

Modelling of hydraulic structures involving free surface, secondary flows and air entrainment

Summary

This thesis intends to apply and to extend the state-of-the-art-knowledge on the hydrodynamics in combined stepped spillways and piano key weirs (PKWs). It intends to study the impact on complex 3D flow patterns and air entrainment down stepped spillways when PKWs are installed the upstream end.

The project will use CFD to compare against existing experimental data from the University of Leeds and LNEC stepped spillways to validate different computational modelling methodologies for PKWs and Stepped Spillways, in addition to coupled structures.

Keywords

Piano key weirs, dam spillways, computational fluid dynamics.



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Period

2019-2025

Funding

Hydrotec Consultants, Ltd