

Hydrology report

Over the last number of weeks the project team has been busy compiling a hydrology report. The hydrology report contains details on all the different aspects of the hydrological analysis which has been carried out over the last 10 months (Please visit the project website at www.leecframs.ie for further information on the hydrological analysis) This includes a review of historical flood events, analysis of rainfall and river flow data, estimations of river flows for various annual exceedance probabilities and an assessment of the impact of climate change and land use changes on rainfall and flows in the catchment.

Fota Island golf course in Cork Harbour



Atkins Hall on the Lee Road



Mudflats along the shores of Great Island in Cork Harbour



Contact details

If you have any questions or require any further information relating to this study or if you would like to be included on a distribution list for future issues of this newsletter please email LeeCFRAMStudy@opw.ie

Further information is also available on our project website at www.leecframs.ie

Next issue

In the next edition of the newsletter we will look at the River Lee Hydro-Electric Scheme. This year marks the 50th anniversary of the construction of the two dams on the River Lee at Inishcarra and Carrigdrohid. The dams have played an important role on the management of flood waters over the last 50 years and will continue to do so into the future. The next edition of the newsletter will be published before Christmas.

LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Newsletter - 15
November 2007

Halcrow



Introduction

Welcome to the November 2007 issue of the Lee CFRAM Study newsletter. This is our 15th edition of the newsletter which aims to provide you with information on different aspects of the project and keep you informed of project progress. Copies of all our past newsletters are available on the project website at www.leecframs.ie

The focus on section in this month's newsletter looks at the methods of displaying uncertainty associated with flood extent mapping and follows on from the August edition of the newsletter which focussed on the flood extent mapping for the Lee CFRAMS.

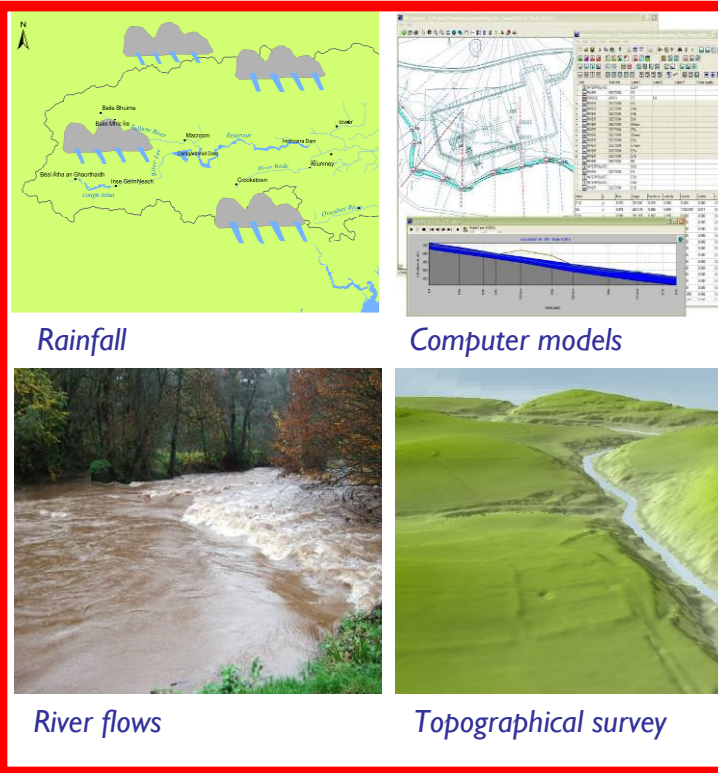
Focus On

Uncertainty mapping

Flood maps are one of the main outputs of the hydraulic modelling process and will form the way in which the hydraulic model results are communicated to the end users.

As part of the Lee CFRAM Study, Halcrow are undertaking a research project on behalf of the OPW to test and calibrate a method for determining uncertainty. This is based on a scoring and weighting system which will determine a 'high', 'medium' or 'low' degree of confidence for calculated estimates of flow, level and flood extent. The research project will assess potential uncertainty that could arise from various components of the process in the flood extent determination, such as those set out in the bullet points opposite.

Mapping flood extents in a single common manner implies a consistency in the standard of data. However this is rarely the case and data can vary significantly along a river reach or between



Rainfall

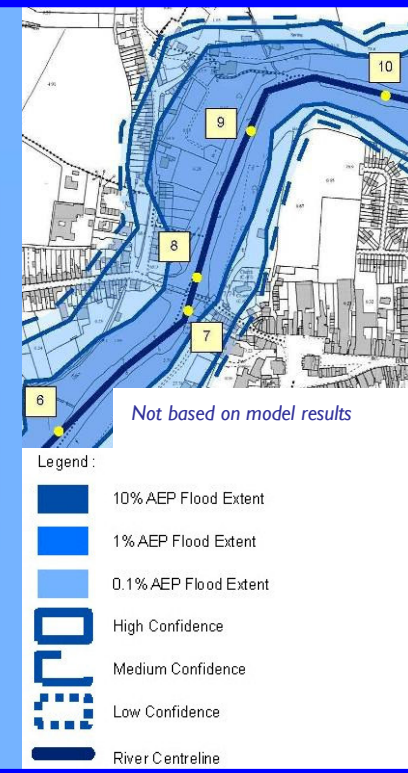
Computer models

River flows

Topographical survey

Uncertainty Analysis

Uncertainty mapping



watercourses. The main factors which contribute to uncertainty are:

- Hydrometric data (rainfall and river flow data)
- Topographical survey data (channel and structure cross sections, LiDAR survey data)
- Hydraulics of river flows (computer modelling of channel and floodplain roughness)

The uncertainty associated with a given flood extent will be graphically represented on the flood extent maps through the use of dotted and solid lines which surround the shaded flood extents. These lines represent the level of confidence in a given flood extent outline. A solid blue line represents areas of high confidence and certainty. A dashed line represents areas where the confidence in the flood outline is moderate. A dotted line represents the

areas of the map where there is low confidence in the accuracy of the flood extent (see the map above). The uncertainty can also be expressed in terms of water surface height at a point, useful in areas of complex floodplain topography.

In order to reduce uncertainty in the flood extent outlines the project team is using the best available data and hydraulic computer modelling software. ISIS is an advanced 1D and 2D computer modelling software package which is being used to model flows in the river channels and floodplains. The latest surveying techniques have been used to gather up-to-date information on the river channels (channel and structure cross sectional survey) and floodplains (LiDAR survey). The hydraulic computer models will be calibrated using actual flood event data to ensure they are working correctly. Further information on the computer model calibration will be available in a future edition of the newsletter.