Hydraulic conditions in a fish passage estimating the effect of different energy dissipaters

Master Thesis Environmental Engineering

Within a DAAD funded project named IKYDA with our partner National Technical University of Athens (NTUA) the chair of hydraulic research and water resources management offers a Master’s thesis for environmental engineers. The work includes a stay at the NTNU for approx. 4 weeks (not mandatory).

The successful passage of fish through a fishpass highly depends on the current and turbulent structure in the basins of the fishpass. Following the DVWK Merkblatt (German technical bulleling on fish migration) there are specific rules to follow for the design especially in terms of turbulence and energy in the basins which are still acceptable for the fish. These rules should be tested by the use of numerical simulations.

For the thesis the basic geometry and mesh for a fish pass has to be designed based on the data of an existing fishpass. The hydraulics shall be calculated using the software Flow 3D for this basic model and validated using data from a field study. Then at least two different structures shall be added to the basins and the hydraulics shall be compared between all these variations.

https://www.flow3d.com/industries/water-environmental/fish-passages/

Literature:

Damien Calluaud, Gerard Pineau, Alain Texier & Laurent David (2014); Modification of vertical slot fishway flow with a supplementary cylinder, Journal of Hydraulic; Research, 52:5, 614-629, DOI: 10.1080/00221686.2014.906000


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