

Below is a summary of progress to date (as of the 4th May 2022) of the fish toxicity study using dietary exposure of Dechlorane Plus:

A fish toxicity study using dietary exposure of Dechlorane Plus (DP) is currently being undertaken by Centre for Environment, Fisheries and Aquaculture Science (CEFAS) in the UK. The original plan was for adult F0 generation zebrafish to receive DP via dietary exposure using three exposure concentrations (low = 0.1mg/kg of feed, medium = 1mg/kg of feed, high = 10mg/kg of feed). F1 embryos would then be assessed via both fish embryo toxicity (FET) and OECD TG 234 studies – both with DP exposure continuing.

The initial results of the test so far do not suggest any overt chronic toxicity following dietary exposures of the F0 generation even after 11 weeks of treatment (as of 04/05/2022). Additional endpoints that will be investigated once sampling is concluded, include VTG determination in all F0 fish, body burden levels to allow modelling of bioaccumulation in spawning fish, liver antioxidant enzyme levels and general histopathology.

In the embryos, 5 FET experiments have been performed so far with the available embryos (which includes tests with additional DP exposure via water). Toxicity was again not obvious, including abnormalities and behavioural effects, regardless of the additional waterborne exposure. The F0 egg output in general was much lower than expected (including for control fish), potentially indicating suboptimum conditions or low quality of genitor fish. In addition, higher mortality of the embryos within the first 24 hours post fertilisation (hpf) has been experienced by CEFAS compared to previous years. Nevertheless, none of the observed effects were treatment related.

Overall, due to the low egg output in all groups including the controls together with the absence of observed toxicity to date, it is practically and ethically difficult to undertake as large a study as originally planned. The current intention is now to conduct a full fish early life toxicity test (TG210) following which, fish will be terminated at 30 days post hatch (dph) to allow toxicity assessment in the F1 generation, including candidate endpoints for thyroid disruption as currently suggested in the OECD Detailed Review Paper (DRP). Briefly, these endpoints will include thyroid and eye histopathology, with additional data for bioaccumulation in non-spawning fish as well enzyme/VTG analysis.

To conclude a report of all findings will be available to share ahead of the POPRC meeting at the end of September 2022.