



Environment  
Agency

# managing flood risk

## North Norfolk Catchment Flood Management Plan

Summary of Scoping Report December 2006

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**Information Services Unit**

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Due Date	

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## What this booklet tells you:

This booklet tells you about a Scoping Report we have recently published on flood related issues within the North Norfolk catchment.

We are in the process of developing a Catchment Flood Management Plan (CFMP) for the North Norfolk area. This will be a broadscale strategic plan that will look to assess how flood risks might change and be managed over the next 50 to 100 years. The Scoping Report outlines our current understanding of flood risk in the catchment and provides a catchment wide understanding of flooding processes and how these may change in the future. Details of the timetable for producing the Final Plan are given on page 3.

This booklet aims to:

- inform, and get responses from interested groups or individuals on our understanding of why and how flooding might occur and the impacts of it;
- obtain your views on how we intend to assess which flood risk management policies might be appropriate over the life of the plan.

In particular we would like your comments on:

- the possible future scenarios described on page 10;
- the draft CFMP objectives that will be used to decide which flood risk management policies are appropriate in a particular part of the catchment.

You have until 2nd March 2007 to return your comments using the feedback form at the end of the booklet. You will find questions at several points throughout, and on the form to assist you in making your response. If you would like to see the full Scoping Report, you can either view this on our website at:

[www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

or at any of the following main libraries:

- Mundesley    ■ Cromer    ■ Sheringham
- Holt    ■ Wells-next-the-Sea

Alternatively, if you would like your own copy on CD, this can be sent upon request.



# What is a Catchment Flood Management Plan (CFMP)?

A Catchment Flood Management Plan is a plan that provides an overview for managing the long-term risk of flooding in a particular area.

We are producing a CFMP for each major river or area in England and Wales. CFMPs look at flooding from all sources except for coastal flooding from the sea. This is considered in Shoreline Management Plans (SMPs).

CFMPs will identify the main factors influencing flood flows and flood risk and will assess how they may change over time.

The final plan will outline sustainable flood risk management policies that will provide a balance between cost effectiveness, social needs, demands on land use for development and the environment over the next 50-100 years. It will include a Strategic Environmental Assessment (SEA) that will look at how the policy options we propose might affect the environment.

It will seek to make sure that we provide a high level of protection and enhancement, wherever possible, to safeguard the environment for the future.

The policies will establish whether we should take action to allow flood risk to:

- increase in suitable areas
- be reduced
- remain at the current level

The CFMP will not propose specific measures to manage flood risk, but will identify where we should undertake further work.

**Q** Have we adequately explained the concept of Catchment Flood Management Plans?



**Letheringsett Mill on the River Glaven**

# What is the Scoping Stage?

The Scoping Stage aims to present:

- an understanding of the catchment processes leading to flood risk;
- a summary of past and present flood risk and flood risk management measures;
- draft objectives to help us decide which flood risk management policies might be appropriate;
- a summary of:
  - the potential changes in land use management, urban growth and climate change affecting the catchment in the future;
  - an indication of the likely impact of these changes;
  - proposed scenarios for the future to be tested in the next stage

## Timetable for the North Norfolk CFMP

When	Milestone	Output
March 2006 - May 2006	Inception Stage	Initial data collection and understanding of the catchment. Engage with interested parties. Inception Report.
June 2006 - November 2006	Scoping Stage	Understanding current flood risks and management. Identify draft opportunities and constraints. Identify draft scenarios and objectives. Scoping Report.
December 2006 - March 2007	Scoping Consultation	Consultation responses. Establish direction of CFMP.
February 2007 - June 2007	Draft CFMP Stage	Develop opportunities and constraints. Appraise policies. Draft CFMP.
June 2007 - September 2007	Draft CFMP Consultation	Consultation responses.
September 2007 - November 2007	Final CFMP	Agree sustainable responses. Identify future strategies and studies. Publish final CFMP.

# Catchment overview

The CFMP area comprises a relatively narrow strip of land along the North Norfolk coast, which stretches from Old Hunstanton in the west to Happisburgh in the east, and extends from the North Sea coast to just short of Fakenham in the south.

The CFMP area contains a number of separate watercourses, each with its own hydrometric catchment. For this CFMP we have combined these to form a larger unit with a total area of approximately 517 km<sup>2</sup>. The catchment is predominantly rural, with the largest urban areas being Mundesley, Cromer, Sheringham, Holt and Wells-next-the-Sea.

The main watercourses in the CFMP area are the Rivers Hun, Burn, Glaven, Stiffkey, Mun and the Spring Beck. They are generally small watercourses, many of which have been modified in the past including construction of mills, straightening and diversion, and channel modifications.

The underlying geology of the area is chalk, which dips from west to east and is buried by later glacial deposits in many places.

The landscape value of North Norfolk is recognised in its designation as part of the Norfolk Coast Area of Outstanding Natural Beauty (AONB).

“We have a range of powers in respect of flood risk management for the main rivers in the catchment.”

The CFMP area supports a variety of land uses, although most is agricultural land used for the production of cereals and root crops. There is also some animal husbandry and horticulture. Besides agriculture, 4% of the CFMP area is urban with the remaining area comprising grassland, heath land, woodland and coastal marshes.

We have a range of powers in respect of flood risk management for the main rivers in the catchment. Local authorities manage ordinary watercourses while the Norfolk Rivers Internal Drainage Board maintains several smaller tributaries and the land around them.

Figure 1 shows an overview of the catchment.

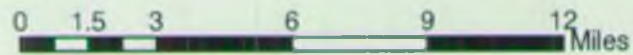


**River Glaven at Hunworth**



**KEY:**

- Towns
- Main Rivers
- Lakes
- Flood Zone 3 (1% risk of Fluvial flooding and/or 0.5% risk of Tidal flooding)
- Borough of King's Lynn and West Norfolk
- North Norfolk District



The North Norfolk CFMP area

# Current flood risks and management

People, property and the environment are at risk of flooding now. We spend a significant amount each year on flood risk management. Anglian Water, local authorities and Internal Drainage Boards undertake management in addition to this.

The main cause of flooding in the North Norfolk CFMP area is heavy rain falling over a short time period, particularly when the ground is already saturated or when channels become blocked. High tide levels may also result in flooding due to 'tide locking' of low-lying watercourses or drainage systems.

Most flooding occurs when floodwater overtops riverbanks and spills out onto the floodplain. In settlements, buildings on the floodplain are obstacles to floodwater flowing downstream and can prolong flooding.



Burnham Thorpe

Excess water from heavy rainfall can run off across the surface of the land and cause surface water flooding. This can also occur behind sea defences on the coast when outfalls are closed by high tides or become blocked, and in low-lying reclaimed marsh areas. This type of flooding can carry a large volume of silt, causing problems on local roads and in any properties flooded. Surface water flooding poses a low direct risk to life, although blocked roads may prevent emergency services getting through.

Our flood map shows the area at risk of flooding and it can be viewed on our website [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk). The flood map does not distinguish between flooding from the sea and flooding from rivers. It also assumes there are no flood defences. In reality there are coastal flood defences that we maintain. We have designed these to protect against flood events of various sizes.

Other types of flood risk management within the catchment are:

- Management operations - such as maintenance, monitoring and operation of defence structures. We also have an annual maintenance programme, which includes channel dredging and weed cutting when necessary.
- Flood warning - most of the areas at risk of flooding are covered by our Flood Warning service where we aim to give 2 hours notice of the possible onset of flooding. However, we realise that with some upper river reaches reacting very quickly to rainfall, we may not always be able to meet this target.

**Q** Have we adequately explained the current flood risk and how we manage it?



# Consequences of flooding

Around 50,000 people live in the North Norfolk catchment with approximately 300 properties having a 1% (1:100) chance of flooding in any one year.

Flooding can affect people either directly or indirectly, although certain groups are particularly vulnerable to flooding. These include the elderly, the long-term sick, lone parents and the financially deprived.

Flooding has a variety of impacts:

- **People:** Personal distress caused by damage to property and belongings; social disruption; and in extreme cases injury or loss of life.
- **Property and infrastructure:** Damage to infrastructure and buildings, and the disruption of farming and other economically valuable activities.
- **Environment:** Damage to rivers, habitats and species and the cultural, historic and recreational environments. However, some areas may actually benefit from flooding such as bog, marsh, fen and floodplain habitats.

Some idea of the direct costs of flooding can be gained from insurance industry figures for the year 2000 floods when insured losses approached £1 billion nationally.

The costs of flooding cannot always be measured in property damage and disruption to business alone. There are other 'knock-on' effects which are very difficult to quantify. The trauma of flooding leading to health problems and the associated costs of treatment is an example. Such costs may equal or exceed those of physical damage.

**Q** Have the social and economic impacts of flooding been adequately recorded?



River Burn in South Creake

# Environmental impact

The North Norfolk catchment contains a range of sites designated for environmental interests, which include nine internationally designated sites.

Strategic Environmental Assessment (SEA) is the systematic appraisal of the potential environmental consequences of high-level decision making, such as policies, plans and programmes, before they are approved. We are applying SEA to all CFMPs.

We have identified the most important environmental receptors that may be at risk from flooding, or that may reduce the range of options available. We have also identified aspects of the environment that we might improve through flood risk management.

## Heritage

Nationally important archaeological sites are designated as Scheduled Ancient Monuments (SAMs). There are 71 SAMs located within the North Norfolk catchment.

There are 74 Grade I and 1,330 Grade II listed buildings

in the North Norfolk catchment area. Listed buildings are of national importance because of their 'special architectural or historic interest' with a character or appearance worth protecting or enhancing.

Conservation areas are designated by local authorities for the same reasons. There are 62 such areas present in the North Norfolk catchment.

Consideration will be given to these heritage sites when identifying policies for flood risk management in the catchment and they may be a constraint on the choice of policy.

## Wildlife

Within the North Norfolk catchment there are: five Special Areas of Conservation (SAC), two Special Protection Areas (SPA) and two Ramsar sites (wetlands of international importance).



**Cley Marshes**

The majority of rivers in North Norfolk are of 'good' chemical quality and 'very good' biological quality with no stretches of river classified as 'poor' or 'bad'.

In addition there are five National Nature Reserves (NNR), 30 Sites of Special Scientific Interest (SSSI), and a 250km<sup>2</sup> Area of Outstanding Natural Beauty (AONB).

Within the UK, Biodiversity Action Plans (BAPs) have been produced to conserve, protect and enhance biological diversity. Key species and habitats noted in the BAPs within the catchment include Otter, White Clawed Crayfish, Bittern, Norfolk Flapwort, coastal and floodplain grazing marshes, coastal saltmarshes, maritime cliffs and slopes and wet woodland.

These designated sites and environmental habitats may be either constraints or opportunities for the choice of policies in the CFMP.

## Soils and agriculture

The soil type varies across the catchment from well-drained loam and sand (which allows water to soak into the ground rather than flow quickly into the rivers) to seasonally waterlogged clays (which can lead to rapid runoff of winter rainfall if the ground becomes saturated).

Agriculture is the main land use throughout the catchment, a large proportion of which is classified as Grade 2 (very good) and Grade 3 (good/moderate). Regional and local policy guidance advises against the development of high-grade agricultural land.

## Water Quality

The Water Framework Directive imposes a legal requirement to bring all waterbodies up to 'good' quality status based on ecological, physical and chemical parameters by 2015. However, as the rivers in the North Norfolk CFMP area are classified as 'Heavily Modified Water Bodies', they may have different ecological objectives applied to them that take into account significant physical modifications necessary to support particular uses.

Currently, the majority of rivers in North Norfolk are of 'good' chemical quality and 'very good' biological quality with no stretches of river classified as 'poor' or 'bad'.

## Recreation

Tourism is very important in North Norfolk with around 950,000 people visiting and staying in the area each year; and an additional 8.5 million day visitors contributing around £357 million to the local economy.

Tourism is heavily dependent on recreational opportunities, most of which are provided by coastal areas and river valleys. These include walking, cycling, sailing, bird watching and angling.

The CFMP will look to enhance recreational activities wherever possible and this will be taken into account when assessing policies for flood risk management.

**Q** Have we adequately recorded the environmental issues within the catchment?

# Possible future scenarios

A key requirement of the CFMP is to assess future flooding conditions within the catchment over the next 50 to 100 years and compare this to the current situation.

The financial impacts of floods are likely to rise as development and the value of property increases in flood risk areas. The resources available for the future management of flood risk will be determined nationally. Planning policy aims to minimise further development in areas at risk of flooding.

Three factors which may increase future flood risk are:

- land use management;
- urban expansion;
- climate change.

The performance of various policies will be tested against what could happen in the future. These future scenarios must be built from knowledge of the

catchment's sensitivity to land use and climate change and from trends in the catchment.

The following factors could be used for scenario testing:

- urban (and tourism) growth/decline;
- industry growth/decline;
- agricultural land use change
  - growth/decline in intensive agriculture,
  - decrease/increase in forestry/grassland/ wetland.

During the next stage of the CFMP, various combinations of these scenarios will be grouped to test the effect of different catchment policies at two points in time: 2050 and 2100.

**Q** Do you think the appropriate scenarios have been highlighted?



**River Glaven outfall at Cley**

# Objectives

The generic objectives for all CFMPs are given below:

The **key** objective of a CFMP is ‘to develop complementary policies for long-term management of flood risk within the catchment that take into account the likely impacts of changes in climate, the effects of land use and land management, provide multiple benefits and contribute towards sustainable development’.

Other objectives of a CFMP are:

- To undertake a high-level strategic assessment of current and future flood risk from all sources (i.e. rivers, sewers, groundwater, etc) within the catchment, by understanding the components that constitute the risk (i.e. both probability and impact) and the effect of current risk reduction measures. The scale of risk should be broadly quantified in economic, social and environmental terms.
- To identify opportunities and constraints within the catchment for reducing flood risk through strategic changes or responses, such as changes in land use, land management practices and/or the flood defence infrastructure.
- To identify opportunities during flood risk management to maintain, restore and enhance the total stock of natural and historic assets (including biodiversity).
- To identify the relative priorities for strategic studies, actions or projects to be undertaken to manage flood risk within the catchment, and assign responsibility to ourselves, other operating authorities, local authorities, water companies or other organisations that we work with.

Taking the above factors into account, draft objectives for the North Norfolk CFMP are being developed with regard to the objectives of other interested groups within the catchment. Those relevant to flood risk will be used to assess which policies are appropriate for the future management of that risk.

The draft objectives for the North Norfolk CFMP are summarised below:

- to manage flood risk to people;
- to manage flood risk to communities;
- to manage flood risk to property and essential infrastructure;
- to manage flood risk to designated conservation sites and species;
- to manage flood risk to non-designated sites and species;
- to manage flood risk to recreational activities;
- to manage flood risk to landscape character;
- to manage flood risk to sites of cultural, architectural and archaeological heritage value;
- to manage flood risk to the historic landscape;
- to manage flood risk to rural areas;
- achieve sustainable land use that benefits flood risk management and biodiversity;
- achieve ‘good ecological status’ under the Water Framework Directive where applicable;
- conserve water resources;
- to manage natural river features to benefit flood risk management and the environment;
- promote joint use of the floodplain and river corridor for flood risk management and nature conservation.

Q Are these appropriate objectives with which to appraise the policies?

Q Are there other objectives we should consider?

# Way forward

The next stage is the development of the draft CFMP. Before this can be done we will collate all feedback received from the consultation on the Scoping Report.

The development of the draft Plan will include finalising the scenarios and objectives, confirming the opportunities and constraints and identifying and evaluating flood risk management policies against the catchment objectives. Priorities will also be identified for studies, plans, actions or projects to be undertaken to manage flood risk within the catchment. Following completion of the draft Plan we will again consult widely to ensure our conclusions are correct.

Any feedback will then be incorporated into the subsequent final CFMP document.

We look forward to receiving your feedback on this current stage. However when making your response, please keep in mind the fact that the CFMP will be a high level document taking a strategic view at the catchment scale and will not be addressing local issues in detail or flooding from the sea.



River Hun Outfall Sluice

# Feedback form

Thank you for taking the time to fill in this questionnaire.

Name: ..... Organisation: .....

Address: .....

E-mail: .....

## Section 1

Please use this section to give us feedback on the contents of this summary document. You can also use this form to respond to the full Scoping Report.

**1. Have we adequately explained the concept of Catchment Flood Management Plans?**

.....  
.....

**2. Do you think we have fully explained flood risk and how it is / can be managed?**

.....  
.....

**3. Do you feel the economical and social impacts of flood risk have been adequately recorded?**

.....  
.....

**4. Have we adequately recorded the environmental issues within the catchment?**

.....  
.....

**5. Do you think the appropriate scenarios have been highlighted?**

.....  
.....

**6. Do you think these are appropriate objectives?**

.....  
.....

**7. Are there other objectives we should consider?**

.....  
.....

**8. Any other comments, questions or feedback?**

.....  
.....

## Section 2

Please use this section to give us feedback regarding how you have received information from us so far and how you would like to receive information in the future.

**1. How did you receive the North Norfolk Catchment Flood Management Plan Scoping Consultation Report? (Please tick all that apply)**

By post  CD by post  hard copy  
 Looked on the internet

**2. Was the information easy to understand?**

Yes  No

If no please comment .....

**3. Was the information available sufficient?**

Too much  Sufficient/Good  Not enough

**4. Would you have liked to have received the full Scoping report?  Yes  No**

**5. Do you think the format was appropriate for you?**

Yes  No

If no, why? .....

**6. How else would you like to receive outputs from the next stage of the CFMP? (Please tick all that apply)**

By CD  E-mail  Website link  
 Hard copy of full report  Consultation report

**7. What other methods of consultation would you find helpful?**

Meeting  Workshop  Presentation  
 Newsletter  Other

Other, please add comments .....

**9. Are you confident that your feedback will be taken into consideration?**

Yes  No

If no, why? .....

Please return completed forms to Duncan Campbell, North Norfolk CFMP Project Manager, Environment Agency, Kingfisher House, Goldhay Way, Orton Goldhay, Peterborough, Cambridgeshire, PE2 5ZR.

Comments can also be e-mailed to: [nnorfolkcfmp@environment-agency.gov.uk](mailto:nnorfolkcfmp@environment-agency.gov.uk)

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