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managing flood risk



River Tamar

Catchment Flood Management Plan

– summary of draft plan

October 2006

Introduction

We are the Environment Agency. It's our job to look after your environment and make it a better place – for you, and for future generations.

This publication is a summary of our draft Tamar Catchment Flood Management Plan (the 'draft plan').

It will never be possible to prevent flooding entirely. But what we can do is work with local authorities and others to *manage* floods. This means we can reduce both the chance and the impact of flooding.

The draft plan contains policies and guidance which will help us and our partners decide the best ways to manage future flood risk. Climate change, urban development and land use management all have a big influence on these decisions.

It is vital that the draft plan has widespread support. That's why we need the views of all sorts of people: planners, environmental organisations, land managers, farmers and local communities.

You can find out how to comment on the back page.

What's the draft plan about?

We are producing Catchment Flood Management Plans that will cover the whole of England and Wales. Catchments are areas that drain into a particular river.

Catchment Flood Management Plans will guide our future investment and activities in managing flood risk in a river catchment. They will help us decide if the way we manage floods now will still be effective in the future.

Our draft plan for the Tamar catchment:

- sets out what we know about flood risk in the catchment;
- looks at how that risk might change;
- identifies how we and our partners could manage the risk over the next 100 years.

We have consulted local authorities and many others; we are now asking a wider range of people and organisations

for their views on the draft plan. In particular we would like your comments on the proposed actions – see pages 6 and 7.

We will carefully consider all the comments we receive in producing the final Catchment Flood Management Plan.

We want the final plan to be used by organisations involved in land use planning, rural development, agriculture, transport, recreation, nature conservation and protection of the historic environment. This will ensure that flood risk management and our future proposals are taken into account in policies and plans.

We want public authorities and local communities to understand future changes in flood risk and for us all to work together to manage and minimise flood risk. This will help reduce the effects of flooding on our communities, the economy and our environment.



Left:
Flooding from the River Kensey at Newport in Launceston in 1980.

Front cover:
Our staff tackle floods from the River Tamar at Bridgerule near Bude, December 2003

Catchment description

The Tamar catchment straddles the boundary between Cornwall and Devon. It extends north-east of Bude down to Plymouth Sound and is bounded by Dartmoor to the east and Bodmin Moor to the west. The main rivers are shown on the map below.

The catchment is mainly rural so it has a rich environment, with many important environmental sites and a high quality river system.

It includes all the main rivers that discharge into Plymouth Sound and their tributaries. From west to east, these are the Tiddy; Lynher; Tamar, Inny, Kensey, Ottery, Deer, Claw, Carey, Thrushel, and Lyd; Tavy and Walkham; Plym, Tory Brook and Long Brook; and Yealm.

The main urban centre is Plymouth and its surrounding

communities – Plympton, Plymstock and Saltash. Other main towns are Launceston in the north and Tavistock to the east.

Area: 1,800 sq km (700 sq miles).

Population: 352,000.

Annual rainfall: Ranges from about 1,000mm (40in) in coastal lowlands to more than 2,000mm (80in) on the edge of Dartmoor. This compares to an annual average for England and Wales of 920mm (36in).

Land use: 95% agricultural, 4% urban and 1% other.

Environmental designations: Dartmoor National Park; one Special Protection Area; five Special Areas of Conservation; two National Nature Reserves; 61 Sites of Special Scientific Interest; more than 880 scheduled ancient monuments.

Geology: Granites make the upper catchment relatively impervious which in turn leads to the flashy nature of rivers and their tributaries, often resulting in water levels rising rapidly in a short time. The lower areas have sandstones and mudstones overlain with alluvial silts and clays and terrace deposits from rivers and sea.

Topography (lie of the land): The catchment is dominated by low gentle hills to the north and steeper heathland and moors to the east and west. Eastern tributaries rise among the granite tors of Dartmoor, the catchment's highest point at about 600m (1,970ft).

To the west, Bodmin Moor is slightly lower at about 320m (1,050ft). The upper reaches of these rivers slope steeply and have a rapid flashy response to the moors' heavy rainfall. Lower reaches of the catchment are less steep but have comparatively narrow floodplains.



Map of the River Tamar Catchment Flood Management Plan (CFMP) area showing main towns and rivers

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Flood risk now and how it's managed

We work with local authorities, South West Water and other organisations to manage flood risk in the Tamar catchment. We spend a significant amount each year on this work, but people, property and the environment remain at risk from flooding in some areas.

Flood risk varies across the Tamar largely because of the topography – the lie of the land.

Many of the homes and businesses at risk of river flooding benefit from flood defences that are designed to protect against floods of various heights, for example at Launceston, Lifton, Plympton and Tavistock.

The main factors that affect the risk of flooding are:

- heavy rainfall in the upper east and west reaches of the catchment;
- heavy rainfall causing surface water flooding in various places;
- rainwater running off fields;
- not enough capacity in the channels of rivers, plus blocked bridges and culverts;

- high tides stopping flood flows discharging properly into the estuary, causing flood risk to Gunnislake and Plympton.

Current flood risk management includes:

- **Management work:** This includes maintenance, monitoring and operation of defence structures. We also have an annual maintenance programme, which includes dredging channels and cutting weeds to ensure the rivers flow efficiently.
- **Flood warning:** Most of the areas at risk of flooding are covered by our flood warning system where we aim to give two hours' warning of possible flooding. But some upper reaches of the Tamar catchment react very quickly to rainfall and we may not always be able to meet this target.



Flooding from River Ottery at Canworthy Water on 16 August 2004 – the day nearby Boscastle was hit by flash floods

What the future could bring

We have investigated possible future changes in the catchment and looked at the effects of climate change, urban growth and changes in land use.

Our conclusions from these studies are as follows:

Climate change

Climate change will lead to more frequent and heavier rainfall and more flooding. Higher average summer temperatures will bring a greater risk of thunderstorms and flash flooding.

Sea level rise can result in changes to the tide-locking of watercourses draining to the sea and in coastal and tidal flooding.

Development

Planned urban development in the catchment could worsen flooding by increasing the volume and intensity of run-off.

It is crucial to managing flood risk that further development is minimised in areas at risk of flooding.

It is also essential that drainage systems for new developments are fully planned, using sustainable drainage systems where possible to reduce the effect of urban growth on flood flows and risk.

Land use

Intensification of agriculture could increase flows across the catchment, leading to greater run-off and flood risk. Less intensive agriculture could reduce flows from field drainage, resulting in more moderate run-off and reduced flood risk. Increased forest areas in the catchment could be used as a way of reducing run-off.

By looking at the most likely changes, we've been able to study how flood risk may increase with time. We have then used this picture of the future to come up with what we think are the right ways to tackle the increased risk.

We outline our objectives and action plan on pages 6-7.



Flooding from the River Tamar at Bridgerule in December 2003

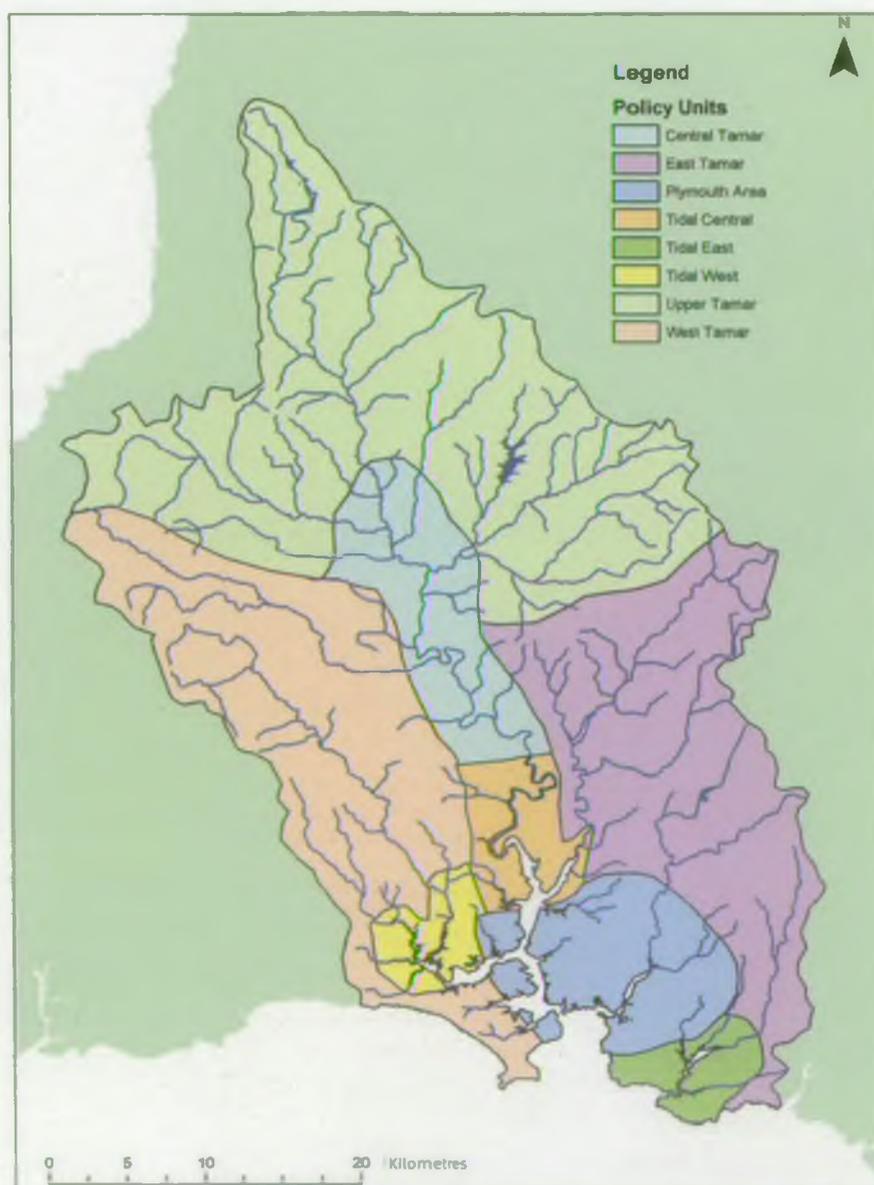
Our objectives for the catchment

We have worked closely with local authorities and many others to develop objectives for the Tamar catchment. They cover the broad areas of flood risk to people, the environment and the economy.

Our objectives for the catchment are to:

- Reduce the flood-related health risk to the population.
- Manage the flood risk to the built environment.
- Minimise disturbance to agricultural land.
- Ensure natural river processes are not disturbed.
- Protect and improve cultural heritage features where possible.
- Protect and improve landscape character and visual amenity where possible.
- Prevent pollution of the river and protect water quality.
- Protect and improve the features and designated areas of nature conservation interest.
- Maintain and improve Biodiversity Action Plan (BAP) habitats and species in line with targets.
- Encourage changes in land use practice to minimise run-off.
- Protect and improve recreation amenity facilities where possible.

We have divided the catchment into policy units with similar characteristics. The policy units are shown below and the actions for each are listed on p7.



Policy units in the Tamar catchment – the actions for each unit are listed on p7

How we plan to manage flood risk

We have drawn up an action plan – summarised below – of what we will do to manage flood risk in each policy unit in the Tamar catchment.

Catchment-wide actions

- Encourage local authorities to complete Strategic Flood Risk Assessments.
- Continue our work to identify catchments that respond rapidly to heavy rainfall.

Upper Tamar

- Create wetlands where feasible.
- Investigate flood storage possibilities around the Tamar, Claw and Deer confluences.
- Promote afforestation.

East Tamar and West Tamar

- Maintain defences, upgrade as needed.
- Maintain the flood warning system.
- Promote afforestation.
- Review urban drainage capacity in Tavistock.
- Create wetlands around Tavistock where feasible.

Plymouth Area and Central Tamar

- Review urban drainage at Plymouth, Plympton, Launceston and Lifton.
- Upgrade flood defences where necessary.
- Improve flood warning system.
- Create wetlands if feasible.
- Review flow capacities at Plymouth, Plympton, Tamerton Foliot and Saltash.

Tidal East, Tidal West and Tidal Central

- Investigate flood storage possibilities.
- Review flow capacities at Yealmpton, Tideford and St Germans.
- Raise awareness of responsibilities of riverbank ownership.
- Promote flood warning system.
- Review urban drainage capacity at Calstock.
- Create wetlands south of Gunnislake where feasible.



Firefighters pump away floodwater after the River Kensey over-topped its banks at Launceston in 1980



A swollen River Tamar at Gunnislake during the widespread floods of

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Information Services Unit

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Due Date

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How to find out more

The Tamar Catchment Flood Management Plan is available on a CD from Elizabeth Letts – to obtain a copy, email elizabeth.letts@environment-agency.gov.uk, call her on 01208 265150 or write to her at the address below.

You can also study a printed copy of the complete draft document at our Cornwall Area office at Sir John Moore House, Victoria Square, Bodmin. The office is open Monday to Friday from 9am to 5pm. Further information is available from our website www.environment-agency.gov.uk

We welcome your views

Your views are vital for our public consultation on this draft plan. We will consider all comments we receive before 5 January 2007 in producing the final Tamar Catchment Flood Management Plan. This is due to be published in March 2007.

Please **email** your comments to: elizabeth.letts@environment-agency.gov.uk

Or you can **post** your comments to:

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