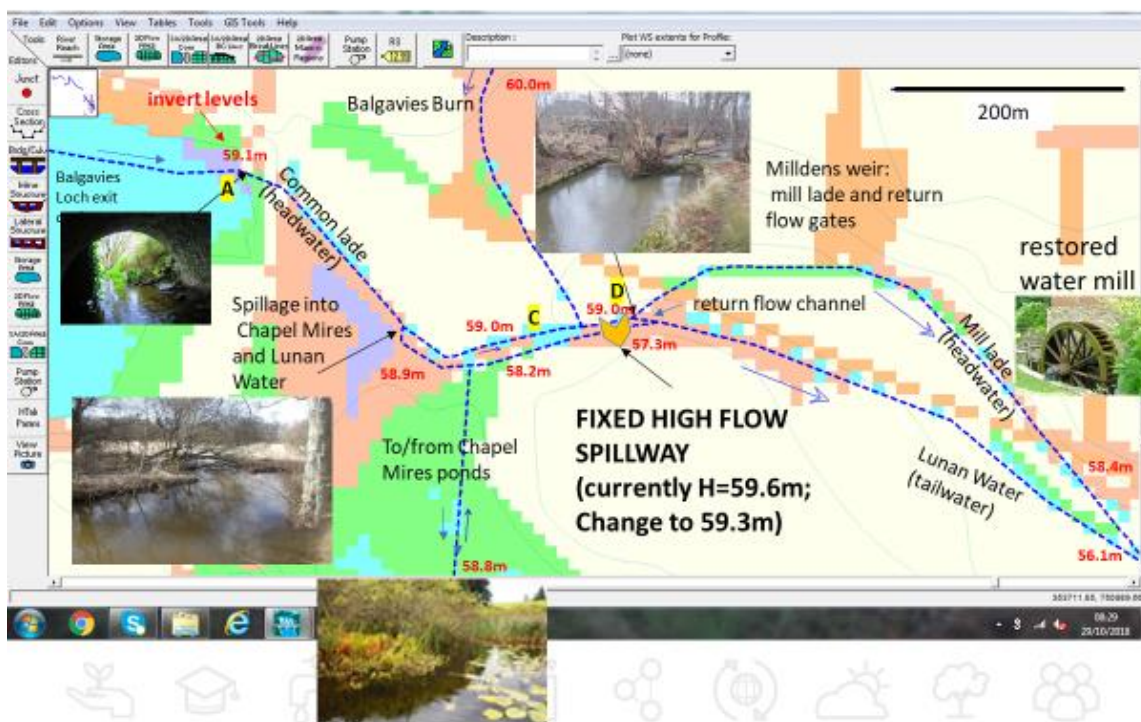


Figure 2 shows the impact on Rescobie Loch levels of simply lowering the high flow spillway on the Milldens Lade (currently with base level at 59.6m) to 59.3 m, for a simulated storm event of a size sufficient to give flooding at Rescobie Loch (>60.0m).

The modification reduces the number of days the water level is above 60.0m from 3d to 1.5d for this example. It also decreases the flow of storm event water to the Chapel Mires spillway.

Such a modification would be relative cheaply and easily achieved, for a clear benefit to flood risk and protection of Chapel Mires from eutrophication and sediment ingress.

Next steps are:

1. Development of a real time/forecasting tool for prediction of flood risk in Rescobie as a function of weir management. Feedback on this from stakeholders will be sought.
2. Re-approach riparian owners for comment. Draft letter from Lunan CMG is attached.

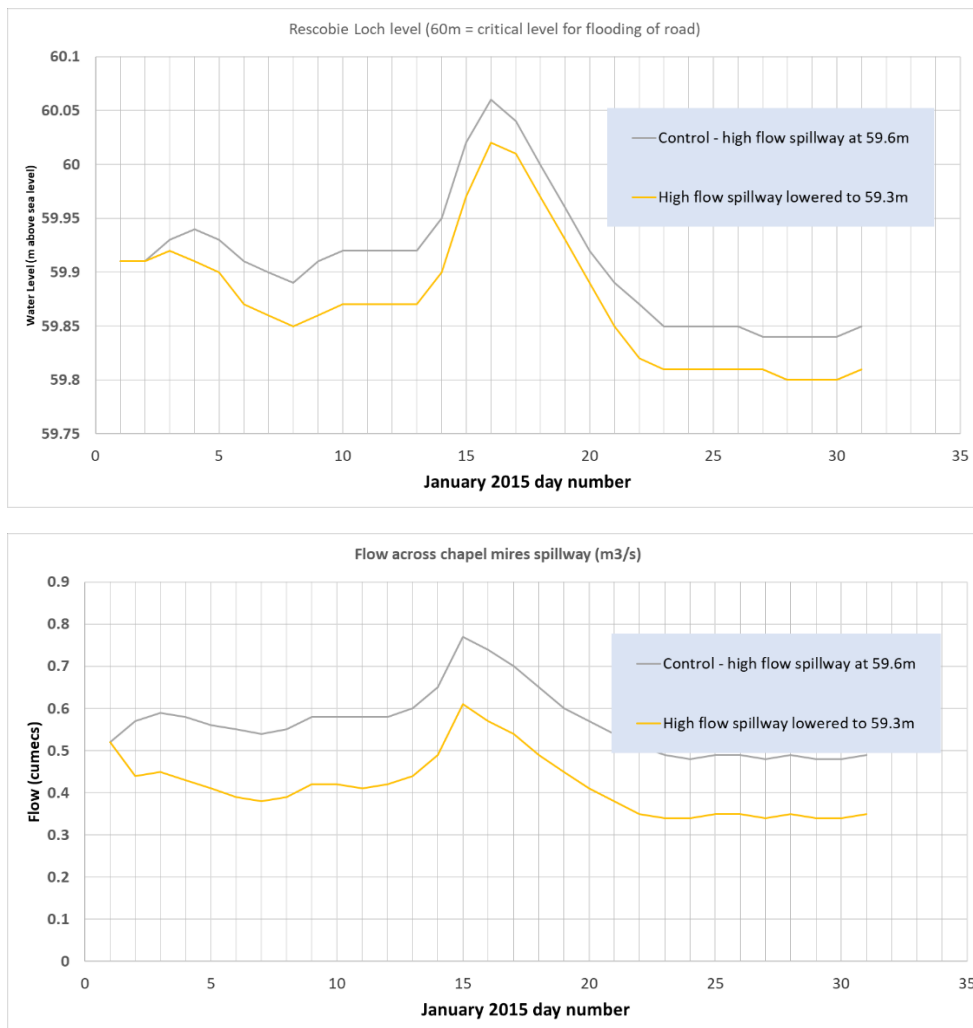


Figure 2. HECRAS non-steady state simulations of the impact of lowering the existing high flow spillway at Milldens weir from H=59.6m to 59.3m. A. Water levels in Rescobie Loch B. Flow of storm water into Chapel Mires Spillway.