What are flood risk management plans?

Flood risk management plans (FRMPs) explain the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs. FRMPs set out how risk management authorities will work with communities to manage flood and coastal risk over the period 2015 - 2021. Risk management authorities include the Environment Agency, local councils, internal drainage boards, Highways England and lead local flood authorities (LLFAs).

Each EU member country must produce FRMPs as set out in the EU Floods Directive 2007. Each FRMP covers a specific river basin district. There are 11 river basin districts in England and Wales, as defined in the legislation. A river basin district is an area of land covering one or more river catchments. A river catchment is the area of land from which rainfall drains to a specific river.

Each river basin district also has a river basin management plan, which looks at how to protect and improve water quality, and use water in a sustainable way. FRMPs and river basin management plans work to a 6-year planning cycle. The current cycle is from 2015 to 2021. We have developed the Northumbria FRMP alongside the Northumbria river basin management plan so that flood defence schemes can provide wider environmental benefits.

Both flood risk management and river basin planning form an important part of a collaborative and integrated approach to catchment planning for water. Building on this essential work, and in the context of the Governments 25-year environment plan, over the next cycle we aim to move towards single plans for the environment on a catchment basis which will draw together and integrate objectives for flood risk management, water management, and biodiversity, with the aim of maximising the multiple benefits that can be achieved.

Flood risk in the Northumbria river basin district

The Northumbria river basin district covers an area of 9,029 km² from the Scottish border to just south of Guisborough, and from the Pennines in the west across to the North Sea. The river basin district is made up of 4 catchments as shown in figure 2.

The catchments in the Northumbria river basin district are largely natural in their upper catchments (near to where the rivers start). Further downstream, many rivers have been modified as a result of agriculture, industry and urbanisation.

Of the 2.78 million people living in the river basin district, there are:

- Almost 13,000 people at high risk of surface water flooding (more than a 1 in 30 chance of being flooded in any year (3.3%)). Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.
- Over 6,000 people at high risk of flooding from rivers and the sea (more than a 1 in 30 chance of being flooded in any year (3.3%)).

During December 2015, Storms Desmond, Eva and Frank brought record breaking levels of rainfall and significant flooding to some parts of the country. On 5 and 6 December the highest ever river flows were registered in several large catchments including the Eden, Lune and Tyne. On 25 and 26 December further record river levels were registered for many large rivers draining the Pennines. The Met Office confirmed that December 2015 was the wettest on record in parts of the UK, including Cumbria which experienced more than two and a half times expected monthly rainfall.
Across the country over 19,000 properties were flooded, with thousands more affected by loss of power supply and travel disruption. Existing flood defences played an essential part in protecting thousands of homes during December with 12,500 benefitting during Storm Desmond and 10,900 during Storm Eva. Support to affected communities, business and the agricultural sector is in place, along with a programme of inspections and repairs to damaged defences.

It is essential to ensure that we have the very best possible plans in place for flood management across the whole country. In response to the December floods the Government has put in place a National Flood Resilience Review pinpoint where our defences and modelling need strengthening. The Local Flood Partnerships in Cumbria and Yorkshire, also set up in response to the December floods, will bring together a wide range of organisations and communities to develop Flood Action Plans. These actions will complement the measures in the FRMP and the learning from this approach will be shared across the country.

Characteristics of the Northumbria river basin district

Part B of the FRMP gives a full description of each catchment, including the factors affecting flood risk and statistics for the river basin district.

The Northumberland rivers management catchment

In Northumberland the river catchments are mainly rural catchments draining the Cheviots. These rivers rise quickly after rainfall and are known as ‘rapid response areas’. A number of communities are at risk from river flooding, such as Morpeth on the River Wansbeck, Ponteland on the River Pont, and Rothbury on the River Coquet.

The Northumberland coast is generally rural and coastal flooding is limited to small communities, such as Warkworth, Alnmouth and Beadnell. High rainfall can cause surface water and sewer flooding, affecting urban areas such as Blyth, Cramlington and Alnwick.

The River Tyne management catchment

The Tyne management catchment is the largest in the river basin district and consists of the River Tyne and its tributaries (smaller rivers flowing into the Tyne). The rivers drain the eastern Pennines through Northumberland, then through Tyneside to the North Sea. The west of the catchment has steep valleys, where rivers respond very quickly to rainfall, and produce very high river flows. The River Tyne has the highest recorded flood flow (at Bywell, just east of Corbridge) of any English river. The main flood risk areas are in small towns such as Haydon Bridge, Haltwhistle, Hexham and Corbridge.

There is a risk of tidal flooding around North Shields and Newcastle. The urban areas are all susceptible to surface water flooding, and there has been major flooding in the past in Newcastle, Gateshead and North and South Tyneside.

The River Wear and River Tees management catchments

The Wear and Tees management catchments drain rivers from the Pennines into the North Sea. The rivers start in the rural uplands, typically the rivers are steep and have narrow floodplains. Landuse is typically hill farming and some forestry. A few small towns, such as Stanhope and Wolsingham, are at risk of flooding in these upland areas. As the rivers flow downstream they become less steep and the flood plains widen, the land use changes to more arable agriculture. A few towns and villages such as South Church, Croft and Neasham and Yarm, are at risk of flooding in this area.

As the rivers flow into more urban areas near the coast, there is a risk of surface water flooding. Most recently, Middlesborough and Redcar experienced surface water flooding in 2012. In the east of the catchments, river flows also combine with tidal flood risk, which affects small areas of Sunderland and Teesside.
Figure 1: catchments in Northumbria

Legend
- River Basin Management Districts
- Other Basin Districts

Northumberland Management Catchment
Tyne Management Catchment
Wear Management Catchment
Tees Management Catchment

0 5 10 20 Kilometres

customer service line
03708 506 506
www.gov.uk/environment-agency

incident hotline
0800 80 70 60

floodline
0345 988 1188
Existing flood risk management in Northumbria

The Environment Agency operates a flood warning service for flood risk areas. Almost 9,200 properties in the Northumbria river basin district receive direct flood warnings. Of these, 4,850 have fully registered, which means people can specifically ask to receive warnings via text, mobile or to additional phone numbers. 4,350 have been automatically added to the flood warning service and will receive a warning via a landline telephone. Risk management authorities also work closely with local communities to help them prepare for and recover from floods.

Risk management authorities have reduced the risk of flooding for many properties by constructing local defences. On the coast, defences include the recently completed Redcar scheme, and in Warkworth defences protect parts of the town from a combination of river and tidal flood risk. A tidal defence scheme is currently under construction at Port Clarence on the River Tees.

Thousands of properties benefit from river flood defence schemes, including homes in Morpeth, Yarm, South Church, Ponteland and Hexham. Further schemes are ongoing, such as in Stockton and Gosforth. Risk management authorities are continually working with communities to consider new schemes across the river basin district.

Across the country Government is investing £2.3bn on 1,500 flood defence schemes between 2015-2021. Thousands of properties in the river basin district benefit from river flood risk management schemes, including homes and businesses in Morpeth and Warkworth. Further schemes are ongoing or planned in the Northumbria river basin district, such as in Blyth, Team Valley, Port Clarence and Guisborough. The National Flood Resilience Review will look at temporary and flexible responses as well as hard flood defences beyond the measures included in the Flood Risk Management Plan. The Local Flood Partnerships in Cumbria and Yorkshire, set up in response to the December floods will bring together a wide range of organisations and communities to develop Flood Action Plans. These actions will complement the measures in the FRMP and the learning from this approach will be shared across the country.

The Environment Agency and local councils also manage and reduce flood risk through the planning system. Planning officers use advice from the Environment Agency to assess new developments to make sure they are appropriate and safe, and will not increase the risk of flooding elsewhere.

Flooding from a combination of rivers, surface water and sewers is an issue in the Northumbria river basin district. The Environment Agency, local councils and Northumbrian Water are working together to look at ways to reduce these risks. Northumbrian Water manages flooding from the sewer network and there is an ongoing programme to renew and replace sewers to reduce the risk of sewer flooding to homes.

New development and a tendency for increased paving, such as driveways, conservatories and extensions, can increase flows in the sewer network. Northumbrian Water is working with local councils and the Environment Agency to investigate how to manage this increase of surface water and reduce flood risk from their network. There are currently studies in a number of communities such as Durham, Gateshead, Killingworth and Longbenton.

Roles and responsibilities

Managing flood and coastal risks, and particularly local flood risks, requires risk management authorities to work together. In Northumbria the Environment Agency works with 13 LLFAs, local councils, Highways England and Northumbrian Water to manage flood risk.
Table 1: the roles and responsibilities of risk management authorities in managing risk

<table>
<thead>
<tr>
<th>Risk Source</th>
<th>Environment Agency</th>
<th>LLFA</th>
<th>District</th>
<th>Water Company</th>
<th>Highways Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main River</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Sea</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Surface Water</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Water (on or coming from the Highway)</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Sewer Flooding</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ordinary Watercourse</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundwater</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reservoirs</td>
<td>✓*</td>
<td>✓*</td>
<td>✓*</td>
<td>✓*</td>
<td>✓*</td>
</tr>
<tr>
<td>Coastal Erosion</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic Overview of all sources of flood risk (and the coast)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Please note RMAs have different responsibilities for reservoirs such as regulation, asset management and flood incident response.

Objectives of the FRMP

The risk management authorities have agreed social, economic and environmental objectives for 2015 to 2021 following discussion and consultation with other organisations and communities. You can see the objectives for the whole river basin district in section 8 of Part A of the FRMP. There are more detailed objectives for individual catchments, which you can see in Part B of the FRMP.


Measures for 2015 to 2021

The actions in FRMPs are known as ‘measures’. These are specific projects or investigations to work towards achieving the objectives. They explain where and how risk management authorities will concentrate effort and investment to reduce flood risk.

The measures in FRMPs are grouped under 4 categories: preventing risk, preparing for risk, protecting from risk, and recovery and review. You can read more about the categories in Section 5 of Part A in the FRMP.

Examples from the Northumbria river basin district for each category

Preventing risk

Measures in the Northumbria river basin district to prevent flood risk include:

- ensuring new development is appropriate, safe and does not increase flood risk elsewhere
- identifying reservoirs with a high risk of flooding
• working with local enterprise partnerships to support sustainable growth and partnerships in flood schemes

Preparing for risk
• As well as reducing flood risk by schemes and maintenance, risk management authorities will continue to work with communities to help them understand their risk and how to prepare effectively.
• It is still a priority for all risk management authorities to warn and inform communities and businesses about flooding, and to work together to improve emergency response. The Environment Agency will continue to invest in improving real-time rainfall and river level data to provide a quality flood warning service.

Protecting from risk
• These measures are to reduce the likelihood of flooding affecting people and property in specific locations or in locations that have flooded in the past. Examples of schemes in the Northumbria river basin district are in Stockton, Port Clarence, Morpeth and Gosforth.
• The Environment Agency and local councils will also continue to maintain watercourses that pose the most significant flood risk to people, responding quickly to incidents and clearing obstructions from screens and culverts during heavy rainfall.

Recovery and review
Over the next 6 years, risk management authorities will continue to carry out investigations after flooding, produce recommendations reports and help communities to recover from floods more quickly. The National Flood Resilience Review and Local Flood Action Plans may also give rise to actions that support the recovery of communities.

Further information on measures in Northumbria
For details of measures in each catchment see Part B of the FRMP. You can also see a full list of all measures and the categories they relate to in Part C of the FRMP.

Monitoring progress
There is no guarantee that every measure in the FRMP will be completed. This is because priorities and funding change and new data may become available, which may mean the programme changes.
Over the 6-year cycle, the Environment Agency will monitor the measures and report on progress. All the risk management authorities involved will work together to achieve the objectives and reduce costs.

How we listened to your comments
We consulted on the FRMP from 10 October 2014 to 31 January 2015. As a result of feedback from the consultation we have improved the information on existing flood risk management and made clearer links between the FRMP and river basin management plans. We’ve also shown more clearly how flood management actions help to improve the environment.
We’ve split the FRMP into 4 sections to make it easier to understand. The sections are as follows:

<table>
<thead>
<tr>
<th>Section</th>
<th>Who it is for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary document</td>
<td>For people who want a high level overview of the plan.</td>
</tr>
<tr>
<td>Part A: background and river basin district-wide information</td>
<td>For people who want some legislative background and river basin district-wide information.</td>
</tr>
<tr>
<td>Part B: catchment summaries</td>
<td>For people who want the detail of each of the catchments, flood risk areas and other strategic areas, and flooding statistics for the river basin district.</td>
</tr>
<tr>
<td>Part C: appendices</td>
<td>For people who want to see the measures for implementation across the river basin district and the measures for individual communities.</td>
</tr>
</tbody>
</table>

Further information about your flood risk

Check your current risk of flooding on our live flood warning service (https://flood-warning-information.service.gov.uk).

Check your risk of flooding from different sources on our interactive maps (www.gov.uk/prepare-for-a-flood/find-out-if-youre-at-risk)


Partners

This is a joint plan prepared in partnership with North Yorkshire County Council.