Flood Zones and supporting datasets - Product Description

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What are the Flood Zones and supporting datasets

Flood Zones Overview

The Environment Agency categorises land based on its likelihood of flooding. Flood Zones represent an annual probability of flooding from rivers and the sea and do not take account of the presence and effect of flood defences, unless they increase the area potentially at risk of flooding.

Why Flood Zones are created

The Environment Agency has the delegated responsibility from UK government to produce mapped extents for Flood Zones 2 and 3; and to make them available to planning authorities in England to support the implementation of government planning policy. Flood Zones are designed for both strategic spatial and development planning purposes in England.

The Flood Zones are shared, alongside other supporting datasets, through the Flood Map for Planning digital service and the Defra Data Services Platform to raise awareness of flood risk for informing planning policy with our partner organisations.

What they show

Flood Zones

The Flood Zones show the extent of land at present day risk of flooding from rivers and the sea, ignoring the benefits of flood defences, for the following annual probabilities which are defined in Table 1 of the Planning Practice Guidance:

- Flood Zone 1 – Land having a less than 0.1% (1 in 1000) annual probability of flooding
- Flood Zone 2 – Land having between 0.1% - 1% (1 in 1000 and 1 in 100) annual probability of flooding from rivers or between 0.1% - 0.5% (1 in 1000 and 1 in 200) annual probability of flooding from the sea, or accepted recorded flood outlines
- Flood Zone 3 – Areas shown to be at a 1% (1 in 100) or greater annual probability of flooding from rivers or 0.5% (1 in 200) or greater annual probability of flooding from the sea

Flood Zone 3b represents the Functional Floodplain. This zone shows land where water has to flow or be stored in times of flood. The Environment Agency are not required to map the outer boundary of the extent of Flood Zone 3b, and it is usually included within our mapped extent of Flood Zone 3.

We have produced a Defended 3.3% (1 in 30) annual exceedance probability (AEP) dataset to support conversations related to the Functional Floodplain, however, it is the responsibility of the Local Authority to define the Functional Floodplain.

Supporting datasets

As well as the primary Flood Zone dataset, several additional flood risk datasets are available to support the use of Flood Zones in the planning process. Like the Flood Zones, the supporting datasets present the extent of land at risk of flooding to a defined annual exceedance probability (AEP).

These include datasets showing the risk of flooding from rivers and sea, and surface water, for the following scenarios:

Present Day scenarios:

- Undefended: 0.1% AEP (1 in 1000) Rivers/Sea
- Undefended: 1% AEP (1 in 100) Rivers/ 0.5% (1 in 200) Sea
- Defended: 0.1% AEP (1 in 1000) Rivers/Sea
- Defended: 1% AEP (1 in 100) Rivers/ 0.5% (1 in 200) Sea
- Defended: 3.3% AEP (1 in 30) Rivers/Sea
- 0.1% AEP (1 in 1000) Surface Water
- 1% AEP (1 in 100) Surface Water
- 3.3% AEP (1 in 30) Surface Water

Climate Change scenarios:

- Undefended: 0.1% AEP (1 in 1000) Rivers/Sea
- Undefended: 1% AEP (1 in 100) Rivers/ 0.5% (1 in 200) Sea
- Defended: 0.1% AEP (1 in 1000) Rivers/Sea
- Defended: 1% AEP (1 in 100) Rivers/ 0.5% (1 in 200) Sea
- Defended: 3.3% AEP (1 in 30) Rivers/Sea

The **undefended** datasets show flood extents that ignore the presence and condition of flood defences.

The **defended** datasets take into account the presence of flood defences and assume that they operate in the way they were intended (or designed) to function. This does not include any asset failure (or removal) scenarios.

Climate change scenarios have been produced to indicate the predicted impacts of climate change on future risk. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5.

The datasets shown on Flood Map for Planning are aimed at supporting planners and developers to make long-term decisions about the location and design of development and the use of land. Such decisions need to account for the full anticipated lifetime of the development being planned. We have therefore chosen:

- the ‘Central’ allowance for the 2080s epoch (2070-2125) for risk of flooding from rivers
- the ‘Upper End’ allowance for risk of flooding from the sea, accounting for cumulative sea level rise to 2125

For climate change scenarios, it is assumed existing flood defences continue to function in the same way as present day. No allowance is made for any future changes to flood defences design or operation.

The Flood Map for Planning will also display **surface water flood risk** for the first time. This increases the visibility of this important source of flooding so it can better inform the location and design of development. LLFAs remain the lead risk management authority for this source of flooding and a statutory consultee on all major planning applications.

How the Flood Zones and supporting datasets are managed

How they are created

Flood Zones

The Flood Zones are created using local flood model outputs, recorded flood outlines and national flood model information. These are combined to generate extents of land at flood risk, with the aim of using the best available flood risk information in any one location.

For particular areas, sections of a previous Flood Zone dataset have been retained. These are due to be replaced in the future.

Supporting datasets

Defended data

The defended supporting data are created using defended scenarios from local and national models.

Undefended data

The undefended supporting data are created using undefended scenarios from local and national models.

Climate Change data

Climate change data are created for the **defended** and **undefended** datasets using available information from local and national modelling for the agreed climate change allowances.

Note! Climate change scenarios are **not** produced for Flood Zones.

Surface Water data

For further information on the Risk of Flooding from Surface Water datasets and how they were created, please see: Risk of Flooding from Surface Water

Update frequency

In the future we plan to publish the data every three months and update it in locations where new local flood model information is available. Updates on these timescales can be found on Updates to national flood and coastal erosion risk information - GOV.UK

Uses and limitations

Who uses these datasets and why

The Flood Zones are used by local planning authorities to know when to consult the Environment Agency on planning applications in line with Schedule 4 of the Town and Country Planning (Development Management Procedure) Order 2015.

Flood Zones are also used by decision-makers when applying government policy and guidance to proposed development.

Suitability and limitations

The Flood Zones and supporting datasets are designed to only give an indication of flood risk from rivers and the sea to an area of land and are not suitable for showing whether an individual property is at risk of flooding. This is because we cannot know all the details about each property.

Locations may also be at risk from other sources of flooding, such as high groundwater levels, or failure of infrastructure such as sewers and storm drains. These sources **are not** represented in this dataset.

The mapping of Flood Zones and supporting datasets covers all of England, down to catchments with an area of 3km^2. Where we have suitable data for smaller catchments, we will also show this.

It is important to note that not all rivers are included in the maps and, if a development is to take place near one of these rivers, further investigations and modelling may be required. In these locations it should therefore not be assumed that there is no flood risk. Flood Zones are a planning tool and they do not necessarily mean somewhere will or will not flood.

How to access them

Flood Map for Planning digital service

The Environment Agency presents the flood zones and supporting datasets on maps via GOV.UK where anyone can access them if they have a place name, postcode or co-ordinates.

On this digital service the data is presented as a multi-layered map which displays the latest Flood Zones and supporting datasets, plus information on flood defences and water storage areas.

From this service customers can also request a Flood Risk Assessment (FRA) Product 1 (Flood Zone Map) and Product 4 (Detailed FRA map).

Data Services Platform (DSP)/ data.gov.uk

The Flood Zones and supporting datasets are available in a variety of formats from the Defra Data Services Platform and data.gov.uk

Note! Risk of Flooding from Surface Water extents are available to download from the Data Services Platform but the depth information is not structured in a way that is suitable for planning purposes, as it describes the chance of flooding to a given depth, rather than the depth of flooding expected in the flood events considered through planning.

Note! The climate change information currently available for surface water flood risk is also not sufficient for use in planning. This is because the time-horizons and climate change scenarios used are likely to fall short of what's needed to assess planned development. We plan to publish surface water climate change data relevant to planning time horizons in later updates.

Product Contents and Schemas

Schemas for the datasets available on the Defra Data Services Platform schemas are provided on the following pages and describe the geometry and the attributes of the data. When delivered, some file formats may truncate the fieldnames.

Flood Map for Planning - Flood Zones

File Geodatabase Name: FMfP_Flood_Zones_vYYYYMM.gdb

Simple Feature Class					Geometry:		Polygon	
Flood_Zones_2_3_Rivers_and_Sea					Contains M Values: [1]		No	
					Contains Z Values: [2]		No	
Field name	Description	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Unique object identifier	Object ID						
Shape	Geometry data type	Geometry						
Origin	Source of data (modelled, recorded, direct rainfall model, local evidence)	Text	Yes	-	-			64
Flood_zone	Assigned Flood Zone (Flood Zone 2 or 3)	Text	Yes	-	-			3
Flood_source	Source of flooding (river and/or sea and/or undefined)	Text	Yes	-	-			32

A layer file is also provided alongside this dataset for use in ESRI applications. This contains the recommended symbology information, reflecting how the data is displayed on Environment Agency systems. Users of other GIS applications can apply the symbology for each flood likelihood category manually using the RGB information provided in the table below:

	Flood Zone	**RGB**	**HEX#**
	Flood Zone 3	58-68-135	3A4487
	Flood Zone 2	156-208-252	9CD0FC

Flood Map for Planning – Present day extents (defended and undefended)

File Geodatabase Name: FMfP_Extents_vYYYYMM.gdb

Simple Feature Class					Geometry:		Polygon	
Rivers_1in100_Sea_1in200_Defended_Extents Rivers_1in1000_Sea_1in1000_Defended_Extents Rivers_1in100_Sea_1in200_Undefended_Extents Rivers_1in1000_Sea_1in1000_Undefended_Extents					Contains M Values: [1]		No	
					Contains Z Values: [2]		No	
Field name	Description	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Unique object identifier	Object ID						
Shape	Geometry data type	Geometry						
Flood_source	Source of flooding (river and/or sea and/or undefined)	Text	Yes	-	-			16

A layer file is also provided alongside this dataset for use in ESRI applications. This contains the recommended symbology information, reflecting how the data is displayed on Environment Agency systems. Users of other GIS applications can apply the symbology manually using the RGB information provided in the table below:

	RGB	HEX#
	43-140-190	2B8CBE

Flood Map for Planning – 3.3% AEP defended (present day)

File Geodatabase Name: FMfP_1in30_vYYYYMM.gdb

Simple Feature Class					Geometry:		Polygon	
Rivers_1in30_Sea_1in30_Defended_Extents					Contains M Values: [1]		No	
					Contains Z Values: [2]		No	
Field name	Description	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Unique object identifier	Object ID						
Shape	Geometry data type	Geometry						
AEP	Annual Exceedance Probability	Text	Yes	-	-			10
Origin	Source of data (modelled, recorded, direct rainfall model, local evidence)	Text	Yes	-	-			64
Flood_source	Source of flooding (river and/or sea and/or undefined)	Text	Yes	-	-			16

A layer file is also provided alongside this dataset for use in ESRI applications. This contains the recommended symbology information, reflecting how the data is displayed on Environment Agency systems. Users of other GIS applications can apply the symbology manually using the RGB information provided in the table below:

	RGB	HEX#
	43-140-190	2B8CBE

Flood Map for Planning – Climate Change Extents (defended and undefended)

File Geodatabase Name: FMfP_Climate_Change_Extents_vYYYYMM.gdb

Simple Feature Class					Geometry:		Polygon	
Rivers_1in100_Sea_1in200_Defended_Extents_CC P1 Rivers_1in1000_Sea_1in1000_Defended_Extents_CCP1 Rivers_1in100_Sea_1in200_Undefended_Extents_CCP1 Rivers_1in1000_Sea_1in1000_Undefended_Extents_CCP1					Contains M Values: [1] Contains Z Values: [2]		No No	
Field name	Description	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Unique object identifier	Object ID						
Shape	Geometry data type	Geometry						
Flood_source	Source of flooding (river and/or sea and/or undefined)	Text	Yes	-	-			16

A layer file is also provided alongside this dataset for use in ESRI applications. This contains the recommended symbology information, reflecting how the data is displayed on Environment Agency systems. Users of other GIS applications can apply the symbology manually using the RGB information provided in the table below:

	RGB	HEX#
	43-140-190	2B8CBE

Flood Map for Planning – 3.3% AEP defended (Climate Change)

File Geodatabase Name: FMfP_Climate_Change_1in30_vYYYYMM.gdb

Simple Feature Class					Geometry:		Polygon	
Rivers_1in30_Sea_1in30_Defended_Extents_CCP1					Contains M Values: [1]		No	
					Contains Z Values: [2]		No	
Field name	Description	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Unique object identifier	Object ID						
Shape	Geometry data type	Geometry						
AEP	Annual Exceedance Probability	Text	Yes	-	-			10
Origin	Source of data (modelled, recorded, direct rainfall model, local evidence)	Text	Yes	-	-			64
Flood_source	Source of flooding (river and/or sea and/or undefined)	Text	Yes	-	-			16

A layer file is also provided alongside this dataset for use in ESRI applications. This contains the recommended symbology information, reflecting how the data is displayed on Environment Agency systems. Users of other GIS applications can apply the symbology using the RGB information provided in the table below:

	RGB	**HEX#**
	43-140-190	2B8CBE