

# Flood Data Collection

## COLLECTING DATA DURING OR AFTER A FLOOD

Data can often be collected directly by government or local authority staff during the flood event using photography, video or survey. Photographs taken at the peak of an event, which include the flood level and / or extent against identifiable structures or locations, can be a particularly practical and time efficient method of recording key information. Alternatively, flood marks made during the event (as described above) can be photographed, and possibly surveyed at a later date.

It is useful to know whether the levels or extents are indeed at the peak of the event. If possible the time and date of the photograph should therefore be noted, preferably using the date functions of the camera so that this information is stored in the filename of the image or alternatively, printed directly onto the photograph once processed.

Data can also be collected after the event by interviewing local residents who often have a vivid recollection of the event, such as which step the floodwaters reached. They might have taken photographs or videos themselves, or have made their own flood marks that could be photographed and / or surveyed. Residents might also be able to describe the flooding mechanism.

### Health and Safety during flood data collection

Floodwaters may be contaminated or polluted, there may be hidden underwater hazards and fast-flowing floodwater can carry heavy debris and easily sweep people away. Extreme caution should be taken when working in proximity to flooding.

### Flood Maps and Reports

A simple and accurate method of collating and displaying the relevant extent and level information after the data has been collected is to produce a map of the flooded area (as determined from residents' reports, photographs, etc.), with peak flood levels at particular locations if available. GIS maps are valuable as they can be easily uploaded and displayed on [www.floodmaps.ie](http://www.floodmaps.ie). A brief accompanying report can detail additional information such as flood mechanism, time and duration of flooding, emergency response and estimated damage.



Flood map showing flood extents

## CONTACT DETAILS

If you have any queries concerning any aspect of this brochure or flood data collection in general, or have any historic flood information of the type described within this document that you would be willing to make available to the OPW, please contact any of the following:

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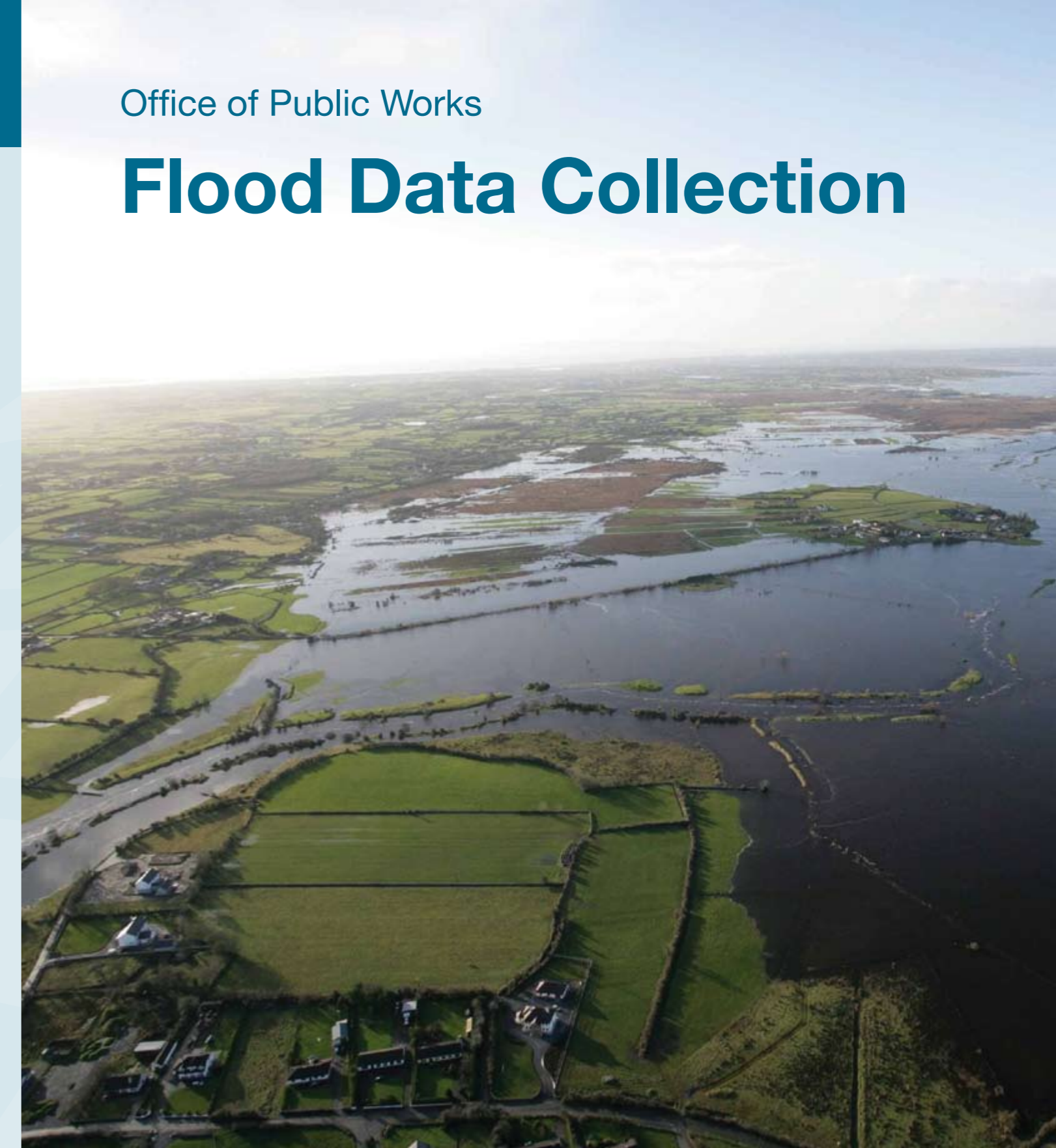
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## FREEDOM OF INFORMATION

Please note that the Office of Public Works is a public body covered by the terms of the Freedom of Information legislation, and that any information provided may be liable to release in response to a request under that Act. If you would prefer that any part of the information provided by you would not be released please identify it, and you will be consulted before a decision is made on any Freedom of Information request received in relation to such information.





## INTRODUCTION

Numerous severe flood events have occurred throughout the country in the last decade, causing extensive damage, including serious flooding on the Shannon, Suir, Munster Blackwater, Slaney, Barrow, Nore, Tolka and many other rivers. Homes, commercial and industrial premises, infrastructure, and agricultural lands have all been affected by the floods, causing major financial cost and great personal hardship and distress.



Newcastle West, 2008. Courtesy: Kevin Daly



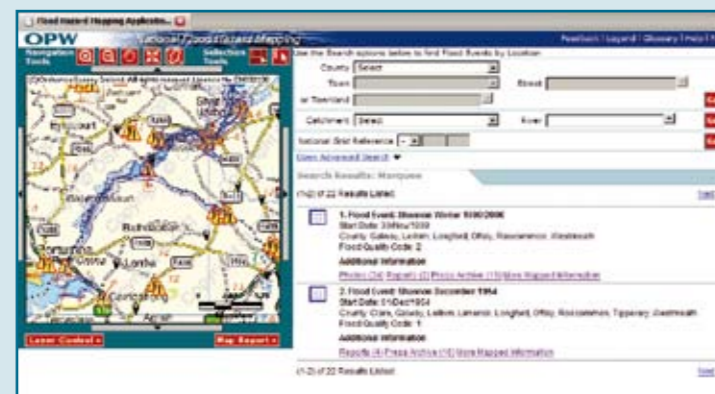
Enniscorthy, 2000. Courtesy: People Newspapers

This brochure is intended to help government and local authority staff to optimise the use of valuable resources in collecting flood data and information during and after a flood.

## OPW CENTRAL FLOOD DATABASE

The Office of Public Works (OPW) has responsibility as lead agency for flood risk management for coordinating the development and publishing of national flood maps.

The OPW maintains a database of historic flood data, which is displayed on the website [www.floodmaps.ie](http://www.floodmaps.ie). Information collected during or following a flood, or indeed any similar data that is currently stored in your records that has not previously been supplied to OPW will be of great value and benefit to all users. This data will help keep the database up to date and may be displayed on the website.



Screenshot of website [www.floodmaps.ie](http://www.floodmaps.ie)

## USEFUL FLOOD DATA

Types of flood data are described below, along with useful indicators and methods for marking or observing the level, extent, etc.

### Flood Levels

The maximum level reached during a flood (peak water level) is possibly the most helpful item of data that may be collected during, or in the immediate aftermath of, a flood. This maximum level may be observed or recorded during or after the flood by:

- Keeping a record of peak flood level marks by using spray paint or waterproof chalk marks on walls, posts, doors or road surfaces.
- Seeking anecdotal evidence from residents as to water depths above, or distances below, fixed objects (e.g. above floor level, door steps, window sills, blocks on a wall, etc.).



Flood level visible on walls and telegraph pole.



Flood levels can be surveyed from debris marks. Courtesy: Kevin Daly

Of particular use in analysing floods and flood risk is a profile of the peak water levels through a town or village (i.e. a series of peak levels along the length of the river), which can provide vital information in the calibration of a hydraulic model of the river. Similarly, peak water levels up and downstream of bridges, weirs, etc., can be very valuable in calibrating the headloss, or inefficiency, caused by particular structures.

### Time and duration of flooding

The date and time of a flood record (such as when a photograph was taken) can help determine whether the record indicates the peak of the event. The duration identifies the period for which the flood inundated a particular property or location or exceeded a particular level. This type of information is generally recorded as a date and time recorded on, or associated with, a photograph or other record, but can also be found in newspaper articles, general flood reports, etc.

## Extents of flooding

Records of the extents of flooding identify areas that have flooded in the past and might therefore be at risk of flooding in the future. Flood extents may be recorded during and after a flood from: -

- Marks on roads to indicate the furthest extent that the flood waters reached (see right)
- Photographs or videos taken during floods
- Anecdotal information (e.g. verbal reports describing which properties, or how many, flooded, or which roads flooded and where)
- Newspaper articles and reports, etc.
- Emergency services records (e.g. records of which houses reported flooding and when, or which houses, sandbags were delivered to)



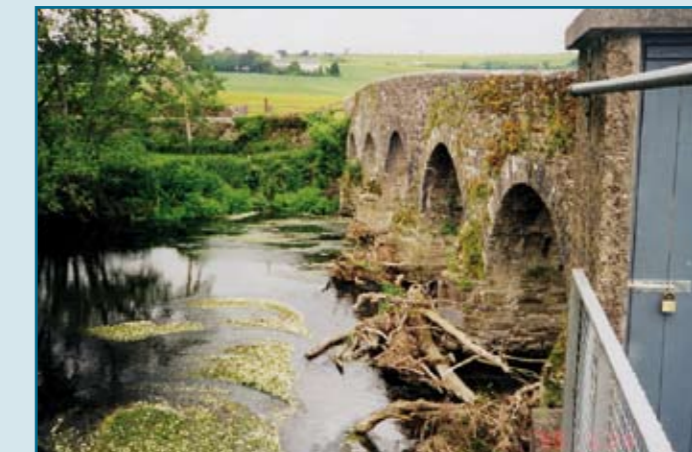
Flood extents marked on a road

- Flood extent maps developed from available data. Maps provided in GIS format are particularly relevant.

## Flood source and cause

The source of floodwaters can be from heavy rainfall, river, sea etc. The cause, or mechanism, of flooding describes how these floodwaters created a flood and may include blocked culverts or bridge arches, overtopping of banks, breaches of defences, surcharged or backed-up sewers, a bypassed defence, or a combination of these factors.

Knowing the cause of a flood is the first step in understanding the most appropriate method for reducing the likelihood of it happening again and will assist in the design of possible flood risk management measures. Information on flood causes may include details of the following:



Debris left by high flows indicating blockage as a possible cause of flooding upstream

- Channel restrictions, blockages
- Afflux (heading-up) at bridges
- Log-jams or sudden releases of water
- Low points in embankments or river banks that allow flood waters through
- Surface water ponding
- Backing-up of water through sewers
- Direction of flow, if any, along floodplains or in drainage channels, and the route taken by the flood waters