

# Flood Consequences Assessments: Climate change allowances.

## 1. Purpose of this Guidance

Flooding is already a serious risk to the people, economy and environment in Wales. Climate change is expected to increase this risk over the coming decades. The effects are well documented and include rising sea levels and more frequent periods of heavy rainfall increasing the risk of flooding.

Development including redevelopment and regeneration should be resilient to flood risks both now and in the future. Any proposal must therefore demonstrate that such risks can be appropriately managed, to provide a safe and secure living and /or working environment throughout its lifetime.

This guidance is aimed at:

- local planning authorities preparing a strategic flood consequences assessment (SFCA) to inform development plan allocations<sup>1</sup> and policies
- developers /consultants who require a detailed, site specific flood consequences assessment (FCA) to support planning applications
- SUDs Approving Bodies/Lead Local Flood Authorities to understand future surface water impacts.

Climate change allowances are provided for peak river flows, rainfall uplifts, sea level rise and wave action.

The allowances use the Met Office UK Climate Change Projections data, published in 2018 ([UKCP18](#)). They are based on projections using [Representative Concentration Pathway \(RCP\) 8.5](#), which reflects an increase in global mean surface temperature of around 4.3°C by 2100. While this may be considered precautionary, it takes into account uncertainty in climate change modelling and aligns with the approach adopted by other UK nations.

This document replaces the guidance issued in September 2021 and should be applied to planning applications (full, outline and reserve matters) submitted from 1<sup>st</sup> April 2026, and all development plans to be submitted to Welsh Government from 1<sup>st</sup> April 2026.

## 2. Why is an assessment of climate change required?

The consequences of flooding can be devastating, resulting in disruption to livelihoods and businesses, and often results in extensive damage to property and infrastructure which can be costly to repair. It can also put lives at risk and cause considerable personal trauma to those impacted.

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<sup>1</sup> Development plans under review and yet to reach submission stage should also incorporate the new allowances

The planning system is an effective way to plan for and adapt to a changing climate. By considering how climate change may impact flood risk over time, Local Planning Authorities can better understand the risks and challenges to both existing communities and future development, so that development can be managed proactively and sustainably.

National planning policy in [Planning Policy Wales - Edition 12](#)<sup>2</sup> confirms that the impacts of climate change must be taken into account at all stages of the planning process. [Technical Advice Note 15: Development, Flooding and Coastal Erosion](#) (TAN15) requires climate change to be an integral part of both SFCAs and detailed, site specific FCAs.

## 2.1. Development Plan / Strategic Flood Consequences Assessment

Under TAN15, Local Planning Authorities must undertake an SFCA to inform their Development Plan policies and site selection<sup>3</sup>. Their SFCA should also explore what adaptive measures may be needed in the future to address the challenges of climate change.

The allowances in this guidance should be used in SFCAs to identify where:

- development may be acceptable
- land and other interests, including flood infrastructure, may need to be safeguarded to reduce future risk
- what resilience and or adaptation measures may be required where flooding risks cannot be avoided.

Generally, the central estimates should be used to assess the flooding risks in an SFCA. If a Stage 3 SFCA is undertaken, an assessment against the upper end estimates may be required.

## 2.2. Development Management Proposals / Flood Consequences Assessments

TAN15 requires development proposals in flood risk areas to be accompanied by a detailed, site specific FCA that considers a range of climate change scenarios, including upper end estimates for a range of events, up to and including a probability of 0.1% in any year<sup>4</sup> (1 in 1000). The FCA should demonstrate the impacts of climate change to and from the development over the whole of its lifetime.

TAN15 suggests that generally it is reasonable to consider residential development as having a lifetime of 100 years, while a lifetime of 75 years is considered a reasonable rule of thumb for all other developments<sup>5</sup>.

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<sup>2</sup> PPW paragraph 6.9.12

<sup>3</sup> Section 5 of TAN15

<sup>4</sup> TAN15, paragraph 4.3 and 6.5

<sup>5</sup> TAN15, paragraph 10.28

The minimum expectation is for an FCA to demonstrate the risks/impacts for:

- 1% (1 in 100) fluvial / 0.5% (1 in 200) tidal event + CC (central estimate) as the design event
- 1% (1 in 100) fluvial / 0.5% (1 in 200) + CC (upper estimate) to inform mitigation/resilience measures i.e. sensitivity testing
- 0.1% (1 in 1000) extreme event + CC (central estimate) and show it can meet the tolerable conditions as set out in TAN15
- Surface water and small watercourses risk in zones 2 and 3.

### 3. Climate Change Allowances

#### 3.1. Peak river flow allowances

Peak river flow allowances are provided in Table 1 for each of the three [River Basin Districts](#) in Wales.

The central allowance for the relevant river basin district should be used as the 'design' event to assess the potential impact of climate change as part of an FCA and to inform design levels. The relevant allowance should be used in fluvial modelling studies where design flow hydrographs are applied.

The FCA will need to demonstrate the development can comply with the frequency thresholds set out in TAN15<sup>6</sup>. For most development proposals, it will be appropriate to use the 2080s allowance to understand the potential impact over the development lifetime. If a figure other than the central allowance is used, applicants will be expected to provide full justification within the FCA.

The 2080s allowance should also be used to understand changes beyond the 2080s epoch (i.e. 2125 onwards).

River Basin District	Percentile	2020s (present day to 2039)	2050s (2040 to 2069)	2080s (2070-2125)
Dee	Central	10%	15%	25%
	Upper	15%	30%	50%
West Wales	Central	10%	20%	35%
	Upper	20%	40%	70%
Severn	Central	10%	20%	35%
	Upper	20%	40%	70%

**Table 1: peak river flow allowances for each River Basin District.**

The SFCA/FCA will need to include an assessment of risk using the upper allowances to meet TAN15 requirements.

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<sup>6</sup> Figure 5 of TAN15

An assessment against the upper allowances can help local planning authorities and developers understand how higher scenarios of climate change may impact the proposed development and any access/egress routes. The information should be used to inform any resistance and resilience measures that might be needed, including emergency evacuation plans, to ensure the development remains safe for users both now and in the future. Advice on incorporating resistance and resilience measures through development design is available from the Construction Industry Research and Information Association (CIRIA), [Code of Practice and Guidance for Property Flood Resilience](#).

### 3.2. Rainfall uplifts

Increases in rainfall intensity due to climate change are likely to affect river levels, particularly within smaller catchments and on land and urban drainage systems.

Rainfall allowances can be used to provide a more accurate estimation of how smaller catchments might respond to increased rainfall, as well as to provide estimates of surface water flooding.

Rainfall uplift allowances for the whole of Wales are provided in Table 2. These should be used in studies where rainfall is applied directly to a hydraulic model used to inform an FCA to help assess the potential impact on:

- surface water flooding
- small or urbanised catchments where there are considerable impermeable surfaces
- urban drainage systems

In accordance with TAN15, development proposals should be assessed against the central allowance to inform design levels and against the upper allowance to inform mitigation requirements.

When using these allowances to consider drainage assessments, it is important that drainage systems are designed to ensure there is no increase in site run-off when assessed against the upper allowance.

Location	Percentile	2050s (present day -2060)	2070s (2061-2125)
Wales	Central	20%	30%
	Upper	35%	40%

**Table 2: rainfall uplifts for Wales**

There may be examples where different modelling approaches are applied across distinct parts of a catchment e.g. fluvial inflow design hydrographs applied to the larger, more rural areas and a direct rainfall modelling component for a small/urban part of the catchment. In such instances the relevant

allowances from Table 1 and 2 should be applied based on the specific modelling approach.

### 3.3. Sea level rise allowances

Estimates of sea level rise, derived from the UKCP18 2100 dataset are provided in Table 3 for each coastal Local Authority area.

The upper central allowance (70<sup>th</sup> percentile) and the upper allowance (95<sup>th</sup> percentile) are provided for 2100 and 2130 (to reflect a 100yr lifetime of development for residential development).

The allowances presented for 2130 have been calculated by using the average incremental increase from the last 5 years of the dataset (2095-2099) for each regional area, multiplied by 30.

Development proposals should be assessed against the relevant regional upper central allowance to inform design levels. The FCA will need to demonstrate the development can comply with the frequency thresholds set out in TAN15<sup>6</sup>.

An assessment should also be made against the upper allowance to inform mitigation measures, access and egress routes and emergency evacuation plans.

To calculate sea level, the appropriate regional allowance should be applied to the baseline [coastal flood boundary](#) for the relevant location. The allowance used should be appropriate to the lifetime of development.

The allowances in Table 3 are provided as a guide. The 2100 allowance is currently appropriate for development with a 75-year lifetime, while the 2125-2130 allowances can be used to determine impacts for development with a 100-year lifetime.

When considering proposals with a lifetime of development beyond 2130, an assessment will be required from 2130 for the duration of development lifetime using the UKCP18 Exploratory Method dataset for RCP8.5.

Location specific allowances, projections for different timescales and projections beyond 2130 should be obtained directly from the [UK Climate Projections \(Met Office\) user interface](#).

Local Authority Area	Allowance (percentile)	Mean sea level rise (metres) by 2007-2100 *(UKCP18 baseline 1981-2000)	Mean sea level rise (metres) by 2007-2130 *(UKCP18 baseline 1981-2000)
Flintshire	70th	0.78	1.13
	95th	1.05	1.56
Denbighshire	70th	0.78	1.13

	95th	<b>1.05</b>	<b>1.55</b>
<b>Conwy</b>	70th	<b>0.77</b>	<b>1.12</b>
	95th	<b>1.05</b>	<b>1.55</b>
<b>Anglesey</b>	70th	<b>0.77</b>	<b>1.12</b>
	95th	<b>1.05</b>	<b>1.55</b>
<b>Gwynedd</b>	70th	<b>0.82</b>	<b>1.18</b>
	95th	<b>1.09</b>	<b>1.61</b>
<b>Powys</b>	70th	<b>0.82</b>	<b>1.18</b>
	95th	<b>1.09</b>	<b>1.61</b>
<b>Ceredigion</b>	70th	<b>0.83</b>	<b>1.20</b>
	95th	<b>1.10</b>	<b>1.63</b>
<b>Pembrokeshire</b>	70th	<b>0.86</b>	<b>1.24</b>
	95th	<b>1.13</b>	<b>1.67</b>
<b>Carmarthenshire</b>	70th	<b>0.86</b>	<b>1.24</b>
	95th	<b>1.13</b>	<b>1.67</b>
<b>Swansea</b>	70th	<b>0.86</b>	<b>1.24</b>
	95th	<b>1.14</b>	<b>1.67</b>
<b>Neath Port Talbot</b>	70th	<b>0.86</b>	<b>1.24</b>
	95th	<b>1.14</b>	<b>1.67</b>
<b>Bridgend</b>	70th	<b>0.87</b>	<b>1.25</b>
	95th	<b>1.14</b>	<b>1.68</b>
<b>Vale of Glamorgan</b>	70th	<b>0.87</b>	<b>1.26</b>
	95th	<b>1.15</b>	<b>1.68</b>
<b>Cardiff</b>	70th	<b>0.87</b>	<b>1.25</b>
	95th	<b>1.14</b>	<b>1.68</b>
<b>Newport</b>	70th	<b>0.87</b>	<b>1.25</b>
	95th	<b>1.14</b>	<b>1.68</b>
<b>Monmouthshire</b>	70th	<b>0.87</b>	<b>1.25</b>
	95th	<b>1.14</b>	<b>1.68</b>

**Table 3: Estimated sea level rise (in metres) for local authority areas by 2100 and 2125-2130 (as of September 2025).**

### 3.4. Extreme wave height allowance

Climate change is expected to increase the frequency, duration and severity of storms. The risks posed by wave action includes damage to property from sea water or debris and is additional to the risk of sea water inundation.

Wave height and energy is affected by wind speed. Climate change is projected to alter wind patterns, potentially leading to stronger or more frequent winds, which may result in higher and more powerful waves impacting coastal areas.

When considering development proposals, the risks posed by wave action should be understood. An assessment of wave overtopping should be undertaken for all coastal FCAs, unless it can be demonstrated that wave overtopping is not relevant for a particular site (e.g. sheltered location with no known wave problems).

Natural Resources Wales coastal models may already include wind speed and wave height allowance.

Recommended allowances to assess sensitivity against offshore wind speed and wave height are provided in Table 4.

The allowances for 2085-2125 should be used for development up to and beyond 2130.

Parameter	2000 - 2055	2056- 2125
Offshore wind speed allowance	+5%	+10%
Extreme wave height allowance	+5%	+10%

**Table 4 - Recommended sensitivity ranges for offshore wind speed and wave height.**

### 3.5. Credible Maximum Scenarios (High++)

Credible maximum scenarios are plausible, high end scenarios of climate change, albeit with a low probability. They are also referred to as H++.

It is not possible to say how likely the H++ scenario is, however it may be useful in understanding potential climate related risks and impacts for development that is sensitive to flood risk and have lifetimes beyond the end of the century, for example, some infrastructure projects, or where new settlements, or significant urban extensions are proposed.

The local planning authority should advise whether an assessment of the H++ scenario is required.

There has been no change to credible maximum allowances within UKCP18. If an assessment is required you should use:

- the H++ climate change allowances for sea level rise (1.9m by 2100 based on a 1990 baseline)
- the upper end allowance for peak river flow

- the sensitivity test allowances for offshore wind speed and extreme wave height
- an additional 2mm for each year on top of sea level rise allowances from 2017 for storm surge.

#### 4. Planning advice

Planning advice on matters relating to flood risk (from rivers and the sea) and how to assess future risk can be obtained from Natural Resources Wales. For advice on flood risk from local or 'ordinary' watercourses, surface water, or groundwater, you should contact the relevant Lead Local Flood Authority.

#### 5. Contact Information

**Welsh Government Planning Policy Branch**

**Email:** [planningpolicy@gov.wales](mailto:planningpolicy@gov.wales)