Roding, Beam & Ingrebourne Catchment Plan

A strategic plan which seeks to bring positive change to people, wildlife and the environment through better management of land and water







Executive Summary

The Water Framework Directive (WFD) is a wide-ranging piece of European legislation that has become part of UK law. It aims to improve all water bodies in Europe in respect of their water chemistry, wildlife and morphology by setting measurable objectives. Great steps have been made over recent decades to improve water quality in the Roding, Beam & Ingrebourne area, and now the WFD aims to raise the standard even higher.

There is currently variation across the catchment as to how many WFD objectives are being met, but in all areas there is significant potential for improvement. Parts of the Roding, Beam & Ingrebourne catchment currently falls below the required standards. A range of factors are contributing to this, the most significant for the catchment being high phosphate levels, low water flows, sediment levels and man-made alterations to river corridors such as weirs.

The catchment-scale approach to tackling these issues is vital to improving the overall condition of the rivers and tributaries within the Roding, Beam & Ingrebourne Catchment and in producing focussed plans such as this Roding, Beam & Ingrebourne Catchment Plan (RBICaP).

The Roding, Beam & Ingrebourne Catchment Partnership (RBICP) is working at both a catchment and local scale, seeking to liaise with landowners to reduce pollution, and encourage works directly within the river corridor to improve its habitats. The RBICP is co-chaired by Thames21 and the Thames Chase Trust and current membership includes:

- > Brentwood Borough Council
- > Environment Agency
- > Epping Forest District Council
- > Essex Wildlife Trust
- > Forestry Commission
- > Friends of Ingrebourne Valley
- > London Borough of Barking & Dagenham
- > London Borough of Havering
- > London Wildlife Trust
- > Royal Society for the Protection of Birds
- > Thames Chase Trust (Co-host)
- > Thames21 (Co-host)
- > Thames Water
- Vision RCL on behalf of the London Borough of Redbridge

This Catchment Plan sets out the required actions which will seek to improve the physical functioning and condition of the rivers and tributaries within the Roding, Beam & Ingrebourne Catchment, thus benefitting both wildlife and people.

This Plan will be reviewed in 2018.

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Plan produced by the Roding, Beam & Ingrebourne Catchment Partnership (RBICP).

The Roding, Beam & Ingrebourne Catchment Partnership is Chaired by David Bigden BSc CEnv MCIEEM on behalf of Thames21 and the Thames Chase Trust and members include Thames21; Thames Chase Trust; Vision Redbridge Culture and Leisure (on behalf of the London Borough of Redbridge); Epping Forest District Council; Forestry Commission; London Borough of Havering; London Borough of Barking and Dagenham; Brentwood Borough Council; Environment Agency; Essex Wildlife Trust; RSPB; Thames Water; Friends of Ingrebourne Valley.



Foreword

Since its inception in 2012, the Roding, Beam and Ingrebourne Catchment Partnership has been co-chaired by Thames21 and the Thames Chase Trust. As Catchment Co-Hosts, we have welcomed this unique opportunity to bring local people together to work through a Catchment Based Approach (CaBA) to improve the rivers in the Roding, Beam and Ingrebourne Catchment and bring direct on-the-ground benefit to people and wildlife. The European Water Framework Directive (WFD) is our driver.

The WFD became part of UK law in 2003 and it gives the Environment Agency an opportunity to plan and deliver a better water environment, focussing on ecology. The WFD will help to protect and enhance the quality of surface freshwater (including lakes, streams and rivers); groundwaters; groundwater dependant ecosystems; estuaries; and coastal waters out to one mile from low-water.

Thames 21 is one of the country's leading waterway charities. We work with communities across Greater London to improve our rivers, canals, ponds, and lakes for people and wildlife.

The Thames Chase Trust is the body responsible for the development and creation of the Thames Chase Community Forest. The 40 square miles of Community Forest on the edge of east London and south-west Essex is a unique mix of valuable habitats on the doorstep of local people and an essential haven for wildlife. Aquatic ecosystems are vital to the sustainability of this landscape.

The co-host partnership between Thames21 and the Thames Chase Trust is bringing wide-ranging benefit to the work of the Roding, Beam and Ingrebourne Catchment Partnership. Both Thames21 and the Thames Chase Trust have extensive experience of bringing people together to improve their local environment and providing real and sustainable solutions.

The Roding, Beam and Ingrebourne Catchment Partnership has considered the available information on this catchment and consulted on this with local stakeholders to create this Catchment Plan. The Plan is a live document and will continue to evolve as the catchment is improved over time.

Thames 21 and the Thames Chase Trust recognise that there are challenges ahead, particularly with available funding to sustain and develop the Catchment Partnership and to take this Catchment Plan from document form to realising practical and sustainable change on the ground.

To realise the aspirations of this Catchment Plan we must continue to build on our partnership approach. In time, this will make a lasting and positive difference to the rivers and their associated landscapes within the Roding, Beam and Ingrebourne Catchment and create a legacy for future generations of people and wildlife.

Chief Executive Thames21

Chair Thames Chase Trust

Introduction

The Roding, Beam & Ingrebourne Catchment Partnership

The Roding, Beam & Ingrebourne Catchment Partnership is a focussed group of local stakeholders who are working together through a Catchment Based Approach (CaBA) to improve the rivers in the Roding, Beam & Ingrebourne Catchment and bring direct on-the-ground benefit to people and wildlife.

The Roding, Beam & Ingrebourne Catchment Partnership has been meeting quarterly since 2012, discussing and planning ways in which it can progress its work. The Partnership is able to drive forward its work programme because of vital funding received through the Environment Agency's Catchment Partnership Fund. Ongoing work includes direct engagement with key local groups and individuals; the creation of a Catchment Plan and Vision Summary; and the submission of bids for funding which will seek to unlock much needed resources to deliver practical improvements on the ground.

The current members of the Roding, Beam & Ingrebourne Catchment Partnership are:

Brentwood Borough Council

Environment Agency

Epping Forest District Council

Essex Wildlife Trust

Forestry Commission

Friends of Ingrebourne Valley

London Borough of Barking & Dagenham

London Borough of Havering

London Wildlife Trust

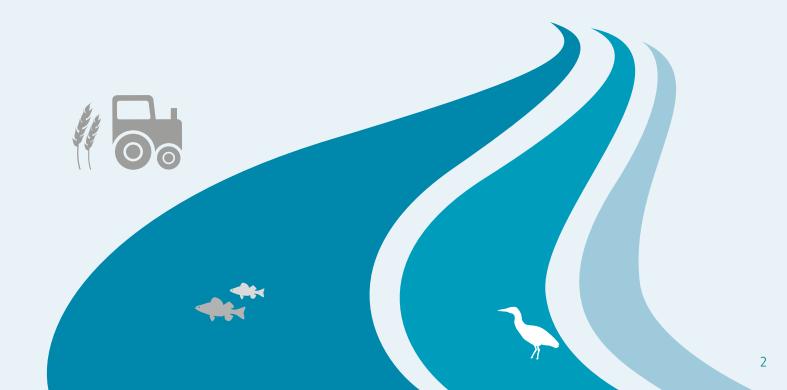
RSPB

Thames21 (Co-host)

Thames Chase Trust (Co-host)

Thames Water

Vision RCL on behalf of the London Borough of Redbridge





The Roding, Beam & Ingrebourne Catchment Plan (RBICaP)

The Roding, Beam & Ingrebourne Catchment Partnership has considered the available information on this catchment to create this Plan. This also incorporates the detail gathered during local stakeholder consultations delivered by Thames21. The single document has been compiled from data contained in each of the three original Roding, Beam and Ingrebourne Draft Catchment Plans.

This Plan alone will not deliver results on the ground; it will require investment by people to bring about positive change. The Plan and its separate appendix are live documents and will continue to evolve as the catchment is improved over time. The appendix will be reviewed annually and the Plan in 2018.

The Water Framework Directive (WFD) and the RBICaP

The European WFD became part of UK law in 2003. It gives the Environment Agency (EA) an opportunity to plan and deliver a better water environment, focusing on ecology.

The WFD will help protect and enhance the quality of:

- > Surface freshwater (including lakes, streams and rivers)
- > Groundwaters
- > Groundwater dependant ecosystems
- > Estuaries
- Coastal waters out to one mile from low-water

How the WFD will be implemented

The country has been divided up into River Basin Districts, which are then subdivided into Catchments. The Roding, Beam & Ingrebourne Catchment falls within the Thames River Basin District. WFD requires a management plan to be drawn up for each River Basin District and this plan needs to be reviewed and updated every six years. River Basin Management Plans were first published in 2009 and are currently being updated.

Working through the River Basin Management Plans, the WFD requires that watercourses (including rivers, lakes, groundwaters, estuaries and coastal waters) are managed sustainably. Good status for each type of water body is defined by a set of biological, chemical and physical standards.

Identifying pressures and risks

As part of the River Basin characterisation process, the EA have assessed the pressures on water bodies, and the risk of failing to achieve the objectives of the WFD by 2015.

The EA has looked at 5 different categories of potential pressures:

- > Alien species
- > Diffuse sources of pollution
- > Point sources of pollution
- > Water abstraction and flow regulation
- Physical or man-made alteration to the water body

The Roding, Beam & Ingrebourne Catchment Plan focusses on identifying the issues and problems within the catchment and then identifying how these can be addressed and improved through a Catchment Based Approach (CaBA).

Shared Vision for the Roding, Beam & Ingrebourne Catchment by 2027

- > The Roding, Beam & Ingrebourne Catchment is one which meets the objectives of the WFD and achieves Good Ecological Status.
- > The Roding, Beam & Ingrebourne Catchment provides naturally functioning ecosystems with a diverse and thriving wildlife.
- > The Rivers Roding, Beam and Ingrebourne will be valued and enjoyed by local communities and people will visit these areas as a destination for recreation and leisure.
- > The Rivers Roding, Beam and Ingrebourne will be free from Invasive Non-Native Species (INNS).
- > The Rivers Roding, Beam and Ingrebourne will be free from pollution and have reduced siltation.
- As a result of an effective Catchment Based Approach to the Roding, Beam & Ingrebourne Catchment, stronger

- partnerships are formed between communities, businesses,landowners and managers.
- The Roding, Beam & Ingrebourne Catchment is recognised as an exemplar and the clear Catchment Based Approach improvements achieved since 2012 are evident on the ground.

The Roding, Beam & Ingrebourne Catchment
Partnership recognises the importance of our Rivers
and Water. This resource is vital for recreation,
wildlife, health, drinking, growing crops, industry,
and waste water management. Collectively, we
can better manage this resource by giving careful
consideration to the amount of water we use.

The Roding, Beam & Ingrebourne Catchment
Partnership recognises that this needs to be
managed sustainably so that this vital resource can
be passed on in the best possible condition to future
generations.

Goals

To meet the Shared Vision for the Roding, Beam & Ingrebourne Catchment, our goals are to improve:

Recreation and raising awareness

To improve opportunities for recreation across the catchment and in turn raise awareness to a more sustainable use of this resource and ensure it is valued and appreciated.

River and floodplain management

To manage flood risk and sustainable drainage; improve connectivity, manage Invasive Non Native Species (INNS) and litter.

Water management

To improve the way in which water is captured and managed; and to reduce nutrients in our watercourses.

Land management

To work with land managers to improve habitats, and the way in which people can access their rivers and associated green spaces.

Investment in the Roding, Beam & Ingrebourne Catchment

To work with land managers; businesses and funding bodies to create inward investment opportunities for the Roding, Beam & Ingrebourne Catchment.



About the Roding, Beam & Ingrebourne Catchment

There have been some changes to the way water bodies within the catchment have been divided. The initial water body boundaries and names were referred to as Cycle 1 which ran from 2009 to 2013. Cycle 2 superceded this in 2014 and an extract from the Thames River Basin Management Plan explains this further: "In Cycle 2, changes have been made to some of the geographic boundaries of the water bodies, such as Seven Kings Water and the Ingrebourne while other water bodies for example the Upper and Lower Cripsey Brook have been combined together. In addition more representative sampling locations and improved monitoring techniques have provided more accurate information. The Environment Agency are still reviewing these relationships and expect these to change between now and the final updated RBMP for Cycle 2".

A summary of the changes is shown below

- The Cripsey Brook was split into upper and lower sections but they have now been amalgamated
- The River Roding was in two sections (source to the Cripsey Brook confluence / Cripsey Brook confluence downstream to the Loxford Water confluence). The Roding is now in three sections (source to the Cripsey Brook confluence / Cripsey Brook confulence downstream to Loughton / Loughton to the Thames)
- > The Beam and the Ravensbourne which were separate WFD water bodies have now been combined
- The Mayes Brook and the Gores Brook are now separate water bodies

River Roding

The Roding is a significant river, rising in Essex near Stansted Airport, and flowing 28 miles to its mouth at the Thames. The Roding has many tributaries, the largest of which is the Cripsey Brook, meeting the Roding near Ongar. In its upper course the river passes through arable and pastoral farmland, and retains its natural character. As the river approaches the M25 impressive scenes of flooding are a regular feature during autumn and winter.

The Brookhouse Brook joins from the north, and then the Roding meanders past Abridge, and runs alongside the M11 for a stretch, with the Pyres Brook joining here from the west. At Loughton, the river is joined by the Loughton Brook and the catchment becomes predominantly urban, with associated challenges for the river. It is increasingly heavily modified downstream of Woodford, mainly due to flood risk, and is a very flashy river.

Downstream of the Loughton Brook, the Roding continues to the east of Buckhurst Hill and on to Woodford and Wanstead, where the Aldersbrook joins the river and Wanstead Park provides another sizeable area for recreation. From Ilford, the river is constricted in a narrow corridor alongside the A406 with limited public access. Both the Cran Brook and then Loxford Water join from the east.

From Barking the river becomes Barking Creek, which is tidal in nature and is the boundary between the London Borough of Newham to the west and Barking and Dagenham to the east. Here the land-use is primarily industrial, and the Mayesbrook joins from the east. Barking Creek enters the Thames at Creekmouth, through the striking Barking Barrier.

There is a huge population around the Lower Roding, and in general it is well known and used by local residents. However, there is a call for improved access, overcoming some barriers and making more of the river accessible in its southern stretch, especially around Ilford. Pollution is seen as a significant issue for the river, as are invasive plant and animal species. The river has managed to take on a natural character within the flood defences in the lower stretches with good vegetation cover; however the community would like to see it re-meandered where possible, without causing increased flood risk.

River Beam

The Beam rises in the fields near Curtis Mill Green, here being the Bourne Brook. It travels through rural land, including areas of arable and pastoral farmland, becoming the Rom to the west of Havering Atte Bower. At this point the catchment becomes urban, passing through Collier Row and Romford which gained its name from the River. In the centre of Romford, the Black's Brook tributary joins, having run through Raphael's Park. Just south of Romford at the popular Chase Local Nature Reserve (LNR), the Ravensbourne joins the Rom from the east, and here the river becomes known as the Beam for the rest of its course to the Thames.

The river runs through wetland areas which are publicly accessible, such as the Beam Parklands, presenting a chance for many people to enjoy the river for leisure and recreation. The Beam continues through its green valley which itself is surrounded by the urban areas of Hornchurch and Dagenham, before passing through the Ford Motor Works complex and into the Thames through a tidal sluice.

Whilst enjoyed by some, the river presents some issues for the populations around it, partly due to the way it has been treated. Flooding in Collier Row in 1987 is still fresh in the mind for some. The much smaller Rise Park Drain through Rise Park regularly floods to the extent that gardens are submerged and houses protected with sandbags. The Rom, highly modified through Romford, has been confined into concrete channels through much of the urban area, and has thus become an eyesore in places. Wildlife value is limited here and it has become a dumping ground, seen merely as a drain, with walls lined with graffiti.

The Orange Tree Stream and Black's Brook similarly are seen as neglected streams in need of a little care. The Ravensbourne and its tributary the Emerson Park Stream are practically 'lost', with only 15% of their 5 mile length being straightened but natural, the rest in an open or closed culvert, or reinforced with concrete.

River Ingrebourne

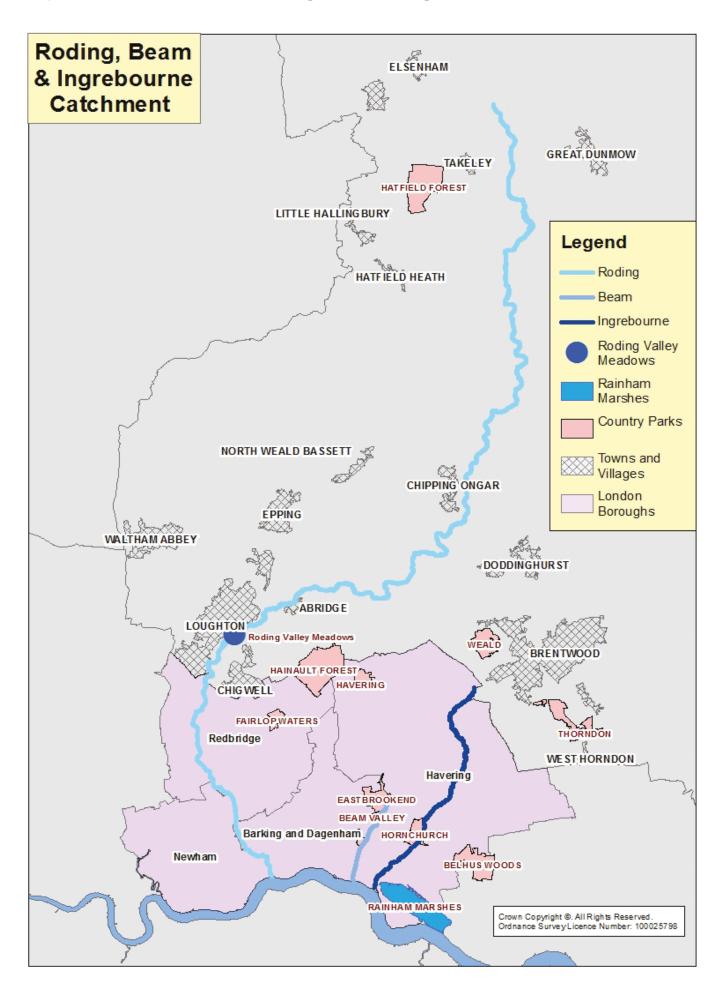
The River Ingrebourne begins its 27 mile journey near Brentwood, Essex, rising in Warley. It is joined by its main tributary, the Weald Brook, just after it passes beneath the M25. From here it passes alongside the urban areas of Harold Park and Harold Wood, with its second tributary, Carter's Brook (becoming the Paine's Brook), joining here.

The Ingrebourne largely has an unaltered course, winding through its predominantly green valley, much of which is public land between Harold Wood and Rainham. As it passes through Hornchurch Country Park the river feeds the Ingrebourne Marshes Site of Special Scientific Interest (SSSI) site, with nationally important reed beds and marshland, providing a haven for wildlife including nationally rare birds.

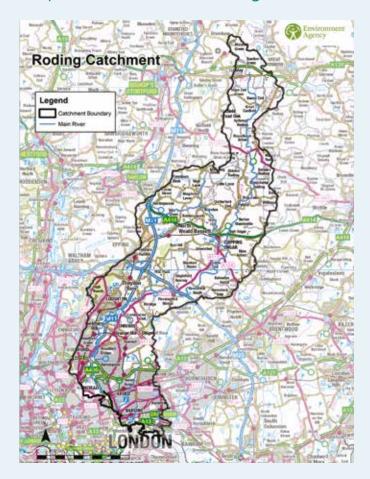
There are a couple of streams from the east flowing into the Ingrebourne, for example, there is one stream which flows through Parklands at Corbets Tey and Berwick Ponds. At the bottom of Ingrebourne Marshes a side shoot flows to the west, becoming the Pooles Sewer and Havering New Sewer. From Rainham the river is largely inaccessible, passing through industrial areas, into Rainham Creek and entering the Thames through a tidal sluice at Frog Island.

At the bottom of the Ingrebourne catchment are the rivers and ditches, including the Southall Sewer, the Wennington Branch Sewer and Rainham Main Sewer that flow into the Inner Thames Marshes SSSI before entering the Thames via a tidal sluice.

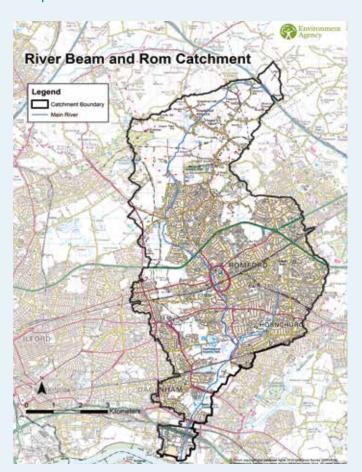
Map 1 Location of the Roding, Beam & Ingrebourne Catchment



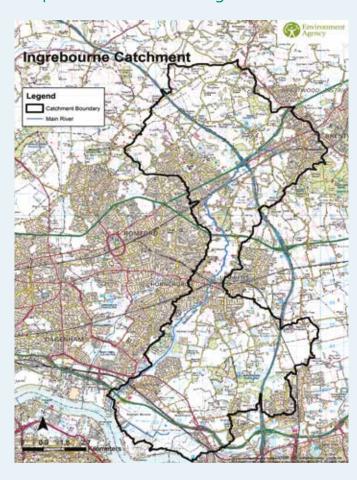
Map 2 The River Roding



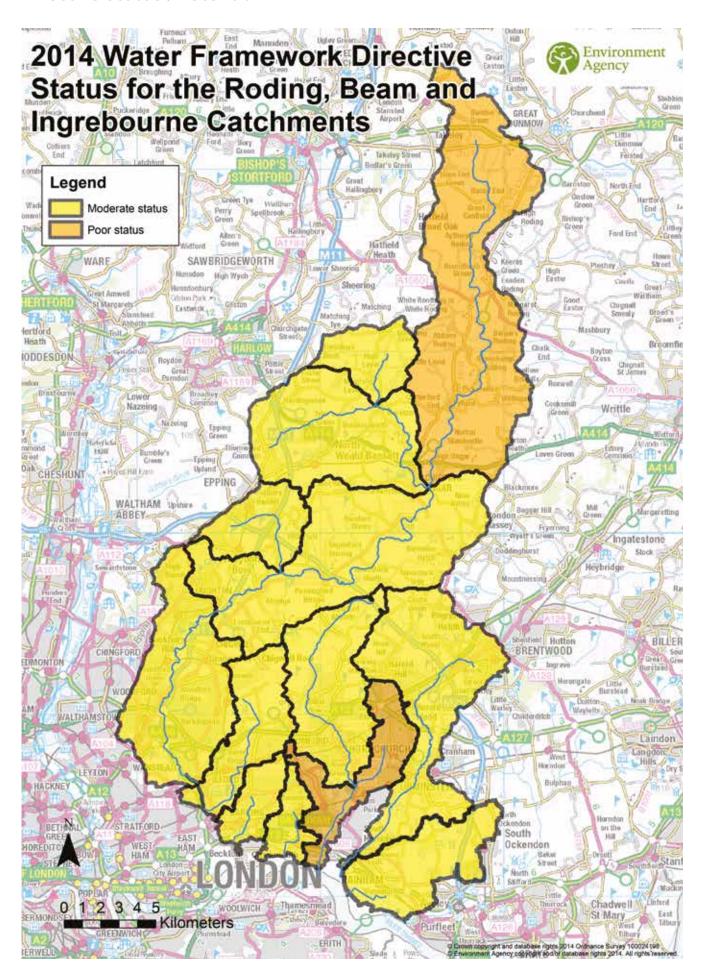
Map 3 The River Beam

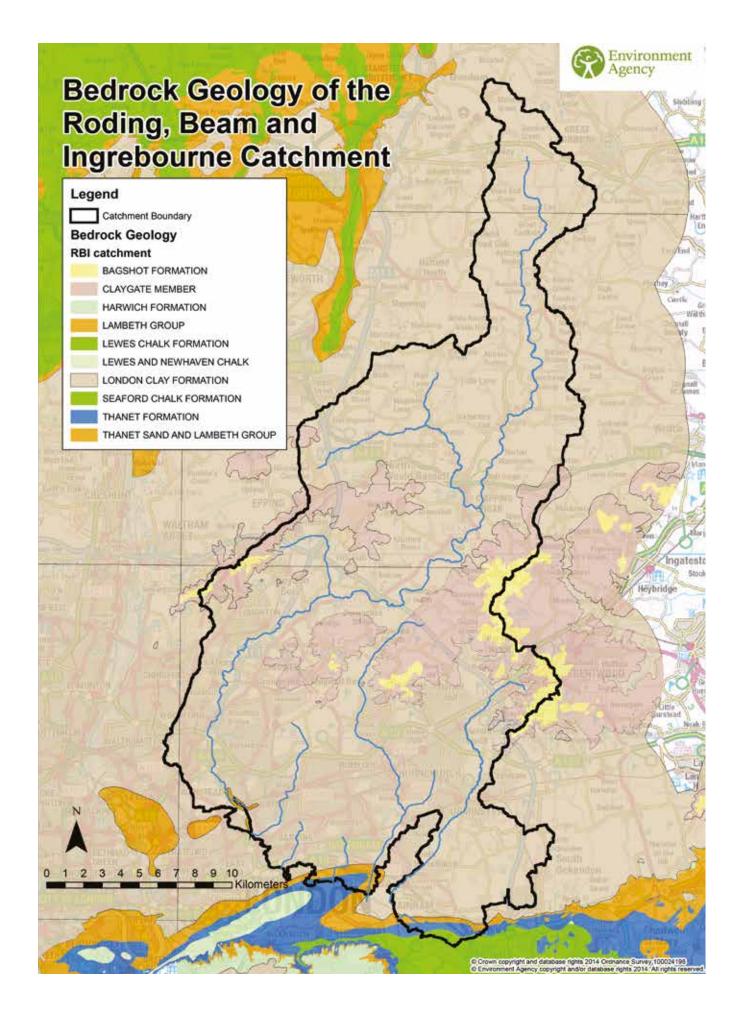


Map 4 The River Ingrebourne



Plan 1 Roding, Beam & Ingrebourne Catchment Overall Water Framework Directive Status / Potential





What are the issues?

Summary of current catchment issues

Roding

The Roding has been subdivided for the purpose of WFD. This plan will deal predominantly with the Roding from the confluence with Cripsey Brook near the M25 to the extreme tidal influence where Loxford Water joins the Roding. This section includes rivers like the Cran Brook.

In this stretch, the river has been channelized for flood risk management from Woodford, the use of concrete or sheet piles becomes more common as you work down the river from here so it is classified as a heavily modified water body. The Lower Roding is classified at the moment as having poor ecological potential. It must reach good ecological potential by 2027 under WFD.

A major challenge facing the Roding is sedimentation, which affects the river flow and impacts on the plants and animals in the river. For example sediment can clog the gills of animals, and smother more delicate plants. Due to the clay soils, urban and agricultural run-off and bed / bank re-sectioning, the Roding is a flashy river, with surges in flow after heavy rain. This stirs up the sediment and can wash invertebrates and young fish down the river. Greater intensity of rainfall and run-off due to climate change will exacerbate this problem.

This stretch of the Lower Roding is failing for invertebrates, water plants, algae, fish and phosphate. Poor water quality is affecting the invertebrates, some of which can be attributed to the many domestic plumbing mistakes (misconnections) in the Lower Roding catchment. Urban run-off is an additional cause of poor water quality and sedimentation as grit and oils are washed off the roads into the river. Pollution incidents, although not frequent, from agricultural sources such as a liquid fertiliser spillage can have an impact. The river is classified as Poor for phosphate. In some places, the river is highly eutrophic (too many nutrients cause algal blooms or weed growth which depletes oxygen and sunlight to the river).

The Lower Roding has a full suite of Invasive Non Native Species (INNS). Mitten Crabs and Signal Crayfish prey on invertebrates, and burrow into banks increasing erosion and sedimentation. Invasive plants such as Japanese Knotweed and Himalayan Balsam are extensive; and Giant Hogweed is seen in pockets on this stretch. American Mink have decimated the local Water Vole population on the Roding. There is evidence of Floating Pennywort on the Thames View Ditch, a tributary of the Buzzards Mouth Sewer and the Overflow Brook near Loughton.

In comparison with the Upper Roding, which has 4 significant weirs, the Lower Roding is not so impounded. There is a flow gauging weir at Redbridge, and a weir behind Roding Hospital, but this has been notched to allow some fish passage.

The intertidal Barking Creek part of the Roding is not covered by this Plan as it falls into the Tidal Thames Zone.

The Brookhouse Brook, rising at Epping and entering the Roding just above Abridge, is also classified as having Poor ecological status. It is not a heavily modified waterbody, so will need to reach good ecological potential by 2027. It is failing for water plants, algae, invertebrates and phosphate. This is mainly due to Fiddlers Hamlet Sewage Treatment Works discharge, with some agricultural run-off and possibly some misconnections.

Both the Seven Kings Water (becoming Loxford Water) and Mayes Brook are classified as Moderate, and as heavily modified waterbodies, they are required to reach good ecological potential.

The Gores Brook also sits within the Roding catchment, but it rises in Parsloes Park and flows directly into the Thames. It is heavily modified and is classed as moderate.



Beam

The Beam has been subdivided for the purpose of WFD into the Upper and Lower Beam, and the Ravensbourne. Firstly, this Plan will deal with the upper stretch from source to the confluence with the Ravensbourne just south of Romford. In this stretch the Beam is named the Bourne Brook, and then the Rom.

Although through Romford the river has been straightened and deepened with a concrete bed and banks, this upper stretch is classified as a natural water body. As a result WFD requires it to reach good ecological status by 2027. (It is classified as having poor ecological status at the moment).

The upper stretch of the Beam is failing for invertebrates and from this we know the water quality is poor. It is poor for plants and fish, but the Environment Agency's present fisheries survey site is at Rush Green, downstream of impacts associated with Romford and therefore is not necessarily representative of conditions in the river above Romford.

Domestic plumbing mistakes (misconnections), domestic sewage packages in the Bournes Brook, sewer overflows, agricultural and road run-off are all contributing to this poor water quality problem. Unusually, there are no Sewage Treatment Works contributing to the problem. In turn the poor water quality is limiting the number of invertebrates and fish which can survive in the river, with only creatures that can tolerate pollution being found here.

Although some stretches are better than others; invertebrate samples taken by the Environment Agency from Cornell Way show poor water quality; Collier Row was moderate. However, at Vanguard Close it was good, despite being further south in the catchment, a lot of work to fix misconnections has been delivered in recent years.

In addition there are many areas of invasive plants, especially Himalayan Balsam and some Japanese Knotweed. The concrete in the rivers in Romford mean that the wildlife habitat is poor quality. There are long stretches of underground culvert and open culvert that provides next to no habitat and prevents fish moving up and down the river. More water quality monitoring is needed on this stretch to assess exactly how bad it is.

The lower stretch of the Beam from the Ravensbourne confluence to the Thames is classed as a Heavily Modified Water Body. Its status is officially Moderate, but it too is known to have poor water quality, especially with regard to high levels of ammonia, phosphate and low dissolved oxygen. As with the upper stretch, this is caused by many misconnections, sewer overflows and road run-off. However, ammonia in particular may be coming from a historic (1948) landfill within the Ford site which is leaching chemicals into the bottom of the river. The high ammonia and low oxygen will limit the river as a wildlife habitat. Again here, invasive plant species are a problem in pockets along the entire stretch.



There are also some weirs on the river which interrupt river flow, and both they and the tidal sluice at the mouth of the river prevent fish from moving up and down the river.

The Ravensbourne catchment is viewed as the poor relation to the River Beam. The Ravensbourne is solely urban and is a Heavily Modified Water body (HMWB). It flows from the A12 mainly through residential areas, so is fenced-off from public view for the most part. It runs through Haynes Park and Harrow Lodge Park, where there is some opportunity for improving it aesthetically and for wildlife. There have been some changes to the way the water bodies are divided up so for example the Cripsey Brook upper and lower sections are now combined as one and the River Roding is now in three sections (source to Cripsey Brook / Cripsey Brook to Loughton / Loughton to the Thames) rather than two.

There are at least 10 weirs along the Ravensbourne's short 3.4 mile length, most of it is concreted and the water quality is hampered further by the stagnant lakes that it runs through at Harrow Lodge Park and the old landfill site that it skirts downstream of the Upper Rainham Road. The little Emerson Park Stream again runs through a residential area, mostly underground (about 60% of its length). Water quality is an issue; the Environment Agency's sample site shows poor state for ammonia and poor for phosphate.

The high abundance of algae and other plants known to like eutrophic conditions confirms that eutrophication is having an impact on the ecology of the Ravensbourne.

Ingrebourne

The River Ingrebourne is currently classified as having poor ecological status. Because it is not a Heavily Modified Waterbody, but instead still largely a natural watercourse, it must reach good status by 2027 under the WFD.

The Ingrebourne is failing for invertebrates, water plants, algae and fish. It is also bad for phosphate. Although the waterbody is not failing overall for ammonia or dissolved oxygen it contains two sample points which are significantly failing on these elements. The sources of these pollutants have been identified by the EA as agricultural and urban runoff, misconnections and the discharge from the Brentwood Sewage Treatment Works. The water quality in Rainham Creek is affected heavily by Riverside STWs.

In addition there are invasive species throughout the Valley, including Floating Pennywort, Japanese Knotweed and Himalayan Balsam. If American Mink take hold they could threaten the Water Vole population.

There is a gauging weir at Gaynes Park on the river interrupting flow, and the tidal sluice at Frog Island that prevents fish and eel passage. In some places, for example, through Upminster to the stadium, the channel has been over-deepened and straightened.

How are the issues being tackled?

Across the Roding, Beam & Ingrebourne Catchment there are a diverse range of organisations working, within their own remit, but in turn bringing improvement and opportunity for change to the catchment. Some of these organisations are listed at the end of this Plan. The Roding, Beam & Ingrebourne Catchment Partnership seeks to coordinate a joined-up Catchment Based Approach (CaBA) to this, maximising resources and eventual benefits.

River Basin Management Plans

The Thames River Basin Management Plan published by the Environment Agency outlines work that a range of organisations will undertake within the region, including the Roding, Beam & Ingrebourne Catchment, to comply with the Water Framework Directive, based on current status and reasons for failures.

A draft plan for the period 2015-2021 was published in October 2014. **'Challenges and Choices'** provides a summary of issues, based on Environment Agency monitoring, and possible actions.

Water Company Business Plans

Thames Water's Business Plan 2015-2020, drawn-up after extensive consultation with customers, sets out how they aim to improve services between 2015 and 2020.

Thames Chase Plan

The Thames Chase Plan is the overarching strategic document guiding the development of the 40 square miles of the Thames Chase Community Forest to the east of London and on the edge of south-west Essex. The Thames Chase Trust is co-host and co-Chair of the Roding, Beam & Ingrebourne Catchment Partnership and the responsible body overseeing the creation and development of the Community Forest.

Thames21

Thames 21 is one of the country's leading waterway charities. They work with communities across Greater London to improve rivers, canals, ponds and lakes for people and wildlife. Thames 21 is co-host and co-Chair of the Roding, Beam & Ingrebourne Catchment Partnership.

The Roding, Beam & Ingrebourne Catchment Partnership

The Roding, Beam & Ingrebourne Catchment Partnership's approach to tackling the issues is through direct delivery against our 5 goals. Through consultation with catchment stakeholders, a series of actions have been identified to improve the catchment. Our Plan focusses on quick-win and medium-term deliverables rather than long-term or aspirational items. This is a live Plan and as such, the long-term and aspirational schemes can be considered at each review and included / excluded as required at the time of that review.

Havering Wildlife Partnership (HWP)

The HWP has created two Restoration Plans within the catchment. These are: Restoration Plan for the Ingrebourne Catchment and Restoration Plan for the Beam / Rom Catchment.

Other:

Biodiversity Action Plans

All London Green Grid (Area Frameworks 2 & 3) London Rivers Action Plan



1. Recreation and raising awareness

To improve opportunities for recreation across the catchment and in turn raise awareness to a more sustainable use of this resource and ensure it is valued and appreciated.

This goal has much scope for engaging local people in the Roding, Beam & Ingrebourne Catchment, whether that is providing opportunities for physical engagement e.g. practical conservation projects or surveying and monitoring training or by raising awareness through communication planning e.g. leaflets and web updates about misconnections and use of water as a resource. Thames21 and the Environment Agency are running the Only Rain in Rivers (ORIR) Project which seeks to address these issues.

The Essex Wildlife Trust run two schemes: Riverwatch and Riverfly which seek to engage local people with their local rivers. The Trust also delivers work through their 'Living Landscapes' initiative and this can support the work of the Roding, Beam & Ingrebourne Catchment Partnership.

There is scope to work with the Thames Chase Trust and their Conservation Volunteers; the Forestry Commission; and local angling groups on engagement activities for this catchment.

It is important that we consider working with schools, colleges and universities to carry out academic and applied research.

A major component of the recreation and raising awareness goal is to improve opportunities for recreation across the catchment. We need to consider how our rivers can be improved for canoeing, kayaking and angling. We need to look at how people currently access their rivers and seek ways in which this can be improved with the provision of suitable riverside / nearby paths which will allow for walking, cycling and horseriding.

Public Rights of Way should be reviewed to assess existing connectivity and propose ways in which the network can be improved. Local Access Forums and Rights of Way Improvement Plans should be considered and consulted. Within the new Countryside Stewardship Scheme (CSS) provision of educational access is proposed through merging of the previous multiple options. Consideration should also be given to the creation of an Integrated Access Strategy.

Roding, Beam & Ingrebourne Catchment Partnership Actions

- Highlight opportunities to improve access to riverside e.g. riverside walks / paths to encourage cycling and awareness (Link to county / borough strategic cycling and PRoW plans)
- > Run an education campaign in schools regarding the river environment and the impact of littering e.g. plastic bags (citizenship in curriculum)
- Work with local people to educate them about their own impact on the water environment e.g. misconnections, water bills, water meters, conserving water and information on pollutants in every day products.
- > Coordinate river clean-up community events at bottlenecks on the River Ingrebourne
- > Re-establish the Friends of the River Rom group
- Continue to support the existing Friends of the Ingrebourne Valley group
- > Install more access points for River Dipping
- > Improve visual access to see the rivers
- > Set up Schools River Groups
- > Encourage Scouts to 'Camp and Clean' more often
- Source and share resources within the RBI Catchment e.g. Waders, Boats, Litterpickers, Mink Rafts etc for community events
- Identify a system for volunteers to follow if they need to contact someone about the CaBA work within each district, borough and county. Promote partner hubs e.g. The Essex Wildlife Trust's Essex Rivers Hub Website, Nature Conservation Volunteers Schedule within the London Borough of Redbridge
- Funding to train and equip local groups who are keen to monitor and enhance our waterways
- Sign up to London Invasive Species Initiative (LISI) and encourage similar recording of INNS and information sharing

2. River and floodplain management

To manage flood risk and sustainable drainage; improve connectivity, manage Invasive Non Native Species (INNS) and litter.

The Roding, Beam & Ingrebourne Catchment provides opportunities for creating and improving defence against floods and mitigating the impacts of climate change. This will bring benefit and protection to properties, infrastructure, farmland and wildlife habitat.



Surface Water Management Plans (SWMPs) are designed to reduce flood risk and conserve water. The London Boroughs of Redbridge, Havering and Barking & Dagenham are all Lead Local Flood Authorities and Essex County Council looks after Epping. Sustainable Drainage Schemes (SuDS) have a key role to play in addressing run-off and sediment, particularly along highways and in urban areas.

Managing flood risk from main rivers and the sea is the responsibility of the Environment Agency. The Roding, Beam & Ingrebourne Catchment has a role to play in terms of the risk of flooding from the nearby tidal Thames.

Projects which re-meander and reconnect with the floodplain (where there is no flood risk to property) are very effective measures to consider. There is also scope to assess and remove or bypass fish barriers. Gravel riffles can maintain water levels whilst providing valuable habitat for invertebrates and spawning fish and also incorporate provision for canoe access. Eel Management Plans need to be adhered to under the Eel Regulations.

It is possible that river habitat improvement projects could be funded from 2015 under the proposed 'Making Space for Water' option in the new CSS. Funding may also be available through the Environment Agency flood risk management and Water Framework Directive budgets.

In-channel restoration and maintenance and bankside vegetation management are important to the improvement of the rivers in the Roding, Beam & Ingrebourne Catchment. Natural England and the Association of Drainage Authorities have published The Drainage Channel Biodiversity Manual (NE121) for integrating wildlife, land drainage and flood risk management.

There is a need to prevent, control and eradicate invasive, non-native species. Invasive Non Native Species (INNS) are an increasing problem in the Roding, Beam & Ingrebourne Catchment and there is scope to work in partnership to monitor, collate data and manage this problem.

- Remove flood debris and unclog the river where it increases flood risk
- Create backwaters and scallops along the river corridors, providing protection from wash-out during high flows
- > Where possible and practical, de-canalise (remove the concrete) and allow the river to re-meander naturally
- Highlight opportunities for increasing lateral connectivity
 e.g. push back embankments as far as possible –
 protecting infrastructure and property but re-connecting
 floodplain and making additional flood storage
- > In-channel river enhancement works to reduce silt deposition, improve river bed ecology and flow
- > Create new floodable areas and reed bed reservoirs
- > Support the Mink control programme which is already underway
- Reintroduce, recreate and connect floodplain grazing
- > Tackle flooding in Hornchurch Country Park, Suttons Parkway and Rainham
- Educate community to be able to collect data and pull invasive plants like Himalayan Balsam and Floating Pennywort
- > Survey longitudinal connectivity across catchment and opportunities for notching weirs and improving flows
- Use gravel and reed beds to soften banks where concrete can't be removed and it doesn't increase flood risk



3. Water management

To improve the way in which water is captured and managed; and to reduce nutrients in our watercourses.

It will be essential to work in close partnership with the water companies to achieve this goal. The way in which sewage is treated and phosphorous is removed is a vital component to any future success. It is recognised that this brings water quality benefits but treatment can be expensive and requires intensive energy input which can result in higher carbon emissions.

A UK Water Industry Research (UKWIR) project is exploring the costs and benefits of different approaches for phosphorous reduction in watercourses including land management options. Reedbeds and wetlands could provide a cost-effective and sustainable solution whilst enhancing the landscape and providing valuable habitats for wildlife.

Misconnections can have a notable adverse effect on water quality and the Environment Agency and the Water Companies have the opportunity to work through the Catchment Partnership mechanism to address this problem.

There will be a need to monitor and manage water abstraction and drought; water efficiency and leakage; water capture; and water levels. Supporting documents and plans to consider under this section include:

- > Catchment Abstraction Management Strategy
- > Restoring Sustainable Abstraction Programme
- > Water Resource Management Plan
- > Water Drought Plan
- > Water Level Management Plans
- > Waterwise website: www.waterwise.org.uk

- Regular monitoring of water quality. Establish monitoring points not already covered by the Environment Agency and water utility companies
- > Create wetlands and reed beds to filter and improve water quality
- > Increase public awareness of pollution on rivers so they know if a pipe into a river is bad or permitted. Encourage the public to be the eyes and ears for the river and to report problems
- > Install phosphate strippers in all sewage treatment plants
- > Improve water quality and reduce siltation
- > Clear phosphate and slurry use by farmers
- > Work with the water companies to encourage the filtering of phosphate and their responsibilities to improve the condition of sewage discharge
- Create a Water Management Plan for the whole catchment
- Highlight opportunities for water quality improvement e.g. restoration following mineral extraction for water quality improvements to the Cranbrook
- > Tackle misconnections at source increase the public's awareness of misconnections
- > Conduct a comprehensive survey of waste misconnections and produce a catchment-wide map

4. Land management

To work with land managers to improve habitats, and the way in which people can access their rivers and associated green spaces.

It will be essential to work in partnership with land managers and farmers to achieve this goal. Farmers in particular are required to comply with the Good Agricultural and Environmental Condition (GAEC) standards in addition to European and UK legislation. Baseline requirements under 'cross compliance' require farmers to safeguard soil and water, habitats and wildlife, and landscape features. Compliance is regulated by the Rural Payments Agency and the Environment Agency.

Countryside Stewardship provides environmental payments to landowners to preserve or improve landscape, wildlife and access. There are a number of options available to farmers to receive advice and guidance including via existing members of the Roding, Beam & Ingrebourne Catchment Partnership; Catchment Sensitive Farming Advisers (due to cease in its current form in 2015); Campaign for the Farmed Environment (CFE); and the joint partnership between the Rivers Trust and CSF (PINPOINT) which provides training to farm advisers on working with farmers to reduce pollution to agriculture.

With regard to the new Rural Development Programme for 2015-2020, a new CSS has been developed, with targeting an overarching theme. It is proposed that measures for protection of soil and water will be included and there may be capital payments for equipment for sustainable drainage.

Groundwater Source Protection Zones (SPZs) have been defined around sources used for public drinking water supply. Pollution prevention measures are set up within the zones and activities of potential polluters are monitored.

Drinking Water Protected Areas (DrWPAs) are waterbodies where large quantities of raw water are abstracted for human consumption.

- Provide better public access to river (walking and cycling), especially from the Thames upstream (e.g. Roding Valley Way). Improve signage of footpaths and access routes
- > Give tree planting grants to landowners to improve bank structure
- Gather standardised data across the catchment via physical surveys e.g. Urban River Survey (URS) to identify engineering and mitigation opportunities
- > Identify and make contact with every landowner to share information and discuss options.
- > In South Park Lake and other on-line lake systems, install soft bank systems to enable marginal planting on hard banks and trial bio-manipulation curtains to encourage insect and pond life
- Establish a project on the Gores Brook through Parsloes
 Park habitat creation, backwaters, wet woodland, reed
 beds etc. Open up culverted Heavily Modified Water Body
 (HMWB)
- Take action to preserve the large reed beds on the Ingrebourne Valley at the southern end of the marsh near the A1306 – the reed bed is turning to scrub and needs to be managed
- > Improve management of vegetation on banks
- > Complete Walkover Surveys to establish what is there along the river and to map the key features and findings
- Remove concrete channels (instant effect) and underground rivers to be exposed (where possible)
- Dredge and then restore the lake and the Ravensbourne in Harrow Lodge Park to a more natural and attractive river and improve the habitat
- Consider project aftercare e.g. when invasive species are removed, coordinate bank vegetation management to deter nettle growth
- Restrict fishing access i.e. no fishing in Ingrebourne Marsh areas near viewpoint and below to avoid disturbing nesting birds
- Join up management of water levels in the Ingrebourne Marshes
- Planting of river banks and reed bed creation at Pages Wood
- Ditch and river management and improvement at Pages Wood
- Creation of a floodplain and/or seasonally submerged marsh and rotational scrub clearance at Pages Wood
- > Draw-up a land-use map of land adjacent to the rivers
- > Deepen the scrape in certain areas of the Ingrebourne Valley
- Work with businesses and landowners so that they take responsibility for discharges associated with their business activities
- > Notch or remove gauging weirs



5. Investment in the Roding, Beam & Ingrebourne Catchment

To work with land managers; businesses and funding bodies to create inward investment opportunities for the Roding, Beam & Ingrebourne Catchment.

There is much scope across the Roding, Beam & Ingrebourne Catchment to bid for support funding. The Veolia North Thames Trust can consider projects which bring direct benefit to people and wildlife e.g. new access routes or improving signage and interpretation. However, they can only consider applications for the Ingrebourne since they will not fund within the London Borough of Barking & Dagenham and the London Borough of Redbridge.

The Catchment Restoration Fund was vital in supporting the work of the Roding, Beam & Ingrebourne Catchment Partnership during 2013-14 and 2014-15. The Partnership secured further funding through the Catchment Partnership Action Fund for 2015-16 and will continue to monitor available funds for 2016-17 and beyond.

The Rural Development Programme for England provides money for projects to improve agriculture, the environment and rural life. Funding goes to schemes to improve businesses or promote environmentally friendly ways of managing land. Some funding also goes to Local Action Groups (LAGs). These are run by volunteers who represent the public, private and voluntary sectors in their communities. LAGs are responsible for setting strategies for their areas and funding local projects.

- If funding becomes available, bid for continuation and project delivery funding through the Catchment Partnership Action Fund.
- Cross political boundary working using current initiatives such as All London Green Grid as a platform
- Use the planning process as a way to encourage / engage developers
- Consider potential funding streams e.g. Heritage Lottery Fund, Entrust schemes, Utility Company discretional funds, and the Lottery (Awards for All, Big Lottery)

Table 1: Summary of Roding, Beam & Ingrebourne Catchment Partnership Actions

Roding, Beam & Ingrebourne Catchment Goals Partnership Actions Recreation and Highlight opportunities to improve access to riverside e.g. riverside walks / paths to encourage cycling and awareness raising awareness Run an education campaign in schools regarding the river environment and the To improve opportunities impact of littering e.g. plastic bags (citizenship in curriculum) for recreation across the Work with local people to educate them about their own impact on the water catchment and in turn environment e.g. misconnections, water bills, water meters, conserving water and raise awareness to a more information on pollution in every day products. sustainable use of this Coordinate river clean-up community events at bottlenecks on the River Ingrebourne resource and ensure it is > Re-establish the Friends of the River Rom group valued and appreciated. Continue to support the existing Friends of the Ingrebourne Valley group Install more access points for River Dipping > Improve visual access to see the rivers Set up Schools River Groups Encourage Scouts to 'Camp and Clean' more often Source and share resources within the RBI Catchment e.g. waders, boats, litterpickers, mink rafts etc for community events Identify a system for volunteers to follow if they need to contact someone about the CaBA work. Promote partner hubs e.g. The Essex Wildlife Trust's Essex Rivers Hub website Funding to train and equip local groups who are keen to monitor and enhance our waterways Sign up to London Invasive Species Initiative (LISI) and encourage similar recording of INNS and information sharing River and Remove flood debris and unclog the river floodplain Create backwaters for fish every kilometre up the whole Roding and Cripsey Brook De-canalise (remove the concrete) and allow the river to re-meander naturally

management

To manage flood risk and sustainable drainage; improve connectivity, manage Invasive Non Native Species (INNS) and litter.

- Highlight opportunities for increasing lateral connectivity e.g. push back embankments as far as possible – protecting infrastructure and property but re-connecting floodplain and making additional flood storage e.g. Wanstead Park Road allotments
- Create new floodable areas and reed bed reservoirs
- Support the Mink control programme which is already underway
- Reintroduce, recreate and connect floodplain grazing
- Tackle flooding in Hornchurch Country Park, Suttons Parkway and Rainham
- Educate community to be able to collect data and pull invasive plants like Himalayan Balsam and Floating Pennywort
- Survey longitudinal connectivity across catchment and map opportunities for notching weirs and improving flows
- Use gravel and reed beds to soften banks where concrete can't be removed

Water management

To improve the way in which water is captured, and managed; and to reduce nutrients in our watercourses.

- > Regular monitoring of water quality
- > Create wetlands reed beds to filter and improve water quality
- > Increase public awareness of pollution on rivers so they know if a pipe into a river is bad or permitted. They can be the eyes and ears for the river and report problems
- > Install phosphate strippers in all sewage treatment plants
- > Improve water quality and reduce siltation
- > Clear phosphate and slurry use by farmers
- > Work with the water companies re. phosphate filter and overall responsibilities to improve the condition of sewage discharge
- > Create a Water Management Plan for the whole catchment
- > Highlight opportunities for water quality improvement e.g. restoration following mineral extraction for water quality improvements to the Cranbrook
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Investment in the Roding, Beam & Ingrebourne Catchment

To work with land managers; businesses and funding bodies to create inward investment opportunities for the Roding, Beam & Ingrebourne Catchment.

- > If funding becomes available, bid for continuation and project delivery funding through the Catchment Partnership Action Fund
- > Cross political boundary working. Utilise the objectives of the All London Green Grid Area Frameworks to encourage and strengthen cross-boundary working to benefit the catchment
- > Use the planning process as a means to encourage and engage with developers to secure tangible gains for the catchment
- > Consider potential funding streams e.g. Heritage Lottery Fund, Entrust schemes, Utility Company discretional funds, and the Lottery (Awards for All, Big Lottery)

Partnership Coordination

The Roding, Beam & Ingrebourne Catchment Partnership will coordinate these actions with partner organisations involved in delivery. Support from any local organisation, group, business or individual is actively encouraged.

What will statutory organisations do?

Brentwood Borough Council

Landowner and land manager within the catchment with links to developments and planning.

City of London

Landowner and land manager within the catchment.

Environment Agency

Protection and enhancement of the water environment to European legal standards including river works, pollution prevention and water resource regulation, and managing flood risk from rivers and the sea.

Epping Forest District Council

Landowner and land manager within the catchment with links to developments and planning.

Essex County Council

Management of Essex surface water flood risk, biodiversity, county farms, coast and trails.

Forestry Commission

Britain's largest land manager with direct responsibility for a suite of Community Woodlands within the Roding Beam and Ingrebourne Catchment and the Thames Chase Community Forest.

London Borough of Barking & Dagenham

Landowner and land manager within the catchment with links to developments and planning.

London Borough of Redbridge

Landowner and land manager within the catchment with links to developments and planning.

London Borough of Havering

Landowner and land manager within the catchment with links to developments and planning.

Natural England

Protection of the Environment (Habitats Directive) including planning and development advice, managing Environmental Stewardship agreements, and notifying, assessing and protecting designated areas.

What will charitable and member organisations do?

Campaign for the Farmed Environment

Encouraging farmers to protect and enhance the environment.

Country Land and Business Association

Defending interests of owners of land, property and businesses in rural areas.

Essex Wildlife Trust

Protection and enhancement of Essex wildlife and wild places including reserves, and public education.

FWAG east

Provision of independent environmental and conservation advice to farmers and landowners in Essex.

Game & Wildlife Conservation Trust

Game and wildlife management research including advice and lobbying.

Havering Wildlife Partnership

Representatives of conservation organisations active in the borough, Havering Council officers, and experts on local wildlife.

London Wildlife Trust

Protection and enhancement of wildlife and wild places across Greater London, including reserves and community engagement.

National Farmers' Union

Championing farming and provision of professional representation.

RSPB

Conservation of wild birds and their habitats, managing reserves, education, advice and lobbying.

Thames21

Thames 21 is the voice for London's waterways, working with communities to improve rivers and canals for people and wildlife. Co-host and co-Chair of the Roding, Beam & Ingrebourne Catchment Partnership.

Thames Chase Trust

Creation and development of the Thames Chase Community Forest (40 square miles) on the edge of east London and south-west Essex. Co-host and co-Chair of the Roding, Beam & Ingrebourne Catchment Partnership.

The Rivers Trust

Promotion of sustainable, holistic, and integrated catchment management through engagement.

Vision Redbridge Culture and Leisure.

Managing agents and land manager for green space and leisure on behalf of the London Borough of Redbridge. A charitable trust formed from the transfer of leisure services outside of the borough.



What can you do?

There are many ways in which you can make a difference to your catchment. You can link with, support and contribute to the work of the Roding, Beam & Ingrebourne Catchment Partnership.

Check the list for your local authority contact and check for ongoing schemes and volunteering opportunities in your area.

- > If you are a member of the local community, you can contact the Essex Wildlife Trust and join their local Volunteer Wardens Scheme or the RiverFly Scheme.
- You can visit www.connectright.org.uk for more information on misconnections
- You can visit www.savewatersavemoney.co.uk and www.rhs.org.uk/science.
- > If you are a local business you can look at ways in which you can save water and save money or receive grants by visiting www.carbontrust.org.uk.
- If you are a farm business you can contact your local Catchment Sensitive Farming Officer and Campaign for the Farmed Environment Coordinator for advice on how to protect soil and water resources, improve wildlife and save money.

- Visit www.farmingfutures.org.uk for suggested actions to achieve business and environmental benefits in relation to climate change. Visit www.leafuk.org for six simple steps for managing water quality and use on your land.
- > Wild Trout Trust www.wildtrout.org
- Greenspace Information for Greater London (GiGL) www.gigl.org.uk
- London Invasive Species Initiative (LISI) www.londonisi.org.uk
- > Havering Wildlife Partnership www.havering.gov.uk

Would you like to know more?

If you feel you can contribute to the Partnership or would like further information please contact:

> enquiries@thameschase.co.uk

