Catchment Implementation Plan: Wey Catchment

Consultation Draft
April 2012

Creating better places for people to work, live and visit

Acknowledgements

Notes

If you are providing this plan to an internal or external partner please inform the plan author to ensure you have got the latest information

Author	Date	What has been altered?
Stuart Malaure	23/11/11	Original draft CIP
Stuart Malaure	05/04/12	Updated format, and field actions

Front page images

Left image: South Wey Bordon to Slea_Headley Wood Farm

Bottom-right image: Wey North Caker Stream to Farnham_Bentley

Catchment planning for the River Wey: information and consultation

Implementing the EU Water Framework Directive (WFD) will assist all interested parties in focussing on the management of land and water in a co-ordinated and sustainable way. This will allow for the better balancing of the environmental, economic and social demands. Your feedback about the catchment plan would therefore be appreciated,

Specifically could you please answer the following questions about the Wey Catchment Implementation Plan and provide any feedback. We want to engage with parties at a catchment level to encourage greater local participation so as to achieve more for communities and the water environment.

Q1. What would your vision for the River Wey catchment be? For example is there a more specific aspiration than 'Creating Better Places for people to work, live and visit'?

Q2. This catchment plan is our first step to implementing a catchment based approach. The assessment of problems in the waterbodies has been agreed by Environment Agency teams. Do you have any issues that need to be addressed to reach our objectives?

Q3. We have set out some actions required to meet the objectives. To what extent do you agree the right actions have been identified?

Q4. Do you believe there are any missing actions?

Q5. How would you like to be involved within the process of delivering WFD actions?

Q6. Have we missed any other partners who could\should be involved?

Q7. Do you have any other comments on this catchment approach?

We will use your comments to help revise proposals, and will produce a revised plan Would you or your organisation like to attend or support the Surrey Wildlife Trust Living Landscape Partnership.

Please send your feedback by to:

Stuart Malaure
Environment Agency
Red Kite House
Howbery Park
Crowmarsh Gifford
Wallingford
OX10 8BD

or

Mike Waite
Surrey Wildlife Trust
School Lane
Pirbright
Surrey
GU24 0JN

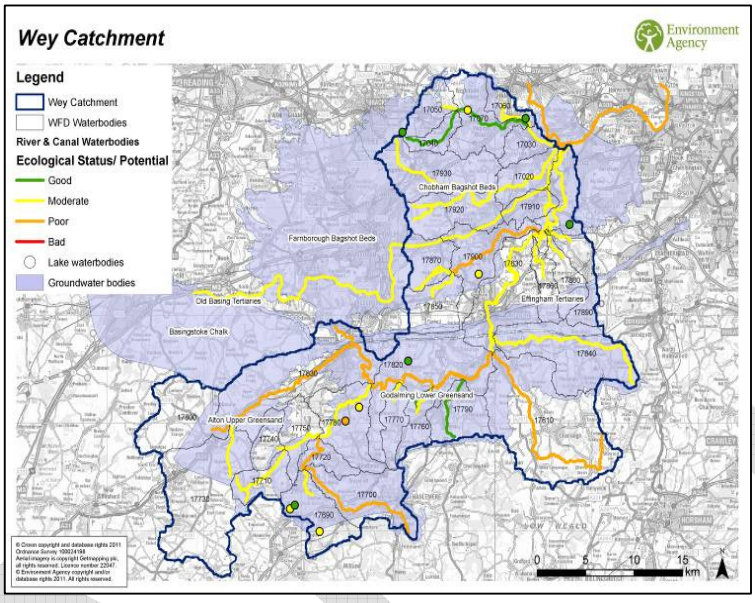
Or email: stuart.malaure@Environment-Agency.gov.uk

If you have any questions or would like to talk about this plan you can also contact me on 01491 828521 or Mike Waite on

Thank you in advance for your help,

Summary (River Wey Catchment Implementation Plan)

The Catchment Implementation Plan (CIP) is a living document that presents a prioritised programme of actions to achieve Good Ecological Status (GES) or in the case of heavily modified water bodies, Good Ecological Potential (GEP) for the Wey catchment. It builds on the First Thames River Basin Management Plan (ftRBMP) published in December 2009 for meeting the requirements of the EU Water Framework Directive.



There will be three planning and action cycles:

- 1st cycle - 2009 to 2015;
- 2nd cycle - 2015 to 2021
- 3rd cycle - 2021 to 2027

We are currently in the 1st cycle.

All the actions described in this document are for delivery during this period.

The CIP sets out how the partnership of the Surrey Wildlife Trust Living Landscape Partnership (chosen by Defra as the host for the Wey catchment), the Environment Agency and all local delivery partners will achieve GES/GEP and outlines the main areas of work that will be undertaken during the 1st planning cycle for the Wey catchment.

Key objectives for the Catchment Implementation Plan are:

1. Act as a tool to assist delivery of good ecological status and avoid deterioration
2. Provide a working document to engage partners to achieve actions to improve water environments
3. Classify status of water in the Wey catchment and set out ways to improve confidence in our data

The Environment Agency carries out monitoring and investigations on the watercourses in the Wey catchment in order to inform improvement actions.

Monitoring

We are monitoring the biology and chemistry of water bodies to enable us to classify their **ecological status** and help understand any problems affecting them.

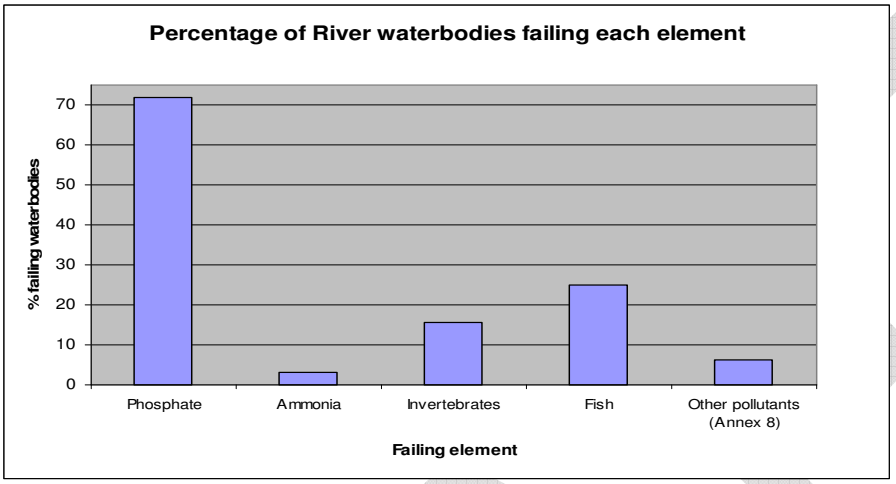
Investigations

We are carrying out investigations on the Wey to determine:

- Whether or not the water body meets good status / potential;
- Likely reasons for failing to meet good status / potential; and
- What actions are needed to tackle those failures

Actions

The Wey CIP contains a current list of field actions that have been identified and that organisations have taken ownership of to deliver objectives for the Wey catchment. This list is regularly updated updates to existing actions and with new actions.



Significant Issues

The main issues that are a priority for the Wey catchment are phosphates from point source pollution and diffuse pollution and physical modification due to weirs and other obstructions to fish migration. For each of these priority issues, further studies/investigations will be an important step (where required) to improve understanding of the problem and to investigate the feasibility of solutions.

This plan has identified where further investigations are required. It is envisaged that all of the studies should be complete by the end of 2012.

Nutrients and sediment (phosphates)

High levels of nutrients in rivers, such as phosphates, can lead to excessive plant growth and in turn affect the river's wildlife. Sources of nutrients in this catchment include effluent from sewage treatment works and agricultural pollution.

Silt, land run-off, and fine sediment can impact rivers; smothering plants and animals and killing wildlife.

Enabling fish to migrate freely

We are working with land owners and local angling clubs to install a number of 'fish passes' in the Wey catchment.

What can you do?

We believe that the Wey CIP will help to ensure that the water environment is protected and enhanced for future generations. We need actions identified by you that will help achieve WFD objectives for the Wey catchment.

We are already working with people and organisations that can help us to get things done, **but we need more help if we are going to meet the targets in the Plan**.
If you have any queries please contact. Mike Waite at Surrey Wildlife Trust (07854 163664), Email mike.waite@surreywt.org.uk,), or Stuart Malaure (01491 828521)
Email stuart.malaure@environment-agency.gov.uk or JC Hall at Environment Agency

Table of Contents

1 Introduction

This plan sets out how the measures in the Thames Region River Basin Management Plan (RBMP) can be turned into actions to achieve Good Ecological Status / Potential (GES/GEP) in the Wey catchment between now and 2015. It builds on the RBMP published in December 2009 for meeting the requirements of the EU Water Framework Directive.

River Basin Management Plans are strategic documents that set out what will occur in the river basins. They set out in general terms how the water environment will be managed and provide a framework for more detailed decisions to be made. River basin management is based on cycles of planning and action, and will be reviewed every six years.

There will be three planning and action cycles:

- 1st cycle - 2009 to 2015;
- 2nd cycle - 2015 to 2021; and
- 3rd cycle - 2021 to 2027

We are currently in the 1st cycle. All the actions described in this document are for delivery during this period.

River basin planning requires integration across four planning scales: National (both England and Wales), River Basin District, Catchment and Water body (Local). Surrey Wildlife Trust (SWT) and the Environment Agency (EA) is working with individuals and organisations at all these levels to ensure that information and decisions taken at one level inform planning at another.

The RBMP is a strategic document. As such, it does not contain all of the water body specific actions (details) and investigations that will be needed to deliver at the catchment scale.

There is therefore a need to produce Catchment Implementation Plans (CIPs) to enable SWT, the EA and external partners to continue to engage actively with the WFD process and undertake the work needed to get achieve GES/GEP in the Wey catchment.

This Catchment Implementation Plan (CIP) plan presents a prioritised programme of actions to achieve Good Ecological Status (GES) or in the case of heavily modified waterbodies, Good Ecological Potential (GEP) for the Wey catchment. It builds on the First Thames River Basin Management Plan (ftRBMP) published in December 2009 for meeting the requirements of the EU Water Framework Directive.

This CIP sets out how SWT, the EA and its local delivery partners will achieve GES/GEP and outlines the main areas of work that will be undertaken during the 1st planning cycle for the Wey catchment.

The RBMP is viewable on the Environment Agency website here: http://www.environment-agency.gov.uk/research/planning/33106.aspx

Key objectives for this Catchment Implementation Plan are:

1. Act as a tool to assist delivery of good ecological status and avoid deterioration
2. Provide a working document to engage partners to achieve actions to improve water environments
3. Classify status of water in the Wey catchment and set out ways to improve confidence in our data

Some of the actions listed may require significant investment and resource. The availability of funding and therefore investigation into the reasons for failure will be a high priority. Once understood this will provide the justification for further actions and associated costs. This CIP will be a key tool for SWT partnership, EA managers, operational staff and external stakeholders for steering this investment. In addition to help guiding our own resources, a prioritised list of water bodies will help our co-deliverers focus on the same areas, allowing for a more co-ordinated approach. The priorities for the Wey catchment are detailed in section 4, Water body information.

A schematic diagram indicating the various stages of work and EA and partners work streams can be found in Appendix A Schematic of stages undertaken during the Catchment plan and current delivery position. This chart also indicates the stages of work that the EA and our partners are currently undertaking.

2 National and Regional Lead Issues

The scope of this plan focuses on actions that can be directly influenced or implemented at the area level. Any action that can only be, or is better off implemented at, a National or Regional level will be noted to be pursued. However, these National and Regional lead issues may be driven forward by a different process outside of this plan.

There were also several issues identified which are universal across the West Thames area or can only be implemented at the National level. Two known universal issues include invasive non-native species (INNS) and urban development. Significant investigations and actions will be noted in this plan but maybe implemented through other means. Additionally any other Nationally controlled actions (e.g. improvements to permits for sewage treatment work discharges) will also be noted and pushed forward through this plan but their implementation will be controlled at the National level (e.g. Ofwat).

For the Wey catchment this includes:

- Improvements to water company sewage treatment works
- Non-native invasive species
- Protected Species
- Urban pressures and development
- Changes to abstraction licences (including additional regulation)

Following these criteria for the Wey catchment, one local priority issue was identified which needs to be addressed through this catchment plan (phosphorus).

The Environment Agency recognises that addressing some of the more important problems in the catchment may require more detailed technical analysis to gain significant investment or regulatory interventions. In these circumstances detailed technical plans may be created, developed as "Issue papers" which will be used to support this catchment plan.

3 Characterisation of the catchment

3.1 Introduction to the catchment

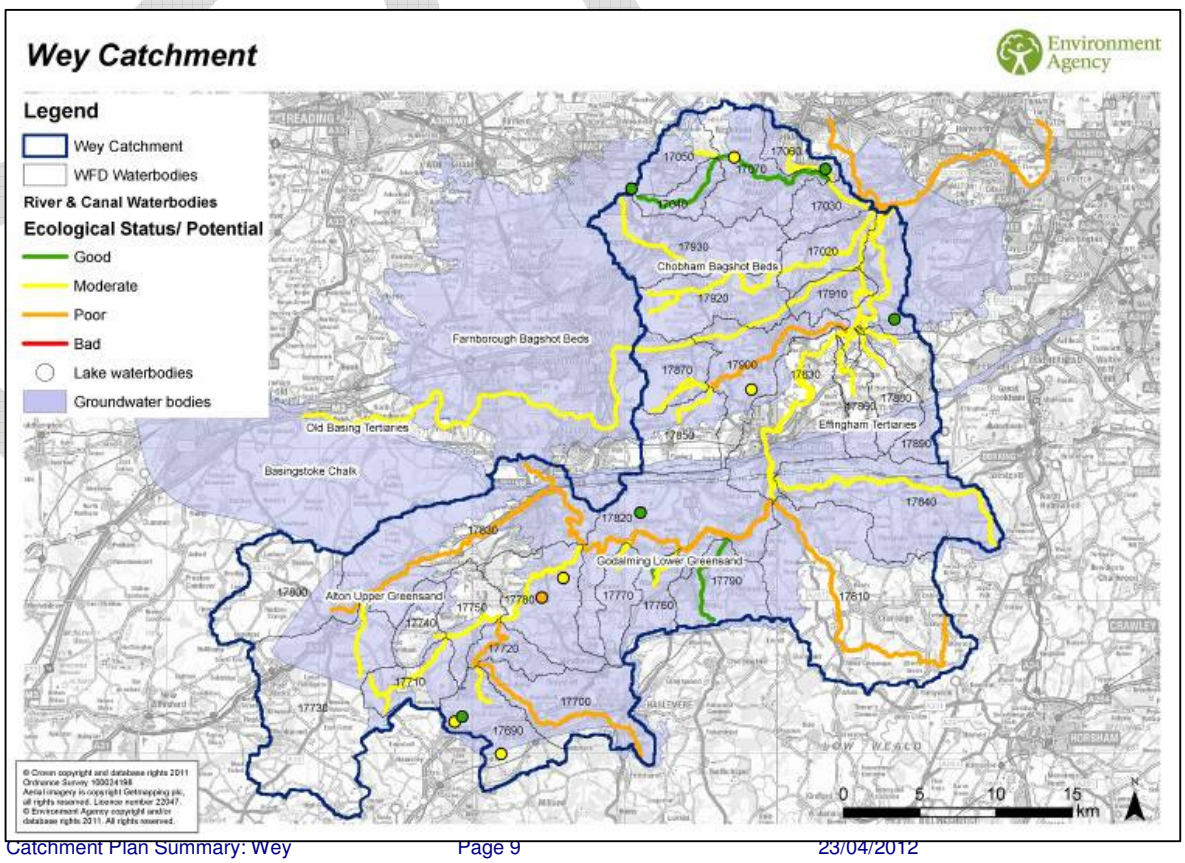
The upper reaches of the Wey catchment are predominantly rural with the towns of Alton, Farnham, Haslemere and Godalming being the main urban areas. The lower reaches of the catchment are primarily urban and include the major towns of Guildford, Weybridge and Woking.

The catchment contains:

- 32 river water bodies
- 2 canal water bodies
- 11 lake waterbodies
- 1 surface water transfer water body
- 4 groundwater bodies which are within or partly within this catchment

A number of rivers in this catchment are designated heavily modified due primarily to navigation, flood defence, mills and urbanisation. Modification of these rivers including in-stream structures has led to loss of habitat diversity and the creation of barriers for fish migration.

Figure 3.1 Map of Wey catchment



4 Water body information

4.1 Water body summary

The EA have prioritised water bodies and identified those where there is a good level of confidence in the data and the reasons as to why it is failing are understood. These water bodies have been considered for action as a priority in the first plan cycle;

- Addlestone Bourne (West End to Hale); and
- Hoe stream (Normandy to Pirbright)

Waterbodies currently achieving good ecological status/potential (GES/GEP) are;

- the Chertsey Bourne (Sunningdale to Virginia Water), Chertsey Bourne (Virginia Water to Chertsey) and Ock river water bodies,
- the Thorpe Lakes, Swinley Park Pond, Boldermere, The Tarn and Cranmer Pond lake water bodies; and
- the Thursley/Forked Pond surface water transfer water body.

Of the four groundwater bodies in this area, all are at overall Poor status. All groundwater bodies are classed as being Poor Quantitative status and two groundwater bodies are classed as being Poor Chemical Status.

4.2 Water body classification

Classification information for all water bodies and specific ecological and chemical elements are detailed in Annex B 'Objectives for Waters' of the fTRBMP.

A summary can be found in Appendix C Table of waterbody classifications.

Overall status for groundwater water bodies is determined as the worst case for both qualitative and quantitative measures (i.e. Good qualitative and Poor quantitative status will lead to an overall status of Poor). The overall status of ground waterbodies in this catchment (and their geographical relationship with the surface waterbodies) is shown in Figure 3.1 Map of Wey catchment.

4.3 Heavily Modified Water Bodies

Some surface water bodies have been designated as 'artificial' or 'heavily modified' water bodies. Of the 32 river surface water bodies 6 have been classified as artificial or heavily modified along with 7 of the 11 lake water bodies. Both the canal and surface water transfer water bodies are also classified. This is also indicated in classification summary tables in Appendix C Table of waterbody classifications.

The designation to heavily modified is because they may have been created or modified for a particular use such as flood protection, navigation or urban infrastructure. By definition, artificial and heavily modified water bodies are not able to achieve natural conditions. Instead the classification and objectives for these water bodies, and the biology they represent, are measured against 'ecological potential' rather than status. For an artificial or heavily modified water body to achieve good ecological potential, its chemistry must be good. In addition, any modifications to the

structural or physical nature of the water body that harm biology must only be those essential for its valid use. All other such modifications must have been altered or managed to reduce or remove their adverse impact, so that there is the potential for biology to be as close as possible to that of a similar natural water body. Often though, the biology will still be impacted and biological status of the water body may be less than good.

4.4 Predicted improvements

The following overall ecological status improvement has been predicted in the first plan cycle:

Water Body ID	Water Body Name	Element	Now	2015	Comments
GB106039017870	Hoe Stream (Normandy to Pirbright)	Copper	Moderate	Good	The monitoring site linked to this water body has now been corrected following errors in the 2009 classification result. New monitoring data brings further Annex 8 failures - zinc and iron. Copper is still failing in 2010 update despite being predicted to increase following modelling results.
GB106039017920	Addlestone Bourne (West End to Hale/Mill Bourne confluence at Mimbridge)	Phosphate	Moderate	Good	No change in water body classification in 2010 update. However, there has been a step change in phosphate levels with the removal of 2006 data. This is a modelled improvement but in reality, as the sewage treatment works (STW) is in the headwaters, it is very unlikely phosphate will achieve good status.

The following element improvements have been predicted in the first plan cycle:

Water Body ID	Water Body Name	Element	Now	2015	Comments
GB106039017730	Caker Stream	Phosphate	Moderate	Good	Phosphate very close to achieving good status now.
GB106039017930	Hale/Mill Bourne (Bagshot to Addlestone Bourne confluence near Chobham)	Phosphate	Poor	Moderate	Modelled improvement in phosphate as a result of P-stripping at Lightwater STW. However, this is unlikely based on observed river quality post P-stripping in March 2008.
GB106039017700	South Wey (Haslemere to Bordon)	Ammonia	Moderate	Good	Ammonia very close to achieving good status now. Good management of Haslemere STW should ensure improvement by 2015. Ammonia at good status in 2010 update.
GB106039017780	South Wey (River Slea confluence to Tilford)	Fish	Poor	Moderate	Borderline moderate status now. Fish at high status in 2010 update. This dramatic change is not understood and confidence in it is low (see classification notes).

GB106039017910	Wey Navigation (Pyrford reach)	Phosphate	Poor	Moderate	Step change in Phosphate concentrations after March 2006. Current performance should ensure moderate status.

4.5 Reasons for failure

A range of suspected and known reasons for failure of water bodies in this catchment have been identified by Environment Agency technical staff. The most common for this catchment are physical modification of waters and pollution from point sources. The reasons for failure for the Upper and Lower Wey can be seen in Appendix B Schematics

4.5.1 Diffuse Pollution

There are also some suspected diffuse pollution issues in this catchment. In the first plan cycle, improvement actions will address these pressures, and investigations and operational monitoring will be targeted at those ecological elements affected.

Surface Water Management Issues identified in the Thames River Basin Management Plan

Diffuse pollution refers to inputs that occur over a wide area such as fields, rather than via one defined point. Runoff from roads and urban areas can introduce oils, hydrocarbons, metals and sediments. Runoff from fields can introduce sediments, phosphorus, pesticides and organic pollution.

4.5.2 Invasive Species in the Wey Catchment

While invasive non-native, species (INNS) are not a reason for failure for any of the water bodies in the Wey catchment, there are a number of these species in the catchment that are problematic for various reasons. The aquatic plant floating pennywort occurs on the Lower Wey, where it can obstruct water control structures, causing water to back up and hence creating a potentially sever flood risk. As it can completely cover the water surface from bank to bank, it prevents other plant species from growing and can deplete oxygen levels leading to fish and invertebrate deaths.

There area a number of other non-native invasive species in the catchment that area a threat to our native biodiversity. The American signal crayfish is another species that is common throughout the catchment and which has caused a drastic decline in our native white-clawed crayfish populations. This is due to it being larger and more aggressive and also by passing on the crayfish plague. Signal crayfish make burrows in river banks and given their size and the large numbers that they occur in, they can also contribute to bank erosion.

Native white-clawed crayfish (left) and non-native American crayfish (right)

Japanese Knotweed can also cause a flood risk, as well as shading out our native plant species, and this is found in patches on river banks throughout the catchment.

Himalayan Balsam is widespread and characteristically occurs in large monocultures on river banks and adjacent wetland sites. It out competes our native plants and when it dies down in the winter it leaves large bare patches of river bank that can lead to sever erosion problems.

SWT, in partnership with the EA are currently writing a strategy for the control of Himalayan Balsam in the Wey catchment and hope to expand this to other species in the future. They also have Defra funding for working with local communities to help tackle non-native invasive species.

5 Actions

5.1 Operational monitoring (2010-12)

Targeted operational monitoring is planned for 16 water bodies in this catchment. See Appendix D Operational monitoring (2010-12) for a list water bodies.

5.2 Investigations (2010-12)

Investigations will be undertaken on 27 river water bodies in this catchment (see Appendix E Investigations) The investigations for the Upper and Lower Wey can also be seen in Appendix B Upper Wey and Lower Wey Schematics.

Initially, many of these will confirm failure of the ecological element/s (stage 1) and then examine the possible reason/s for failure (stage 2). These investigations will vary from desk studies to bespoke monitoring and field work. The outcomes of these investigations will enable effective targeting of actions in future plan cycles (stage 3). Stage 3 investigations have to be completed by Q3 2012.

5.2.1 Identifying actions required (i.e. Stage 3 investigations)

Once the reasons for the failures have been identified a further investigation will be required to identify the options for tackling them. This further Stage will identify a raft of potential actions which could be put in place to tackle the issues. What actions do finally get put in place will be dependent upon stakeholder agreement and the actions passing a cost benefit analysis test.

All the Stage 1 (confirm failure) and Stage 2 (identify reason for failure) investigations were undertaken at the waterbody level. However, to ensure an integrated approach to the options put forward the majority of proposed action will be to address issues at the catchment level (e.g. habitat restoration). This will be done to ensure the best way forward is taken for the environment to deliver the objectives and vision for the catchment. However, it should be noted as the overall aim for this plan is to deliver the objectives of the Thames RBMP some actions may be targeted purely at the water body level.

5.3 Improvement actions (in place by 2012)

Environment Agency teams, working with partners, will continue to undertake a number of ‘day job’ activities which include many water bodies in this catchment. These activities include: targeted site visits to ensure that individuals/businesses are undertaking activities in accordance/compliance with regulations, the permitting process and/or good practice, and working with local authorities to promote sustainable urban draining systems (SUDS) to improve water quality and reduce flood risk. These activities will help to reduce environmental pressures in this catchment and contribute to no deterioration of water bodies.

5.4 Field actions

In addition to 'day job' activities, there are a number of targeted actions underway or planned in the first plan cycle. These actions are called 'field actions'. Appendix F Field Actions provides a programme of specific field actions that will address the environmental pressures in the sub catchments.

6 Sub catchments

To help us get the most out of limited resources, we have reviewed the needs and opportunities in the Wey catchment, based on priority water bodies for improvement action, delivery mechanisms and environmental outcomes, to identify sub catchments to initially target our actions.

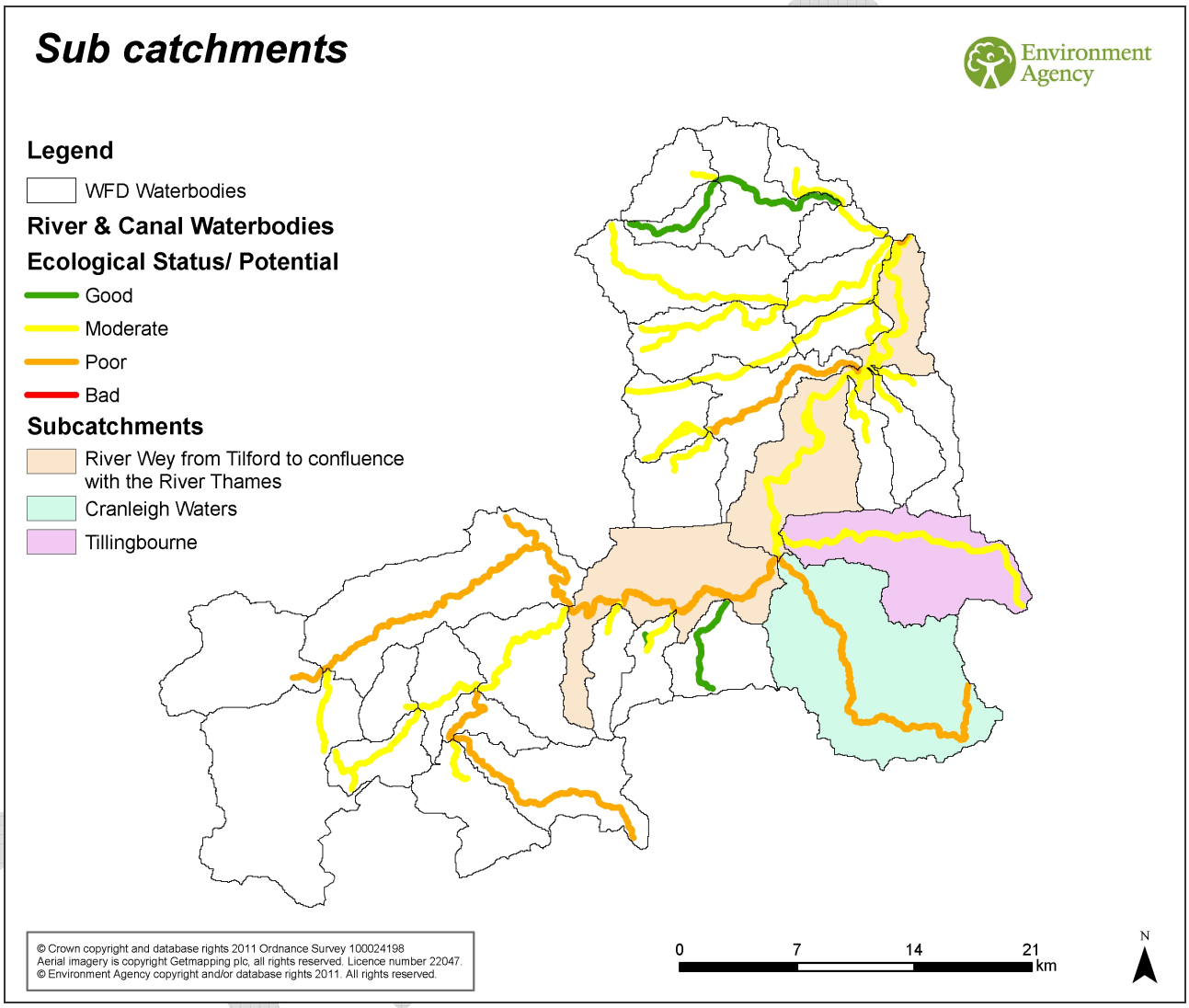
Three sub catchments have been identified in this catchment.

See Table 6.1 below for justification/comments.

Table 6.1 Justification for sub catchments

Potential Sub-catchment	Water bodies included in the sub-catchment	Justification/Comments	Initial focus of action
River Wey from Tilford to confluence with the River Thames	Wey (Tilford to Shalford) Wey (Shalford to River Thames confluence at Weybridge)	Summary of Reasons for Failure: Barriers to fish (and modification due to land drainage/urbanisation), Phosphate from sewage treatment works. The latter is not being considered for action at this time. Issues regarding fish passage seem to be fairly well documented in this catchment, in the Wey Fisheries Action Plan. Actions are already underway, WFD could add a driver.	Fish passage/habitat
Cranleigh Waters	Cranleigh Waters	Summary of Reasons for Failure: Unconfirmed hydrology issues and unknown reasons for failure for fish. Invertebrate monitoring site has been changed and in the 2010 status update, they are now at good status. Therefore, the only biological failure now is Fish.	Fisheries stage 2 investigation, water resources stage 1 investigation.
Tillingbourne	Tillingbourne	Summary of Reasons for Failure: Barriers to fish, Phosphate from private discharges and unconfirmed sediment issues. Investigation into the sources of Phosphate is ongoing now; initial conclusions are small package work inputs from the Law Brook. Sediment knowledge Q/A underway now (led by A&R). If the water resources and sediment issues are determined, and are not impacting biology, then the fish passage	Fish passage although possibly not until after a fisheries stage 2 investigation, and water resources and sediment stage 1 investigations.

Potential Sub-catchment	Water bodies included in the sub-catchment	Justification/Comments	Initial focus of action
		issue could be addressed as a single issue.	



7 Partners

A list of partners as part of the Surrey Wildlife Trust Living Landscape Partnership are:

List of partners to be added by Surrey Wildlife Trust

8 Current working relationships

Surrey Wildlife Trust were appointed by Defra as the host to work together with the Environment Agency and other partners to deliver Water Framework Directive objections for the River Wey catchment.

9 Useful links and other reports:

The ftRBMP is viewable on the Environment Agency website here: http://www.environment-agency.gov.uk/research/planning/33106.aspx

Glossary and Appendices

Glossary

Artificial Water Bodies are surface water bodies which have been created in a location where no water body existed before and which have not been created by the direct physical alteration, movement or realignment of an existing water body.

Biochemical Oxygen Demand is the amount of dissolved oxygen consumed by chemical and microbiological action when a sample effluent is incubated for 5 days at 20^{o}C. This test is used to show the presence of sewage in water.

Catchment is the area from which precipitation contributes to the flow from a borehole spring, river or lake. For rivers and lakes this includes tributaries and the areas they drain.

Catchment Sensitive Farming is an initiative aimed at promoting water-friendly farming to help tackle agricultural pollution.

Chemical Status is the classification status for the water body against the environmental standards for chemicals that are priority substances and priority hazardous substances. Chemical status is recorded as good or fail. The chemical status classification for the water body, and the confidence in this (high or low), is determined by the worst test result.

Classification is the methods for distinguishing the environmental condition or "status" of water bodies and putting them into one category or another.

Diffuse Sources of Pollution are generally associated with surface water run-off and different land uses such as agriculture and forestry. Pollution also originates from septic tanks associated with rural dwellings and from the land with the spreading of industrial, municipal and agricultural wastes.

Dissolved Oxygen is the concentration of oxygen dissolved in water. This is expressed in mg/l or as a percent saturation where saturation is the maximum amount of oxygen that can be dissolved in water at a given altitude or temperature.

Ecological Status applies to surface water bodies and is based on the following quality elements: biological quality, general chemical and physico-chemical quality, water quality with respect to specific pollutants (synthetic and non synthetic), and hydromorphological quality. There are five classes of ecological status (high, good, moderate, poor or bad). Ecological status and chemical status together define the overall surface water status of a water.

Ecological Potential is status of a heavily modified or artificial water body measured against the maximum ecological quality it could achieve given the constraints imposed upon it by those heavily modified or artificial characteristics necessary for its use. There are five ecological potential classes for Heavily Modified Water Bodies/Artificial Water Bodies (maximum, good, moderate, poor and bad).

Environment Agency Water Body Identifier All Water Bodies throughout England and Wales have been given a unique twelve digit code. This code allows for the quick and precise identification of any given Water Body.

An example of this in Thames West Area would be the code: GB106039042650 which gives reference to the Upper Cherwell at Byfield.

Eutrophication is the enrichment of waters by inorganic plant nutrients that results in increased production of algae and/or other aquatic plants, which can affect the quality of the water and disturb the balance of organisms present within it.

Good Chemical Status means that concentrations of pollutants (priority substances and priority hazardous substances) in the water body do not exceed the environmental limit values specified in the Water Framework Directive Article 16 daughter Directive.

Good Ecological Potential Those surface waters which are identified as Heavily Modified Water Bodies and Artificial Water Bodies must achieve 'good ecological potential' (good potential is a recognition that changes to morphology may make good ecological status very difficult to meet). In the first cycle of river basin planning good potential may be defined in relation to the mitigation measures required to achieve it.

Good Ecological Status The objective for a surface water body to have biological, structural and chemical characteristics similar to those expected under nearly undisturbed conditions.

Good Status is a term meaning the status achieved by a surface water body when both the ecological status and its chemical status are at least good or, for groundwater, when both its quantitative status and chemical status are at least good and show no signs of deterioration

Groundwater refers to water occurring below ground in natural formations (typically rocks, gravels and sands).

Heavily Modified Water Bodies are surface water bodies whose nature has changed fundamentally as a result of physical alterations due to human activities.

Macrophytes are larger plants, typically including flowering plants, mosses and larger algae but not including single-celled phytoplankton or diatoms.

Measure is the term used in the Water Framework Directive and domestic legislation. It means an action which will be taken on the ground to help achieve Water Framework Directive objectives.

Phytobenthos are bottom-dwelling multi-cellular and unicellular aquatic plants such as some species of diatom.

Point Sources of Pollution are primarily discharges from municipal wastewater treatment plants associated with dense areas of population or effluent discharges from industry.

Quantitative Status for Groundwater is an expression of the degree to which a body of groundwater is affected by direct and indirect abstractions. If this complies with Directive requirements the status is good.

River Basin is the area of land from which all surface water run-off flows, through a sequence of streams, rivers and lakes into the sea at a single river mouth, estuary or delta.

River Basin Characterisation is the first stage in the Water Framework Directive management cycle. It describes the water environment and the human pressures upon it, so that the risk of failing to meet the Water Framework Directive's targets or objectives can be assessed.

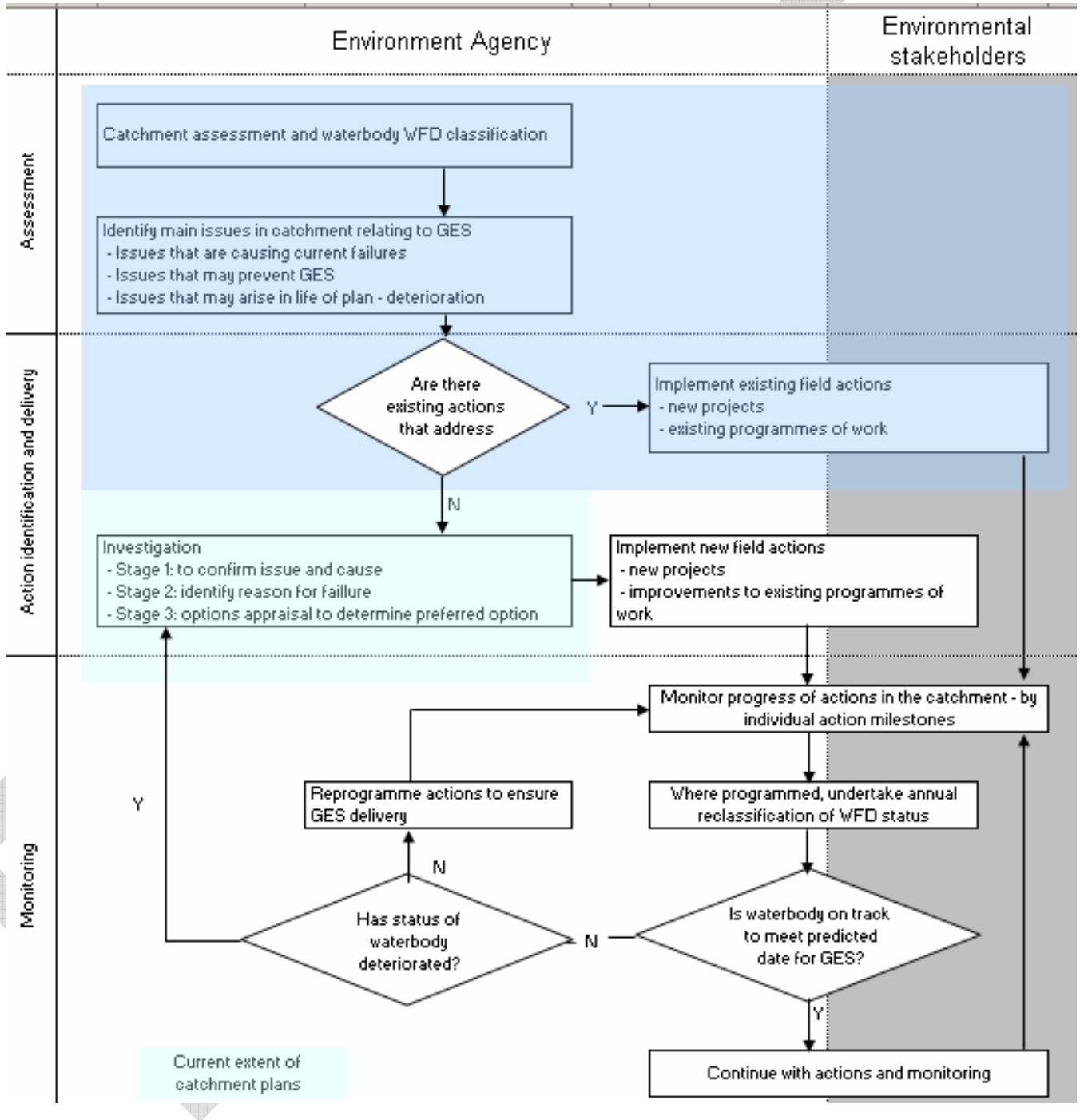
River Basin Management Plan(s) set out in general terms how the water environment will be managed. They also provide a framework for more detailed decisions to be made.

Surface Water is a general term used to describe all the water features such as rivers, streams, springs, ponds and lakes.

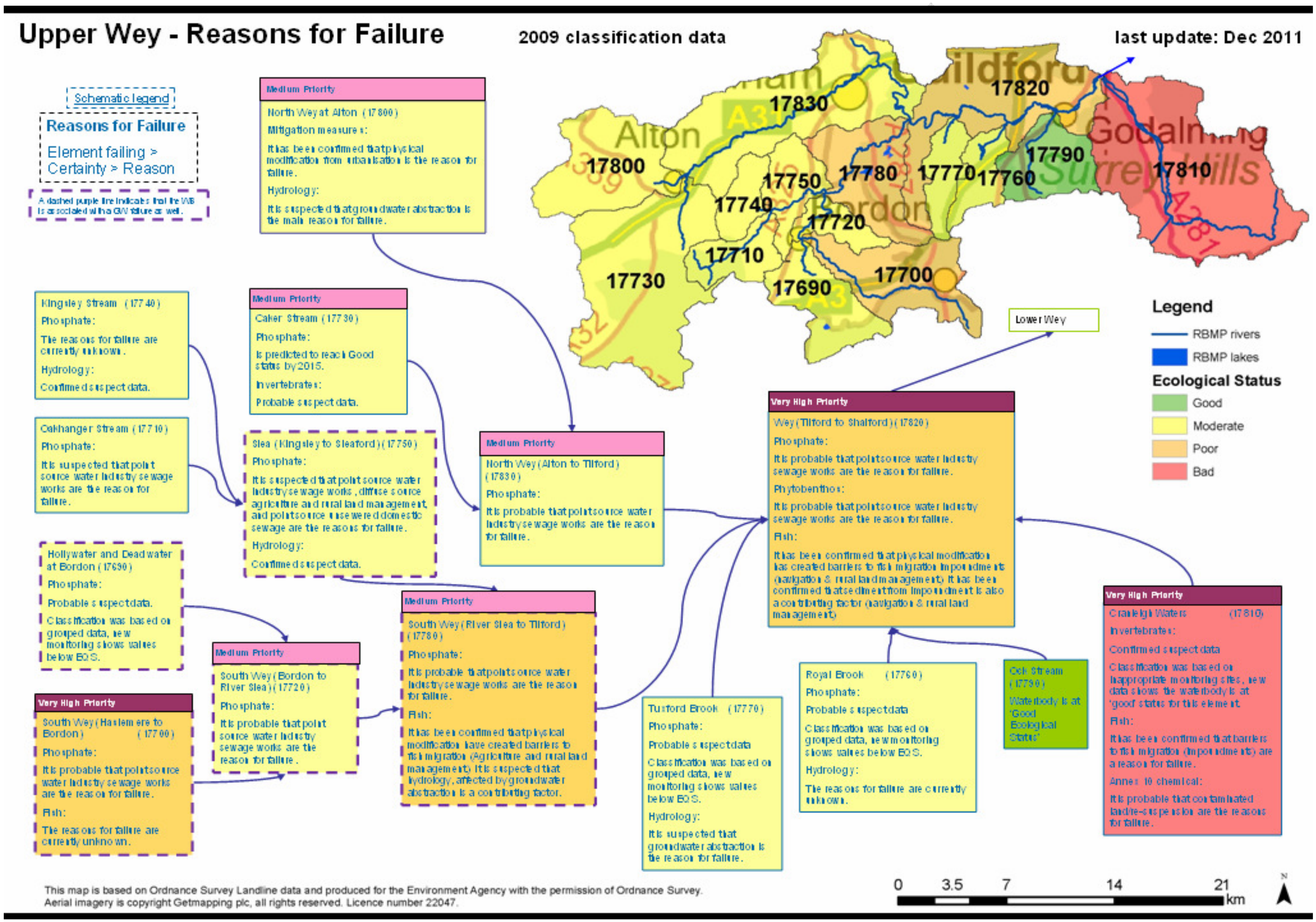
Water Body is a discrete and significant element of surface water such as a river, lake, reservoir or a distinct volume of groundwater within an aquifer.

The Water Framework Directive, introduced in December 2000, is the most substantial piece of water legislation from the EC to date. It promotes a new approach to water management through river basin planning, helping the Environment Agency to improve and protect inland and coastal waters and create better habitats for wildlife that lives in and around water.

Appendix A Schematic of stages undertaken during the Catchment plan and current delivery position



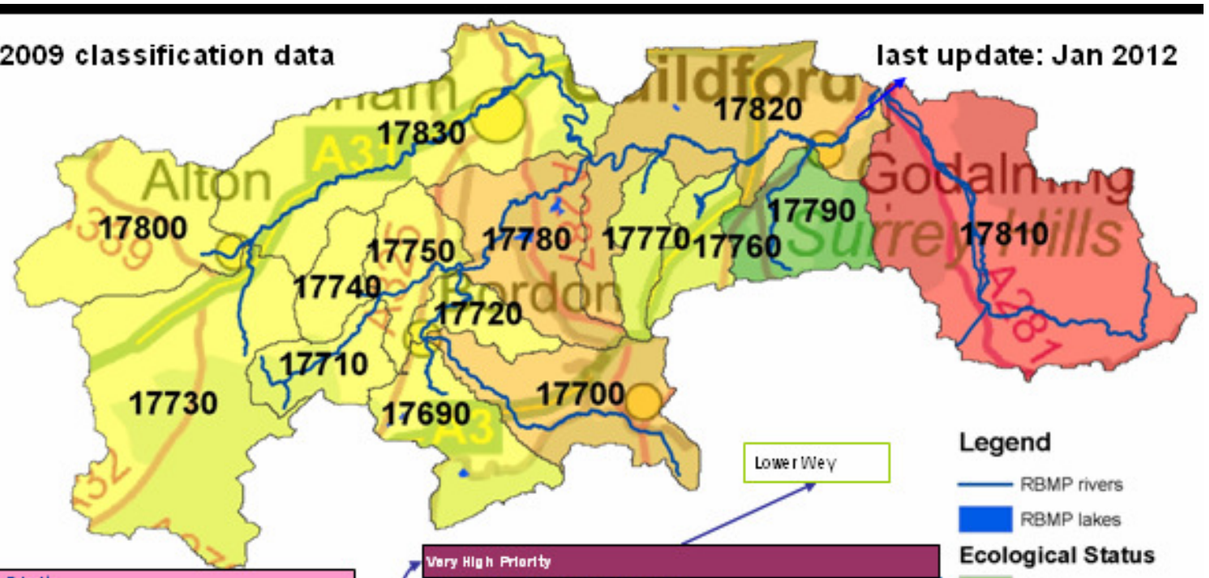
Appendix B Upper and Lower Wey Schematics



Upper Wey – Investigations & Actions

2009 classification data

last update: Jan 2012



Legend
- RBMP rivers
- RBMP lakes

Ecological Status
- Good

Waterbody and failing elements

I) Investigations
- Stage 1 – Investigate to confirm failure and/or impact
- Stage 2 – Investigate cause of failure
- Stage 3 – Investigate feasible measures

CA) Current actions to address failing elements.

The colour of the text box represents the WBs Ecological status

Catchment wide actions

1. To ensure future development does not contribute to a deterioration in the class of the water body, or compromise the meeting of objectives, work with the local authority and planning and development sector to promote general principles of sustainable des
2. We are working with Guildford Borough Council to influence their Core Strategy to include policies that provide a framework to support and encourage river restoration, and to conserve and enhance biodiversity within their borough. We will then use this policy to inform future DPD's and our responses to individual planning applications.

Medium Priority

North Wey at Alton (17800)

I) Hydrology - Stage 1, 2, 3 complete.
Mitigation measures - stage 3 - planned

CA) 1. Provide water efficiency leaflets during programmed abstraction visits
2. Alton River restoration feasibility

Kingsley Stream (17740)
Hydrology (good by 2015)

I) Hydrology - Stage 1 -complete - confirmed GES
Phosphate - Stage 1 & 2 in progress

CA) No current actions

Oakhanger Stream (17710)

I) Phosphate stage 1 & 2 in progress
CA) no current actions

Medium Priority

Caker Stream (17730)
Phosphate + Invertebrates (both elements predicted to reach Good status by 2015)

I) Inverts Stage 1 & stage 2 complete - confirms GES.
CA) No current actions

Slea (Kingsley to Stearford) (17750)
Hydrology (good by 2015)

I) Hydrology - stage 1 complete confirmed GES
Phosphate - stage 1 complete & stage 2 in progress

CA) Restoration scheme for the Oxney drain as part of the Whitehill Bordon Ecotown.

Hollywater and Deadwater at Bordon (17690)
Phosphate (predicted to reach Good status by 2015)

I) Phosphate stage 1 & 2 in progress
CA) Potential river and habitat enhancements / creation as part of the Whitehill Bordon Ecotown development.

Medium Priority

South Wey (Bordon to River Slea) (17720)

I) Phosphate stage 2 in progress

CA) Potential river and habitat enhancements/creation as part of the Whitehill Bordon Ecotown development.

Very High Priority

South Wey (Haslemere to Bordon) (17700)
Ammonia (predicted to reach Good status by 2015)

I) Fish stage 2 in progress
Hydrology stage 2 planned
Phosphate stage 2 in progress

CA) Potential river and habitat enhancements/creation as part of the Whitehill Bordon Ecotown development.
Ensure compliance with water discharge permit conditions and inspection at Haslemere STW, including storm discharge.

Medium Priority

North Wey (Alton to Tilford) (17830)
I) DO stage 1 complete - confirmed GES
Phosphate stage 1 & 2 in progress

CA) 1. Bishops Meadow, Farnham, on North Wey. Floodplain restoration
2. Shaylers Lynch, Farnham on North Wey. Floodplain restoration
3. Farnham Bourne enhancements including removal/replacement of unconsented bank protection.
4. Promote water efficiency and water saving measures through site inspections of abstraction licences

Medium Priority

South Wey (River Slea to Tilford) (17780)

I) Fish stage 2 planned
Hydrology stage 2 planned
Phosphate stage 2 in progress

CA) Frensham Mill – Fish pass and bypass channel enhancement as part of HEP scheme.

Frensham Great Pond
GB30644031

I) Macrophytes – planned, Phosphorus - Planned

Frensham Little Pond
GB30643943

I) Macrophytes - planned

Very High Priority

Wey (Tilford to Shalford) (17820)
Fish, phosphate & diatoms

I) Phytobenthos stage 2 in progress
Phosphate stage 1 & 2 in progress
Fish stage 2 in progress

CA) 1. Introduction of fish shelters and river habitat for brown trout populations at Pepper Harrow Park Phase 2. Fisheries action plan funded initiative (FAP).
3. Monitoring of river flies
4. Introduction of groynes and large woody debris to improve habitat at Eashing. (FAP)
5. Secure flow to Hell Ditch, Investigate feasibility for Westbrook Mill impoundment removal / lowering and fish passage.
6. Dockenfield brown trout regeneration project. (FAP)
7. Lammas Lands, Godalming – oxbow lake restoration.

Tuxford Brook (17770)
Phosphate (predicted to reach Good status by 2015)

I) Hydrology - stage 2 complete
Phosphate - stage 2 in progress
CA) No current actions

Royal Brook (17760)
Phosphate (predicted to reach Good status by 2015)

I) Hydrology - Stage 2 in progress (AMP5)
Phosphate - stage 1 & 2 in progress
CA) No current Actions

Oak Stream (17790)

WB at GES no actions required

Very High Priority

Cranleigh Waters (17810)
Invertebrates + hydrology (both elements predicted to reach Good status by 2015)

I) Hydrology - Stage 1 Complete - No abstraction impacting
Zinc - stage 1 & 2 - complete - stage 3 Invertebrates - Stage 1 & 2 - Complete - confirm GES
DRINCALC (pesticides) - stage 1 & 2 - complete
Phosphate - stage 1 & 2 - In progress
Fish – Stage 1 & 2 - In progress

CA) See general actions

0 3.5 7 14 21 km

N

Lower Wey - Reason for Failures

2009 classification data

last update: Dec 2011

Schematic legend

Reasons for Failure

Element failing > Certainty > Reason

A thick purple line indicates that the WB is associated with a GWBody as well.

Chertsey Bourne (Ascot to Virginia Water) (17050)

Mitigation measures:

It has been confirmed that physical modification has led to issues with habitat, urbanisation, and land drainage.

Chertsey Bourne (Sunningdale to Virginia Water) (17040)

Waterbody at 'Good Ecological Status' (GES)

Virginia Water

Chertsey Bourne (Virginia water to Chertsey) (17070)

Fish:

It has been confirmed that Physical modification (an impoundment) has created barriers to fish migration (navigation & rural land management)

Invertebrates:

The natural mineralisation of iron has been confirmed. It is suspected that physical modification as a result of urbanisation is a contributing factor.

The Moat at Egham (17050)

Hydrology, phosphate, and mitigation measure

All predicted to reach Good by 2015

Hale/Mill Bourne (Bagshot to Addlestone Bourne) (17930)

Phosphate:

Reasons for failure are unknown. It is probable that the point source water industry sewage works are the cause.

Addlestone Bourne (Hale/Mill to Chertsey) (17020)

Invertebrates:

The reasons for failure are currently unknown.

Addlestone Bourne (West End to Hale/Mill Bourne) (17920)

Phosphate:

Predicted to reach Good by 2015.

High Priority

Chertsey Bourne (Chertsey to River Thames) (17030)

Mitigation measure:

It has been confirmed that physical modification for flood protection and urbanisation has contributed.

Phosphate:

It is probable that the point source water industry sewage works is the reason for failure.

Invertebrates:

It is suspected that point source water industry sewage works is a reason for failure. It is suspected that low dissolved oxygen as a result of diffuse source mixed urban runoff is a factor. It has been confirmed that physical modification from urbanisation is a reason for failure.

Fish:

It has been confirmed that physical modification from urbanisation is a reason for failure.

High Priority

River Wey Shalford to River Thames (17630)

Mitigation measure:

It has been confirmed that physical modification for inland navigation is a factor.

Fish:

It has been confirmed that barriers to fish migration, urbanisation, and inland navigation are reasons for failure.

PAH:

It is suspected that both diffuse source urban, and point source incidents (urban and transport) are reasons for failure.

Phosphate:

It is probable that point source water industry sewage works are the reason for failure.

Stratford Brook (17890)

Phosphate:

Predicted to reach Good status by 2015

Gulleshill Brook (17880)

Phosphate:

The reasons for failure are currently unknown.

East Clandon Stream (17860)

Hydrology:

Is predicted to reach Good status by 2015.

Phosphate:

Reasons for failure are currently unknown.

Wey Navigation (17910)

Hydrology:

Is predicted to reach Good status by 2015

Phosphate:

It is probable that point source water industry sewage works are the reason for failure.

Basingstoke Canal

High Priority

Tillingbourne (17840)

PAHs:

It is suspected that point source incidents (urban and transport) are the reason for failure.

Fish:

It has been confirmed that Physical modification has caused barriers to fish migration (navigation & rural land management). It is suspected that sediment/diffuse agricultural run-off is a reason for failure.

Hydrology:

It is suspected that Groundwater abstraction is a reason for failure.

Phosphate:

It is suspected that point source industrial trade discharge, and unsewered domestic sewage are the reasons for failure.

Top Priority

Hoe Stream (Normandy to Pirbright) (17870)

Data issues on this WB

Zinc> Confirmed CHECK email send to regional WQ

Medium Priority

Hoe Stream (Pirbright to R Wey) (17900)

Phosphate:

It is probable that point source water industry sewage works are the reason for failure.

Fish:

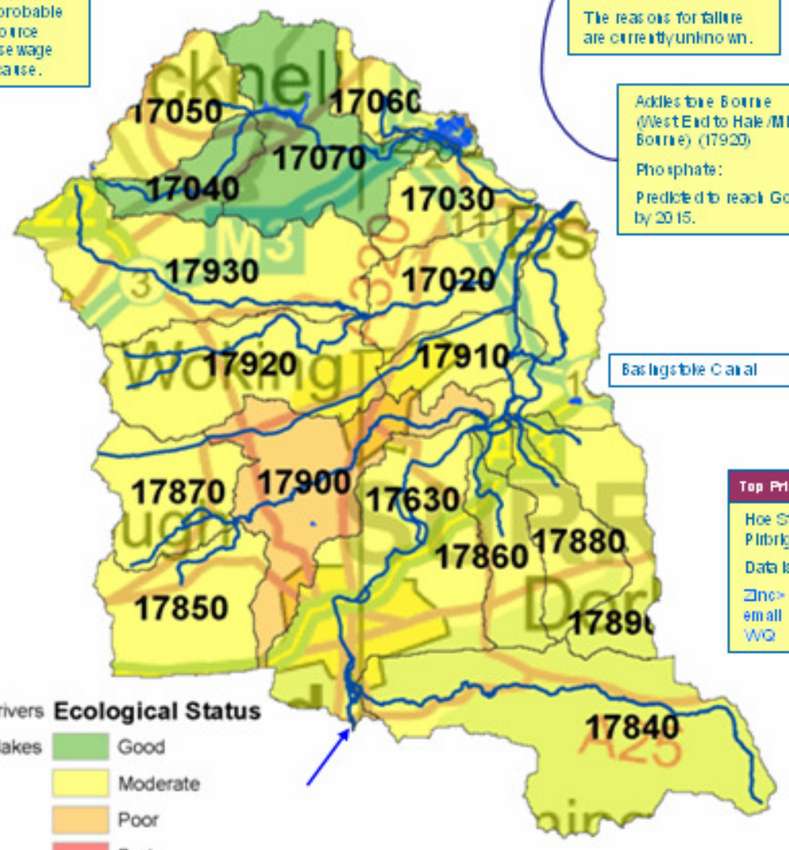
Reasons for failure are currently unknown.

Clasford Brook and Woodstreet Brook (17850)

Phosphate:

Is predicted to reach Good status by 2015

Upper Wey



0 3.5 7 14 21 km

N

Lower Wey – Investigations & Actions

2009 classification data

last update: Jan 2012

Waterbody and failing elements

I) Investigations
Stage 1 – Investigate to confirm failure and/or impact
Stage 2 – Investigate cause of failure
Stage 3 – Investigate feasible measures
CA) Current actions to address failing elements.
The colour of the text box represents the WBs Ecological status

Hale/Mill Bourne (Bagshot to Addlestone Bourne) (17930)
I) Phosphate stage 1 & 2
CA) No current actions

Chertsey Bourne (Ascot to Virginia Water) (17050)
I) Mitigation measures stage 2 in progress & stage 3 planned
CA) No current action

Chertsey Bourne (Sunningdale to Virginia Water) (17040)
WB at GES

Virginia Water
I) Macrophytes Planned

Chertsey Bourne (Virginia water to Chertsey) (17070)
AT GEP
I) Sediment stage 2 in progress
CA) no current actions required

The Moat at Egham (17060)
Hydrology, phosphate + mitigation measure (predicted to reach Good by 2015)
I) Hydrology stage 1 & 2 complete confirm GES
Phosphate stage 1 & 2 in progress
Mitigation measures – Stage 2 & 3 complete
CA) No current actions

Addlestone Bourne (West End to Hale/Mill Bourne) (17920)
Phosphate (predicted to reach Good by 2015)
CA) Inspect for compliance at water company permit to discharge including storm discharge permit. Ensure compliance with Phosphorus limit on water discharge permit.

Addlestone Bourne (Hale/Mill to Chertsey) (17020)
I) Invertebrates Stage 2
CA) No Actions

High Priority
Chertsey Bourne (Chertsey to River Thames) (17030)
I) Invertebrates – Planned;
Phosphate Stage 1 & Stage 2;
Mitigation Measures Stage 3 Planned.
CA) Proposed project bid (WT44) that could link into the WFD objectives and would help reduce the risk of a major incident from industrial facilities. It can also help to promote environmental awareness to unregulated business in urban areas. This is part of an effort to ensure no deterioration of these waterbodies.

Lower Thames

Basingstoke Canal

Wey Navigation (17910)
Hydrology (predicted to reach Good status by 2015)
I) Hydrology - stage 2 & 3 - complete, confirmed GES
Phosphate stage 1& 2
CA) Ensure STW complies with the consented phosphate discharge levels.

High Priority
River Wey Shalford to River Thames (17630)
I) Phosphate stage 1 & 2 in progress
Mitigation measures - stage 3 Planned
PHS, PS & SP – stage 1 & 2 complete, GES by 2015
CA) 1. New superactive baffle and elvertish pass on overall u/s Gresham Mill. (Part of Gresham Mill HEP project).
2. Enhancement of Millmore Stream – increase flow and introduction of gravel.
3. Restore floodplain connectivity at Shalford
4. Operations Delivery undertake Floating Pennywort Control
New sluice gates installed to manage flows
Weir has now been refurbished with new operational gates
Marginal Aquatic habitats retained on right downstream bank (SSSI)
5. Investigate screening requirements at Millmead hydropower plant
6. Martin's Press, High Street, Old Woking. Works to bank and creation of rifles downstream of hydropower scheme.
7. Influencing works through Flood Defence Consent process
8. Proposed project bid (WT44) that could link into the WFD objectives and would help reduce the risk of a major incident from industrial facilities. It can also help to promote environmental awareness to unregulated business in urban areas. This is part of an effort to ensure no deterioration of these waterbodies.
9. Burpham Court Farm Habitat Enhancement - flood plain restoration and improve floodplain connectivity (Feasibility 2012-2013).

Stratford Brook (17890)
Phosphate (predicted to reach Good status by 2015)
I) Hydrology stage 1 & 2 complete confirm GES
Phosphate stage 1 & 2 in progress
CA) no current actions

Gulleshill Brook (17880)
I) Phosphate stage 1 & 2 in progress
CA) no current actions

East Clandon Stream (17860)
Hydrology (predicted to reach Good status by 2015)
I) Hydrology - stage 2 & 3 - complete - confirm GES
Phosphate - Stage 1 & 2 - in progress
CA) no current actions

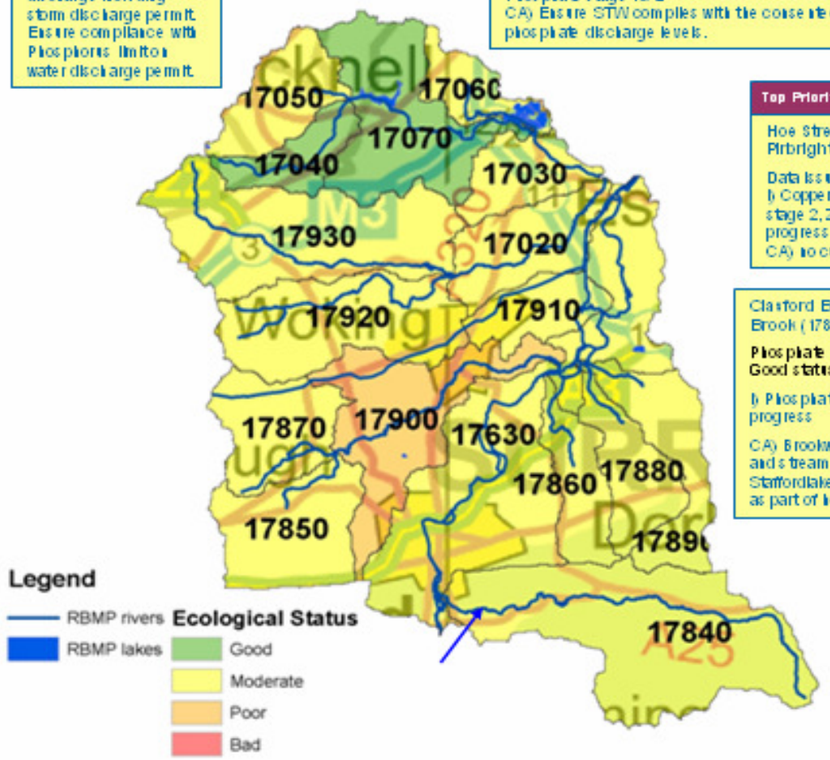
Top Priority
Hoe Stream (Normandy to Pirbright) (17870)
Data issues on this WB
I) Copper - stage 2, Iron - stage 2, Zinc - stage 2 in progress.
CA) no current actions

Clasford Brook and Woodstreet Brook (17850)
Phosphate (predicted to reach Good status by 2015)
I) Phosphate stage 1 & 2 in progress
CA) Brookwood Farm – habitat and stream (Crastock Stream & Staffordlake Brook) enhancements as part of housing scheme.

Medium Priority
Hoe Stream (Pirbright to R Wey) (17900)
I) Fish - stage 1 in progress & stage 2 planned
Phosphate -stage 1 & 2
CA) Habitat enhancements as part of Hoe Stream FAS, Woking. Includes new lakes as part of housing development.

High Priority
Tillingbourne (17840)
I) Fish stage 1 in progress, stage 2 planned
Hydrology stage 1 & 2 planned
Phosphate stage 2
PHS, PS and SP stage 2 Sediment: Stage 1 & 2
CA) 1. Investigation looking at the possible sources and impacts of sediment in the Tillingbourne water body catchment. Initially an 'evidence gathering' stage in 2010/11 to improve confidence that there is a problem/risk.
2. MSc investigation looking to confirm diffuse pollution in this water body
3. Monitoring of river rifles
4. River improvements at Chilworth.
5. Proposed project bid (WT44) that could link into the WFD objectives and would help reduce the risk of a major incident from industrial facilities. It can also help to promote environmental awareness to unregulated business in urban areas. This is part of an effort to ensure no deterioration of these waterbodies.

Upper Wey



0 3.5 7 km

Appendix C Table of waterbody classifications

Summary of classification details for each Surface water body and Groundwater body.

- Table 1 River Waterbodies
- Table 2 Canal Water body

- Table 3 Lake Water body
- Table 4 Surface water transfer body
- Table 5 Groundwater classification

Key to table of classification data

Cell Colour	Element/Classification status	Cell Letter	Confidence in Data
	Element/classification = High status	U	Uncertain
	Element/classification = Good status	Q	Quite Certain
	Element/classification = Moderate status	V	Very Certain
	Element/classification = Poor status		
	Element/classification = Bad status		
	Element/Classification not yet assessed		

Table 1 River Waterbodies

WB ID	WB Name	HMWB	Mitigation Measures Assessment	Priority water body for improvement action?	Ecological status/potential	Biological Status	Fish	Inverts	Macrophytes	Diatoms	Physico-Chemical Status	Phosphate	Ammonia	DO	pH	Specific Pollutants (Annex 8)	Chemical Status (Annex 10)
GB106039017020	Addlestone Bourne (Mill/Hale to Chertsey Bourne)	No						Q									
GB106039017920	Addlestone Bourne (West End to Hale/Mill Bourne confluence at Mimbridge)	No										V					
GB106039017730	Caker Stream	No															
GB106039017050	Chertsey Bourne (Ascot to Virginia Water)	Yes															
GB106039017030	Chertsey Bourne (Chertsey to River Thames confluence)	Yes										V					
GB106039017040	Chertsey Bourne (Sunningdale to Virginia Water)	No															

WB ID	WB Name	HMWB	Mitigation Measures Assessment	Priority water body for improvement action?	Ecological status/potential	Biological Status	Fish	Inverts	Macrophytes	Diatoms	Physico-Chemical Status	Phosphate	Ammonia	DO	pH	Specific Pollutants (Annex 8)	Chemical Status (Annex 10)
GB106039017070	Chertsey Bourne (Virginia Water to Chertsey)	Yes					V										
GB106039017850	Clasford Brook and Wood Street Brook	No										V					
GB106039017810	Cranleigh Waters	No		Yes			V									V	V
GB106039017860	East Clandon Stream	No										V					
GB106039017880	Guileshill Brook	No										V					
GB106039017930	Hale/Mill Bourne (Bagshot to Addlestone Bourne confluence near Chobham)	No										V					
GB106039017870	Hoe Stream (Normandy to Pirbright)	No													U	V	
GB106039017900	Hoe Stream (Pirbright to River	No					V					V					

WB ID	WB Name	HMWB	Mitigation Measures Assessment	Priority water body for improvement action?	Ecological status/potential	Biological Status	Fish	Inverts	Macrophytes	Diatoms	Physico-Chemical Status	Phosphate	Ammonia	DO	pH	Specific Pollutants (Annex 8)	Chemical Status (Annex 10)
	Wey confluence at Woking)																
GB106039017690	Hollywater and Deadwater at Bordon	No										V					
GB106039017740	Kingsley Stream	No										Q					
GB106039017830	North Wey (Alton to Tilford)	No								V		V					
GB106039017800	North Wey at Alton	Yes								V							
GB106039017710	Oakhanger Stream	No															
GB106039017790	Ock	No															
GB106039017760	Royal Brook	No										V					
GB106039017750	Slea (Kingsley to Sleaford)	No										Q					
GB106039017720	South Wey (Bordon to River Slea confluence)	No								V		V					

WB ID	WB Name	HMWB	Mitigation Measures Assessment	Priority water body for improvement action?	Ecological status/potential	Biological Status	Fish	Inverts	Macrophytes	Diatoms	Physico-Chemical Status	Phosphate	Ammonia	DO	pH	Specific Pollutants (Annex 8)	Chemical Status (Annex 10)
GB106039017700	South Wey (Haslemere to Bordon)	No					V					V					
GB106039017780	South Wey (River Slea confluence to Tilford)	No								V		V					
GB106039017890	Stratford Brook	No										V					
GB106039017060	The Moat at Egham	Yes										U					
GB106039017840	Tillingbourne	No		Yes			U					V					V
GB106039017770	Truxford Brook	No										V					
GB106039017630	Wey (Shalford to River Thames confluence at Weybridge)	Yes		Yes			Q			M		V					U
GB106039017820	Wey (Tilford to Shalford)	No		Yes			U			V		V					
GB106039017910	Wey Navigation (Pyrford reach)	No										V					

2010 update/classification note:

There are some issues with the 2010 update for fish for the South Wey (River Slea confluence to Tilford) water body and the Area office of the Environment Agency disagree with the classification. Fish at poor status in 2009 data and despite no change in sample site or sampled population, status is now high. Also, EA Area fisheries have requested that more sites are used to classify the Chertsey Bourne (Chertsey to River Thames confluence), Hoe Stream (Normandy to Pirbright) and Hoe Stream (Pirbright to River Wey confluence at Woking) water bodies.

HMWB note:

The Moat at Egham has been highlighted to be de-designated in 2011 HMWB review. This decision has been reached as the water body can be restored to GES without affecting the use. More detail is available from AEP team if required.

Table 2 Canal Water body

Water Body ID	Water Body Name	Artificially Modified	Mitigation Assessment	Priority water body for improvement action?	Overall Ecological Potential	Biological Status	Fish	Invertebrates	Macrophytes	Diatoms	Physico-Chemical Status	Phosphate	Ammonia	Dissolved Oxygen	pH	Specific Pollutants (Annex 8)	Chemical Status (Annex 10)
GB70610017	Wey and Arun canal	Yes		No													
GB70610019	Basingstoke canal	Yes		No													

Table 3 Lake Water body

Water Body ID	Water Body Name	Heavily Modified	Mitigation Assessment	Priority water body for improvement action?	Overall Ecological Potential	Biological Status	Fish	Chironom Invertebrates	littoral Invertebrates	Macrophytes	Diatoms	Phytoplankton	Physico-Chemical Status	Ammonia	Dissolved Oxygen	Total Phosphate	Specific Pollutants (Annex 8)	Chemical Status (Annex 10)
GB30642753	Manor, Fleet, Abbey, St Ann's Lakes at Thorpe Park	Yes		No						Q		U						
GB30642875	Swinley Park Pond	Yes		No														
GB30643218	Boldermere	Yes		No														
GB30643758	The Tarn	Yes		No														
GB30642691	Virginia Water	Yes		No		Q				Q		V						
GB30643943	Frensham Little Pond	Yes		No		Q	V			Q	U	V						
GB30644031	Frensham Great Pond	Yes		No		V	V			V	U	V	Q					

Water Body ID	Water Body Name	Heavily Modified	Mitigation Assessment	Priority water body for improvement action?	Overall Ecological Potential	Biological Status	Fish	Chironom Invertebrates	littoral Invertebrates	Macrophytes	Diatoms	Phytoplankton	Physico-Chemical Status	Ammonia	Dissolved Oxygen	Total Phosphate	Specific Pollutants (Annex 8)	Chemical Status (Annex 10)
GB30644464	Cranmer Pond	No		No														
GB30643359	Whitmoor Common Pond	No		No		U												
GB30644482	Woolmer Pond	No		No		U												
GB30644576	Forest Mere	No		No		U												

Table 4 Surface water transfer body

Water Body ID	Water Body Name	Artificially Modified	Mitigation Assessment	Priority water body for improvement action?	Overall Ecological Potential
GB806100099	Thursley/Forked Pond	Yes		No	

Table 5 Groundwater classification

WB Code	WB Name	Aquifer Type	Chemical Status	Predicted Chemical Status by 2015*	Quantitative Status	Predicted Quantitative Status by 2015*	2009 RBMP Classification	2010 Reclassification
GB40601G600100	Alton Upper Greensand	Principal	Poor (LC)	Poor	Poor (LC)	Poor	Poor	Poor
GB40601G601900	Godalming Lower Greensand	Principal	Poor (HC)	Poor	Poor (HC)	Poor	Poor	Poor
GB40602G601400	Chobham Bagshot Beds	Secondary	Good (LC)	Good	Poor (HC)	Poor	Poor	Poor
GB40602G601800	Effingham Tertiaries	Secondary	Good (LC)	Good	Poor (HC)	Poor	Poor	Poor

LC = low confidence, HC = High confidence

9.1 Appendix D Operational monitoring (2010-12)

Water Body ID	Water Body Name	Element	Year
GB106039017800	North Wey at Alton	Fish	TBC
		Physico-Chemical	2010-12
GB106039017730	Caker Stream	Invertebrates	2010
		Diatoms	2010
		Physico-Chemical	2010-12
GB106039017700	South Wey (Haslemere to Bordon)	Diatoms	2010
		Macrophytes	2010
		Physico-Chemical	2010-12
GB106039017720	South Wey (Bordon to River Slea confluence)	Macrophytes	2010
		Physico-Chemical	2010-12
GB106039017780	South Wey (River Slea confluence to Tilford)	Fish	TBC
		Macrophytes	2010
		Diatoms	2010
		Physico-Chemical	2010-12
GB106039017690	Hollywater and Deadwater at Bordon	Diatoms	2010
		Physico-Chemical	2010-12
GB106039017740	Kingsley Stream	Diatoms	2010
		Physico-Chemical	2010-12
GB106039017770	Truxford Brook	Diatoms	2010
		Physico-Chemical	2010-12
GB106039017760	Royal Brook	Diatoms	2010
		Physico-Chemical	2010-12
GB106039017860	East Clandon Stream	Diatoms	2010

		Physico-Chemical	2010-12
GB106039017880	Guileshill Brook	Diatoms	2010
		Physico-Chemical	2010-12
GB106039017890	Stratford Brook	Diatoms	2010
		Physico-Chemical	2010-12
GB106039017870	Hoe Stream (Normandy to Pirbright)	Macrophytes	TBC
		Physico-Chemical	2010-12
GB106039017850	Clasford Brook and Wood Street Brook	Diatoms	2010
		Physico-Chemical	2010-12
GB106039017060	The Moat at Egham	Diatoms	2010
		Physico-Chemical	2010-12
GB106039017930	Hale/Mill Bourne (Bagshot to Addlestone Bourne confluence near Chobham)	Diatoms	2010
		Physico-Chemical	2010-12

9.2 Appendix E Investigations

Water Body ID	Water Body Name	Element	Stage 1	Stage 2	Stage 3	Progress
GB106039017800	North Wey at Alton	WR	Yes			
GB106039017830	North Wey (Alton to Tilford)	Diatoms	Yes			
		DO	Yes			Confirmed good status
GB106039017730	Caker Stream	Invertebrates	Yes			Confirmed good status
GB106039017700	South Wey (Haslemere to Bordon)	Fish	Yes			Confirmed less than good status
		WR	Yes			
GB106039017720	South Wey (Bordon to River Slea confluence)	Macrophytes	Yes			
GB106039017780	South Wey (River Slea confluence to Tilford)	Fish		Yes		
		WR	Yes			
GB106039017690	Hollywater and Deadwater at Bordon	Diatoms	Yes			
GB106039017740	Kingsley Stream	Diatoms	Yes			
		WR	Yes			
GB106039017750	Slea (Kingsley to Sleaford)	Macrophytes	Yes			
		WR	Yes			
GB106039017630	Wey (Shalford to River Thames confluence at Weybridge)	Diatoms	Yes			
		Priority Substances	Yes			Confirmed will be good status by 2015
GB106039017710	Oakhanger Stream	Macrophytes	Yes			
GB106039017770	Truxford Brook	Diatoms	Yes			
		WR	Yes			
GB106039017760	Royal Brook	Diatoms	Yes			
		WR	Yes			
GB106039017820	Wey (Tilford to Shalford)	Fish		Yes		Confirmed less than good

Water Body ID	Water Body Name	Element	Stage 1	Stage 2	Stage 3	Progress
						status
		Macrophytes		Yes		Confirmed less than good status
		Diatoms		Yes		
GB106039017810	Cranleigh Waters	Fish		Yes		
		Invertebrates		Yes		
		PS	Yes			
		WR	Yes			
GB106039017840	Tillingbourne	Fish		Yes		Confirmed less than good status
		Macrophytes	Yes			
		Priority Substances	Yes			Confirmed less than good status
		WR	Yes			Confirmed good status
		Sediment	Yes			
GB106039017860	East Clandon Stream	Diatoms	Yes			
		WR	Yes			Confirmed good status
GB106039017880	Guileshill Brook	Diatoms	Yes			
GB106039017890	Stratford Brook	Diatoms	Yes			
		WR	Yes			Confirmed good status
GB106039017870	Hoe Stream (Normandy to Pirbright)	Priority Substances	Yes			Confirmed less than good status
GB106039017900	Hoe Stream (Pirbright to River Wey confluence at Woking)	Fish		Yes		
GB106039017850	Clasford Brook and Wood Street Brook	Diatoms	Yes			
GB106039017910	Wey Navigation (Pyrford	Diatoms	Yes			

Water Body ID	Water Body Name	Element	Stage 1	Stage 2	Stage 3	Progress
	reach)	WR	Yes			
GB106039017920	Addlestone Bourne (West End to Hale/Mill Bourne confluence at Mimbridge)	Macrophytes	Yes			
GB106039017930	Hale/Mill Bourne (Bagshot to Addlestone Bourne confluence near Chobham)	Diatoms	Yes			
GB106039017020	Addlestone Bourne (Mill/Hale to Chertsey Bourne)	Invertebrates	Yes	Yes		Confirmed less than good status
GB106039017060	The Moat at Egham	Diatoms	Yes			
		WR	Yes			Confirmed good status

9.3 Appendix F Field Actions

Summary of field actions

Updated: 05 January 2011

Sub-Catchment	Priority Sub Catchment	Water Body ID	Water Body Name	fTRBMP Action ID	Field Action	Lead Organisation	External Partners	EA owner	EA owner team	End Date	Costs	Progress tracking
River Wey from Tilford to confluence with the River Thames	Y	GB106039017630	Wey (Shalford to River Thames confluence at Weybridge)		New super active baffle and elver fish pass on overfall u/s Gresham Mill. (Part of Gresham Mill HEP project).	Linden Homes	Linden Homes	Steve Sheridan	Fisheries and Biodiversity			
River Wey from Tilford to confluence with the River Thames	Y	GB106039017630	Wey (Shalford to River Thames confluence at Weybridge)		Enhancement of Millmore Stream – increase flow and introduction of gravel.	Linden Homes	Woking Borough	Steve Sheridan	Fisheries and Biodiversity			

River Wey from Tilford to confluence with the River Thames	Y	GB1060390 17630	Wey (Shalford to River Thames confluenc e at Weybridge)	TH0017	Work with the local authority and planning and development sector to identify opportunities for river restoration, habitat enhancement and creation. Work with the local authority to develop a policy framework which supports and promotes this approach				Planning Liaison			
River Wey from Tilford to confluence with the River Thames	Y	GB1060390 17630	Wey (Shalford to River Thames confluenc e at Weybridge)	TH0033	Restore floodplain connectivity at Shalford	Environment Agency		Debbie Cousins	Area Biodiversity	30/03/ 2012		Construc tion due to start in May 2012
River Wey from Tilford to confluence with the River Thames	Y	GB1060390 17630	Wey (Shalford to River Thames confluenc e at Weybridge)	TH0128	Operations Delivery undertake Floating Pennywort Control	Environment Agency			Operations Delivery	30/03/ 2011		
River Wey from Tilford to confluence with the River Thames	Y	GB1060390 17630	Wey (Shalford to River Thames confluenc e at Weybridge)	TH0133	New sluice gates installed to manage flows	Environment Agency	National Trust (operator), Natural England	Brian Roberts	Thames, Wey and Loddon Asset Systems Management team (Flood Risk Management)	31/10/ 2008		

River Wey from Tilford to confluence with the River Thames	Y	GB106039017630	Wey (Shalford to River Thames confluence at Weybridge)	TH0139	Weir has now been refurbished with new operational gates at St Catherines weir, Guildford	Environment Agency	National Trust (operator), Natural England	Brian Roberts	Thames, Wey and Loddon Asset Systems Management team (Flood Risk Management)	31/10/2008		
River Wey from Tilford to confluence with the River Thames	Y	GB106039017630	Wey (Shalford to River Thames confluence at Weybridge)	TH0147	Marginal Aquatic habitats retained on right downstream bank (SSSI) at St Catherines weir, Guildford	Environment Agency	National Trust (operator), Natural England	Brian Roberts	Thames, Wey and Loddon Asset Systems Management team (Flood Risk Management)	31/10/2008		
River Wey from Tilford to confluence with the River Thames	Y	GB106039017630	Wey (Shalford to River Thames confluence at Weybridge)	TH0234	To ensure future development does not contribute to a deterioration in the class of the water body, or compromise the meeting of objectives, work with the local authority and planning and development sector to promote general principles of sustainable des		Local Authorities, planners and developers		Planning Liaison			

River Wey from Tilford to confluence with the River Thames	Y	GB1060390 17630	Wey (Shalford to River Thames confluenc e at Weybridge)	TH0252	Investigate screening requirements at Millmead hydropower plant	Environment Agency		Darryl Clifton-Dey	Fisheries	2012		
River Wey from Tilford to confluence with the River Thames	Y	GB1060390 17630	Wey (Shalford to River Thames confluenc e at Weybridge)	TH0366	Promote sustainable water management best practice through commenting on planning applications and policy documents through day to day work with local authorities.	Environment Agency	Local Authority	Katy Steed	Area Environment Planning	31/03/ 2015		
River Wey from Tilford to confluence with the River Thames	Y	GB1060390 17630	Wey (Shalford to River Thames confluenc e at Weybridge)	TH0442	Work with the local authority and other key partners to ensure that all waste water infrastructure is planned and delivered in a way that supports both new and existing communities. Work with the local authority to develop a policy framework that supports				Planning Liaison			
River Wey from Tilford to confluence with the River Thames	Y	GB1060390 17630	Wey (Shalford to River Thames confluenc e at Weybridge)		Martin's Press, High Street , Old Woking. Works to bank and creation of riffles downstream of hydropower scheme. Influencing works through Floof Defence Consent process	Linden Homes		Lindsay Newton	Development and Flood Risk			Ongoing

River Wey from Tilford to confluence with the River Thames	Y	GB106039017630	Wey (Shalford to River Thames confluence at Weybridge)		Proposed project bid (WT44) that could link into the WFD objectives and would help reduce the risk of a major incident from Industrial facilities. It can also help to promote environmental awareness to unregulated business in urban areas. This is part of an effort to ensure no deterioration of these waterbodies.	Environment Agency	Thames Water	Stephanie Everitt	EM Compliance Team	(unknown – will only go ahead if get project)		
River Wey from Tilford to confluence with the River Thames	Y	GB106039017630	Wey (Shalford to River Thames confluence at Weybridge)	TH0033	Burpham Court Farm Habitat Enhancement - flood plain restoration and improve floodplain connectivity (Feasibility 2012-2013).	Environment Agency	Guildford Borough Council	Debbie Cousins	Biodiversity	31/03/2014	£20,000	Awaiting outcome of funding bid for feasibility study 2012-13.
Cranleigh waters	Y	GB106039017810	Cranleigh Waters	TH0234	To ensure future development does not contribute to a deterioration in the class of the water body, or compromise the meeting of objectives, work with the local authority and planning and development sector to promote general principles of sustainable des		Local Authorities, planners and developers		Planning Liaison			

Cranleigh waters	Y	GB1060390 17810	Cranleigh Waters	TH0017	We are working with Guildford Borough Council to influence their Core Strategy to include policies that provide a framework to support and encourage river restoration, and to conserve and enhance biodiversity within their borough. We will then use this policy to inform future DPD's and our responses to individual planning applications. We have already commented on Waverley BC's Biodiversity topic paper. We support their general aims, and we will continue to work with Waverley Borough Council to influence their Core Strategy to include policies that provide an appropriate framework to support and encourage river restoration. We will then use this policy to inform future DPD's and our responses to individual planning applications.		Local Authorities, planners and developers		Planning Liaison			

River Wey from Tilford to confluence with the River Thames	Y	GB106039017820	Wey (Tilford to Shalford)	NEW ACTION	Introduction of fish shelters and river habitat for brown trout populations at Pepper Harrow Park Phase 2. Fisheries action plan funded initiative (FAP).	Environment Agency	Pepper Harrow Fly Fishers	Adrian Bicknell	Fisheries	2011	£2,500	
River Wey from Tilford to confluence with the River Thames	Y	GB106039017820	Wey (Tilford to Shalford)	TH0017	We are working with Guildford Borough Council to influence their Core Strategy to include policies that provide a framework to support and encourage river restoration, and to conserve and enhance biodiversity within their borough. We will then use this policy to inform future DPD's and our responses to individual planning applications.		Local Authorities, planners and developers		Planning Liaison			
River Wey from Tilford to confluence with the River Thames	Y	GB106039017820	Wey (Tilford to Shalford)	TH0368	Monitoring of river flies	Environment Agency	Salmon and Trout Association	Mike Wilson	Area Analysis and Reporting			
River Wey from Tilford to confluence with the River Thames	Y	GB106039017820	Wey (Tilford to Shalford)	TH0410	Work with the local authority to ensure that improvement of the water environment is reflected as a priority in their 'non-planning' strategic documents.		Local Authorities, planners and developers	External relations and / or LA Account Manager	External relations and / or LA Account Manager			

River Wey from Tilford to confluence with the River Thames	Y	GB106039017820	Wey (Tilford to Shalford)	TH0449	Introduction of groynes and large woody debris to improve habitat at Eashing. (FAP)	Environment Agency	Godalming Angling Society	Adrian Bicknell	Fisheries	2012	£1,000	
River Wey from Tilford to confluence with the River Thames	Y	GB106039017820	Wey (Tilford to Shalford)		Secure flow to Hell Ditch, investigate feasibility for Westbrook Mill Impoundment removal / lowering and fish passage.	EA	Godalming A.S., Brinkerhoffen?,	Adrian Bicknell	Fisheries and Biodiversity			
River Wey from Tilford to confluence with the River Thames	Y	GB106039017820	Wey (Tilford to Shalford)		Dockenfield brown trout regeneration project. (FAP)	Farnham AS	Farnham AS	Adrian Bicknell	Fisheries and Biodiversity			
River Wey from Tilford to confluence with the River Thames	Y	GB106039017820	Wey (Tilford to Shalford)		Lammas Lands, Godalming – oxbow lake restoration.	Waverley Borough Council		Debbie Cousins	Biodiversity			No progress - proposed project
Tillingbourne	Y	GB106039017840	Tillingbourne	TH0017	Work with the local authority and planning and development sector to identify opportunities for river restoration, habitat enhancement and creation. Work with the local authority to develop a policy framework which supports and promotes this approach.				Planning Liaison			

Tillingbourne	Y	GB106039017840	Tillingbourne	TH0019	Investigation looking at the possible sources and impacts of sediment in the Tillingbourne water body catchment. Initially an 'evidence gathering' stage in 2010/11 to improve confidence that there is a problem/risk.	Environment Agency		Kathrynne Moore	Area Environment Planning	30/03/2011		
Tillingbourne	Y	GB106039017840	Tillingbourne	TH0020	MSc investigation looking to confirm diffuse pollution in this water body	Environment Agency	King's college	Lars Akesson/ National Permitting Service	Area Environment Planning	31/10/2010		Implemented
Tillingbourne	Y	GB106039017840	Tillingbourne	TH0234	To ensure future development does not contribute to a deterioration in the class of the water body, or compromise the meeting of objectives, work with the local authority and planning and development sector to promote general principles of sustainable des				Planning Liaison			
Tillingbourne	Y	GB106039017840	Tillingbourne	TH0368	Monitoring of river flies	Environment Agency	Salmon and Trout Association	Mike Wilson	Area Analysis and Reporting			
Tillingbourne	Y	GB106039017840	Tillingbourne	TH0449	River improvements at Chilworth.	Environment Agency		Adrian Bicknell	Fisheries	2010		

Tillingbourne	Y	GB106039017840	Tillingbourne		Proposed project bid (WT44) that could link into the WFD objectives and would help reduce the risk of a major incident from Industrial facilities. It can also help to promote environmental awareness to unregulated business in urban areas. This is part of an effort to ensure no deterioration of these waterbodies.	Environment Agency	Thames Water	Stephanie Everitt	EM Compliance Team	(unknown – will only go ahead if get project)		
		Multiple			Oxbow Restoration Project. Phase 1 to identify oxbows and relic backwaters for enhancement.	EA	Landowners	Adrian Bicknell / Debbie Cousins / Steve Sheridan	Fisheries and Biodiversity	2013	20k	Part of SWT Catchment Restoration Fund
		Multiple			Wey Structures Project. Phase 1 – to identify and prioritise impounding structures for removal / lowering / fish passage. Aim: to restore connectivity and hydrogeomorphology at key locations through catchment..	Southampton University / EA	Southampton University	Steve Sheridan	Fisheries and Biodiversity	2012	55k (20k EA)	

		Multiple			To implement recommendations for Wey structures. E.g. Fish passage provided through refurb - EA FCRM managed structures: Ham Oil Mills / Bulldogs; Byfleet; Walsham; Bowers; Abbey overfall; Newark; Broadmead; Broadoaks; St. Catherines; Unstead; Cattleshall	EA	Impoundment / Land owners	Steve Sheridan / Stuart Malaure	Fisheries and Biodiversity / FCRM			
		All waterbodies		TH0033 TH0088 TH0372 TH0404	Surrey Waterbodies Project - A collaborative project with Surrey Wildlife Trust addressing habitat and invasive species issues	Surrey Wildlife Trust		Debbie Cousins	Biodiversity	31/03/2013	£15,000	Writing the project mandate and collaborative agreement. Currently have £5K secured and requested a further £10K.

		GB106039017030	Chertsey Bourne (Chertsey to River Thames confluence)		Proposed project bid (WT44) that could link into the WFD objectives and would help reduce the risk of a major incident from Industrial facilities. It can also help to promote environmental awareness to unregulated business in urban areas. This is part of an effort to ensure no deterioration of these waterbodies.	Environment Agency	Thames Water	Stephanie Everitt	EM Compliance Team	(unknown – will only go ahead if get project)		
		GB106039017690	Hollywater & Deadwater at Bordon		Potential river and habitat enhancements/ creation as part of the Whitehill Bordon Ecotown development.	Developer	East Hampshire DC	Hannah Hyland/ Debbie Cousins	Planning Liaison/ Biodiversity			Still at pre-planning application stage
		GB106039017700	South Wey (Haslemere to Bordon		Potential river and habitat enhancements/ creation as part of the Whitehill Bordon Ecotown development.	Developer	East Hampshire DC	Hannah Hyland/ Debbie Cousins	Planning Liaison/ Biodiversity			Still at pre-planning application stage
		GB106039017700	South Wey (Haslemere to Bordon	TH0021	Ensure compliance with water discharge permit conditions and inspection at Haslemere STW , including storm discharge.	Environment Agency	Thames Water	Andrew Valantine	Em Field Teams	2012		
		GB106039017720	South Wey (Bordon to River Slea confluence)		Potential river and habitat enhancements/ creation as part of the Whitehill Bordon Ecotown development.	Developer	East Hampshire DC	Hannah Hyland/ Debbie Cousins	Planning Liaison/ Biodiversity			Still at pre-planning application stage

		GB106039017800	North Wey at Alton	TH0033	Alton river restoration feasibility	Environment Agency	Alton Town Council; Northern Wey Trust	Debbie Cousins	Biodiversity	31/03/2014	£20,000	Awaiting outcome of funding bid
		GB106039017800	North Wey at Alton	TH0370	Promote water efficiency and water saving measures through site inspections of abstraction licences	Environment Agency		Andrew Valantine	Em compliance Team	2012		
		GB106039017830	North Wey (Alton to Tilford)	TH0033	Bishops Meadow, Farnham, on North Wey. Floodplain restoration	Environment Agency	Bishops Meadow Trust and Surrey Wildlife Trust. Possibly Farnham Town Council and/or Waverley Borough Council.	Debbie Cousins	Biodiversity	31/03/2013	£10,000	Discussions underway regarding extent and design of works
		GB106039017830	North Wey (Alton to Tilford)	TH0033	Snayles Lynch, Farnham on North Wey. Floodplain restoration	Environment Agency	Surrey Wildlife Trust and landowner	Debbie Cousins	Biodiversity	31/03/2013	£20,000	Part of SWT Catchment Restoration Fund bid
		GB106039017830	North Wey (Alton to Tilford)		Farnham Bourne enhancements including removal/replacement of unconsented bank protection.	Environment Agency	Farnham Bourne Conservation Trust	Debbie Cousins	Biodiversity/ DFR			No progress - proposed project

		GB1060390 17830	North Wey (Alton to Tilford)	TH0370	Promote water efficiency and water saving measures through site inspections of abstraction licences	Environment Agency		Andrew Valantine	Em compliance Team	2012		
		GB1060390 17850	Clasford Brook and Woodstre et Brook		Brookwood Farm – habitat and stream (Crastock Stream & Staffordlake Brook) enhancements as part of housing development.	Developer	Woking BC	Debbie Cousins	Biodiversity			Still at pre-planning app stage.
		GB1060390 17900	Hoe Stream) Pirbright to River Wey)		Habitat enhancements as part of the Hoe Stream FAS, Woking. Includes new lakes, reedbeds, wildflower meadows and water vole ditches.	Woking BC		Chris Savage/ Debbie Cousins	Asset Inspection & Enforcement/ Biodiversity	Spring 2012		Habitat enhance ments currently being created
		GB1060390 17920	Addleston e Bourne (West End to Hall/Mill Bourne conf at Mimbridge)	TH0021	Inspect for compliance with water company permit to discharge including storm discharge permit.	Environment Agency	Thames Water	Andrew Valantine	Em Field Teams	2011		Inspectio n done Sept 2011
		GB1060390 17920	Addleston e Bourne (West End to Hall/Mill Bourne conf at Mimbridge)	TH0021	Ensure compliance with Phosphorous limit on water discharge permit.	Environment Agency	Thames Water	Andrew Valantine	Em Field Teams	2012		

		GB106039017780	South Wey (River Slea confluence to Tilford)		Frensham Mill – Fish pass and bypass channel enhancement as part of HEP scheme.	Landowner	Landowner	Steve Sheridan	Fisheries and Biodiversity			
		GB106039017830	North Wey (Alton to Tilford)		Coxbridge Stream – following fish kill due to low flow in 2009 – habitat improvement to encourage brown trout colonisation. (FAP)	Wild Trout Trust / Grayshott A.C.	Wild Trout Trust / Grayshott A.C.	Adrian Bicknell	Fisheries and Biodiversity			
		GB106039017830	North Wey (Alton to Tilford)		Wrecclesham brown trout enhancments. (FAP)	Wild Trout Trust / Grayshott A.C.	Wild Trout Trust / Grayshott A.C.	Adrian Bicknell	Fisheries and Biodiversity			
		GB106039017830	North Wey (Alton to Tilford)		Fencing to reduce cattle poaching at Bentley and improve brown trout habitat. (FAP)	Bentley Flyfishers	Bentley Flyfishers		Fisheries and Biodiversity			
		GB106039017830	North Wey (Alton to Tilford)		Holybourne weir removal.				Fisheries and Biodiversity			
		GB106039017750	Slea (Kingsley to Sleaford)		Restoration scheme for the Oxney drain, as part of the Whitehill Bordon Ectowtown development.	Developer	East Hampshire DC	Hannah Hyland/ Debbie Cousins	Planning Liaison/ Biodiversity			Still at pre-planning application stage