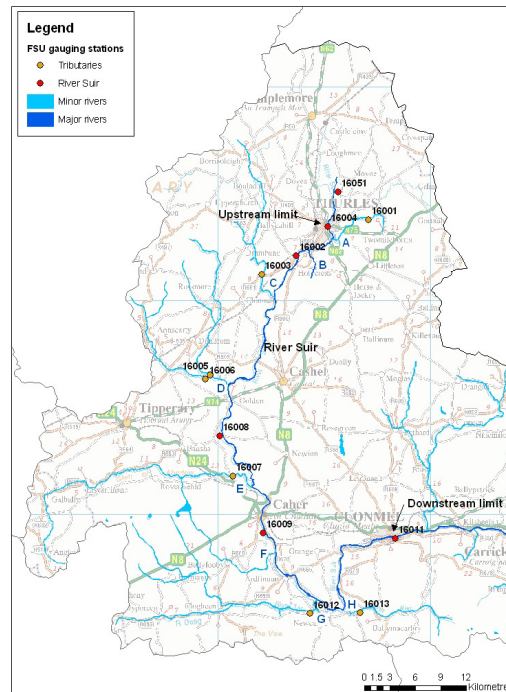


Flood Studies Update: Work Package 3.4 – FSU Guidance on Inputs to River Basin Modelling

Category: Flood Risk Management



Test Case Study in WP 3.4b: River Suir Catchment

Description:

The objectives of Work Package 3.4 of the Flood Studies Update were (i) to develop rules and guidelines for subdividing river models into reaches, choosing hydrological design inputs to river modelling studies, and “sizing” these inputs to the hydraulic models such that conditions in the river reach correspond to the intended return period (WP 3.4a), and (ii) to explore, trial and adapt these rules and guidelines based on case studies and practical experience (WP 3.4b).

In the development of large-scale (e.g. catchment-wide) river models of flood risk, there is a need to combine hydrological estimations and hydraulic models in a manner that reflects the structure of the catchment: including the arrangement of tributaries and the location of major floodplains. Intended to provide a more detailed, and spatially coherent, representation of flood risk, this “river modelling” approach will become more widely used in Ireland (e.g. for basinwide flood-risk mapping) once the FSU delivers flood estimation methods based on digital catchment data. Embedding flood estimation methods within such river models is, however, problematic.



WP3.3 is addressing one of the difficulties: the potential to double-account for the attenuating effect of floodplain storage.

The more general problem is that it is unclear how inputs to the hydraulic model are to be “sized” if conditions in the river reach are to correspond to the intended return period (i.e. the design flood rarity). Arbitrary factors are typically applied until the modeller feels that results are reasonable. The scope of Work-package 3.4 is to address these problems by developing and trialling a systematic approach to integrating flood frequency estimation and river modelling.

For further information about this work, please contact: oliver.nicholson@opw.ie

Design Team:

The OPW is responsible for the specification, procurement and direct management of the Flood Studies Update Programme, with technical direction provided by a Technical Steering Group, comprising representatives of the primary state / semi-state organisations involved with hydrology, hydrometric monitoring and associated research in Ireland, viz. OPW, Met Éireann, Environmental Protection Agency, Electricity Supply Board, IHP / ICID National Committee, and has two technical experts.

Construction Team:

Research Contractor: JBA Consulting
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Project Supervisor: Mark Morris
Project Manager : Duncan Faulkner

Dates:

Work Package 3.4 of the Flood Studies Update Programme was completed in May 2010.