the Wey Valley Fisheries Action Plan

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We produced the following table of issues after a two-day public consultation workshop in March 2006 with reference to the Wey Valley Consultative Fisheries Action Plan. The Wey Fisheries Action Plan (FAP) steering group led this project with representatives from Environment Agency, angling clubs, commercial fisheries, Wey Valley Fisheries Consultative, Wey Valley Project and National Trust.

Fisheries Action Plans have been developed in response to the independent Review of Salmon and Freshwater Fisheries Legislation. They represent a local strategic approach to fisheries management working in partnership with the Environment Agency, angling and fisheries groups as well as interested parties such as local authorities, water companies, landowners, conservation groups and private companies. The Wey Valley FAP is the first to be produced in Thames South East Area. Others developed in the Region include The Kennet and Pang FAP and The Lee Valley FAP.

Issues were prioritised using a matrix system that looks at potential impacts on key species, habitats, angling and how they relate to Environment Agency strategies. Other issues were also taken into account together with the perceived level of public interest. An additional level of prioritising was carried out to confirm the importance of the issue as an action to be specifically promoted by the FAP group. We looked at cost, timescale, comparisons with Environment Agency duties and the outcomes of non-intervention. Strong links with other issues are highlighted in bold at the bottom of the issues column. 'Wey Catchment' includes the Addlestone Bourne Catchment.

The following abbreviations are used in the tables:

AC	Angling Clubs
CEFAS	Centre for Fisheries & Aquaculture Science
EA	Environment Agency
LA	Local Authorities
LO	Land Owners
NT	National Trust
NE	Natural England

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Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Water resources - Issue 1a: **River control and division of flow between river and navigation channels** The river Wey is a complex system of braided channels. Flow is controlled by numerous sluice structures built to impound water for the purpose of navigation and, historically, milling. Many of the structures are controllable and constitute flood defence assets . The operation of these structures, and consequent division of flow, can lead to ecological stress in the non-navigable watercourses. Two sub issues: flow share during low flow conditions and level management at high flow. Low flow impacts flow dependent key species such as barbel, dace and water crowfoot. At high flow, poor attenuation may prevent the inundation of important wetland habitats, while velocities in the channel lead to the potential wash out of juvenile fish. **Links:** 2a, 2b, 3a, 3b, 4a, 4c, 4d, 4e, 4f, 4g, 5a, 5b, 6b, 6c.	Unstead, Old Woking, Pyrford, Ripley, Byfleet	**Short term** Understanding of flow share issues, triggers for navigation restrictions and water level management. Review existing management agreement.	Collect data on flow share, ecological/navigation/other requirements, operation, responsibilities, quantify extent of impacts. Prepare brief and employ consultant to produce a study report. **EA, NT**	High	High	20k
		Medium term Agree management plan.	Prepare management proposal document, consult and secure sign-off from responsible operators. Produce operational strategy. **EA, NT, Sluice owners and operators**			20k
		Long term Implement management plan.	Implement and maintain flow management regime/operational strategy. **EA, NT, Sluice owners and operators**			5k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Water quality - Issue 2a: **Pressure of new development on sewage treatment works** The Wey catchment lies in a region of high economic activity, and many areas are heavily developed. There is much pressure for increased housing and associated development within the Wey catchment. There is some concern that the potential for increased loading on the sewage treatment works will result in deterioration of the quality of effluent that discharges into the river. Particular concerns include impacts of nutrient enrichment and endocrine disruptors. Links: 1a, 2b, 3a, 4a, 4d, 4e, 4f, 4g.	Bordon, Worplesdon, Farnham, Godalming, Guildford, Woking, Ripley, Wisley, Weybridge	**Short term** Anticipate nature and location of potential impacts.	Scope nature of issue, review forward planning proposals, evaluate development size versus sewage work capacity. **Thames Water, LA, EA, Developer**	Medium	Low	N/k
		Medium term Have mitigation plans prepared and influence planning.	**Thames Water, LA, EA, Developer**			N/k
		Long term Maintain and improve water quality. Implement mitigation.	**Thames Water, LA, EA, Developer**			N/k

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Water quality - Issue 2b: **Surface water run-off** Existing areas of urban development poorly attenuate flow from rainfall in the catchment and urban pollutants freely enter watercourses at many points throughout the Wey system. Links: 1a, 2a, **3a**, **3b**, 4a, 4b, 4d, 4e, 4f, 4g, 6a.	Bordon, Worplesdon Guildford Woking Byfleet Alton	**Short term** Identify pollutant sources	Canvas river users, LA etc, interogate EA incident archive. List high priority locations. **Thames Water, LA, EA, Developer, AC, LO**	Medium	Low	N/k
		Medium term Mitigate impacts	Target locations with water quality mitigation schemes and measures. Influence appropriate LA, LO, developers etc. Explore solutions through water company Asset Management Planning (AMP) process. Ensure incorporation of Sustainable Urban Drainage Schemes (SUDS) in new development. **Thames Water, LA, EA, Developer**			N/k
		Long term Maintain water quality measures	Assess effectiveness and maintain measures implemented. **Thames Water, LA, EA, Developer**			N/k

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Water quality - Issue 2c: **Diffuse pollution** Linked with land-use, pollutants entering the watercourse, slowly over time, can lead to serious chronic environmental degradation of the river. Sources include sediments, nutrients and chemicals typically derived from farms and golf courses as a result of poor management practices. Links: 1a, 2a, **2b**, **3a**, **3b**, 4a, **4b**, **4d**, **4e**, **4f**, **4g**, 6a.	Wey Catchment	Raise awareness of issue amongst potential polluters. Promote development of buffer strips along watercourse corridors.	Continue to support Wey Valley Project Officer. **Thames Water, LA, EA, Developer, LO**	Medium	Low	N/k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Land use - Issue 3a: **Sediment impacts** The greensand geology of the upper and middle Wey is quite unusual with geomorphological processes involving a very mobile sand particle sediment. This sediment can 'drown out' areas of more productive coarse sediment resulting in reduced biodiversity of flora and fauna and ineffective spawning grounds for fish. Erosion of fresh fine sediment is exacerbated by channelisation and poor attenuation of high flows (poor flood plain connectivity), poor land management practices with bank stability weakened through cattle poaching, lack of tree management and alder disease. Impact of sediment deposition on river ecology is exacerbated by the presence of impounding structures and over-widening/deepening. Links: 1a, **2b**, **3b**, **4a**, 4b, **4d**, **4e**, **4f**, **4g**, 6c.	Wey Catchment, particularly the south branch and downstream.	**Short term** Identify sources of sediment input. Assess impacts.	Review Wey geomorphology study focusing on fisheries habitat issues and links to fish/ecological monitoring results. **EA**	High	High	20k
		Medium term Identify mitigation and enhancement measures.	Influence land-use practice and river management practices positively. Seek reduction of sediment input at high priority locations. Review maintenance of unnecessary impoundments. Develop 'low tech' enhancement opportunities for example, riffle creation and placement of groynes. Consider links with enhancement of floodplain use as a sediment sink. **EA, NT, LA, EA, Developers, LO, AC**			30k
		Long term Establish natural morphology and self cleansing river processes through mitigation and enhancement measures.	Influence land-use practice and river management practices positively. Seek to reduce sediment input at high priority locations. Implement enhancement measures to restore natural river morphology and processes. **EA, NT, LA, EA, Developers, LO, AC**			100k +

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Land-use - Issue 3b: **Floodplain management** Between the pockets of high urban development exist extensive areas of rural/undeveloped land. Flood Risk Management goals to convey water as efficiently as possible through the catchment are not adequately balanced by opportunities to hold back flood flows by actively developing floodplain storage. Improved floodplain functioning will significantly benefit biodiversity, better manage deposition and erosion of sediment (a key issue) and should enhance water resource management as well as ensuring good flood risk practice. Backwater floodplain habitats are extremely valuable for many aquatic species and provide specialist habitats for many life stages of fish and important refuge areas at high flow. Links: **1a**, 2b, **3a**, 4a, 4e, 4f, 4g, 6c.	Wey Catchment	Identify opportunities to restore floodplains and promote wider benefits of floodplain use. Develop and promote links between floodplain function and water resource management to help balance climate change and increasing development pressure. For new developments, seek positive impact for river and floodplain environment. Protect and restore backwater habitats. Implement floodplain restoration schemes.	Continue to support Wey Valley Project Officer. Influence Wey Catchment Flood Management Plan and the River Wey Strategy Report (in preparation) and seek implementation of recommendations to improve river environment. For new development, encompass aims of the Making Space for Water document, incorporate Sustainable Urban Drainage Systems and make use of Planning and Policy Statement 25 to ensure opportunities for enhancement are completed. **EA, LO, LA, Thames Water, Developer, NT**	High	Medium	20k to 100k +

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Species protection - Issue 4a: **Degraded river habitat and impounding structures** Past river engineering works and the existence of impounding structures severely degrades natural habitat diversity and has particular impact on flow dependent aquatic species. Some historic structures are now redundant in terms of their original use yet continue to degrade many kilometres of river habitat through the main river and tributaries. While schemes for low head hydropower generation may be attractive at some locations, this can impact ecology by depleting flow through important downstream habitats and lead to the continuation of upstream habitat deficiency. Links: 1a, 2a, 2b, **3a**, 3b, 4a, 4b, **4c**, **4d**, **4e**, **4f**, **4g**, 5a, 5b, 6c.	Wey Catchment	Identify degraded sections of river and prioritise for enhancement. Restore natural channel profiles and water velocities to self cleanse gravel substrates. Educate on the extensive environmental benefits of removing/lowering impounding structures.	Apply EA river enhancement prioritisation matrix being developed nationally. Incorporate into Wey Flood Risk Management Strategy. Review need for impounding structures. **EA, AC, LO, LA, Developer**	High	High	N/k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Species protection - Issue 4b: **Siltation and eutrophication of stillwaters** The diverse range of stillwaters in the catchment require on-going management to sustain their fishery quality. This issue is likely to be intensified with changing climate. Some stillwater owners/managers may not have the required knowledge or resources to implement appropriate management. Links: 1a, 3a, 3b, **4a**, 4e, 5a, 5b, 5c, **6a**.	Wey Catchment	Maintain of diverse range of high quality stillwater fisheries throughout catchment.	Raise awareness of fishery management advice available. Circulate literature. Use public relations campaign. Development of stillwater enhancement projects. **EA, LO, LA, AC, Commercial Fisheries**	Medium	High	N/k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Species protection - Issue 4c: **Obstructions to fish passage** There are over 200 flow control structures (weirs, sluices, mills etc.) in the Wey catchment, the majority of which present significant barriers to fish migration both up and downstream for all fish species. These fragment habitats and fish populations reduces the potential ecological status of the river system. Improving fish passage, particularly at key locations, throughout the river offers a major step to improving fishery quality and defragmenting habitat. Links: 1a, 3b, **4a**, **4d**, **4e**, 5a, 6b, **6c**.	Wey Catchment	**Short term** Identify obstructions to fish passage and prioritise for improvement strategy.	Commission fish pass improvement study for Wey with reference to Jamieson report on Wey structures. **EA, LO, LA, Developer**	High	High	30k
		Medium term Seek strategic and opportunistic fish pass solutions.	Seek to install fish pass facilities where weir rebuilds or adjacent development opportunities arise. Identify unnecessary structures and consider removal, promoting river restoration benefits. Study impacts. **NT, LA, EA, Structure/Sluice Owners, Developer**			20k
		Long term Establish fish passage at key locations in Wey catchment.	Build fish passes and remove unwanted structures (developing river restoration opportunities). Monitor impacts. **NT, LA, EA, Developer**			100k +

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Species protection - Issue 4d: **Native brown trout** Native brown trout are highly valued natural resource for angling and biodiversity throughout the upper and middle river catchment. They are very sensitive to a variety of pressures from physical habitat alteration and water quality deterioration to angling pressure and genetic dilution through stocking practices. Links: 1a, 2a, 2b, **3a**, **4a**, **4c**, 4e, 4f, **4g**, 5a, 6b, 6c.	Upper and Middle Wey Catchment	**Short term** Inventory of native brown trout populations in Wey . Use Trout & Grayling Strategy as driver.	Review historic data, stocking records and implement additional fish surveys. Classify recruitment status. Apply stocking policy recommendations from Fisheries Management Policy for River Wey & Tribs. (2000) & Trout & Grayling Strategy. **EA, AC, LO, Wild Brown Trout Trust, LA**	Medium	Medium	10k
		Medium term Formulate management plan. Implement measures.	Study to relate native brown trout recruitment to physico-chemical factors. Identify recruitment bottlenecks. **EA, AC, LO, WBTT, LA**			10k
		Long term Enhanced and maintained native brown trout recruitment within Wey catchment. Improved understanding of issue amongst land owners and local authorities.	Implement recommendations from management plan. For example, habitat enhancement projects. **EA, AC, LO, WBTT, LA**			100k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Species protection - Issue 4e: **Importance of conservation and non-angling fish species** There are a number of important river and stillwater species to be found in the Wey Catchment including: brook lamprey, bullhead, barbel, native brown trout, rudd, crucian carp. There is a need to understand and protect their populations as well as recognise their ecological status even though some are less important from an angling point of view. The minor species such as minnow and stoneloach are indicators of habitat and water quality, and represent an important part of the food chain. There are also risks from non-native species such as goldfish which can inter-breed with crucian carp leading to the creation of hybrids and loss of the original species. Links: **1a**, 2a, 2b, **3a**, 3b, **4a**, 4b, 4c, 4d, 4f, 4g, 5a, 5b, 5c, 6a, 6c.	Wey Catchment	Raise awareness of value of vulnerable and non-angling species. Identify important populations and endeavour to protect them. Encourage diverse angling opportunities. Create awareness and risks of unauthorised stocking of non-native species.	Circulate and promote FAP to appropriate audience. Apply stocking policy recommendations from Fisheries Management Policy for River Wey and Tributaries. (2000) **EA, AC LO, LA, Developer**	Medium	High	N/k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Species protection - Issue 4f: **Aquatic insects** There is a perceived decline in the abundance and diversity of aquatic fly life nationally. Understanding invertebrate populations is extremely important, as aquatic insects are a key element in the ecosystem. By monitoring regularly and identifying trends in the numbers and species of freshwater insects, it is possible to detect changes in water quality (for example, following pollution incidents), river flow and habitat. Developing and promoting novel monitoring and enhancement techniques that can be utilised by anglers would lead to an improved network of 'eyes and ears' on the river bank and lead to enhanced aquatic insect life in the river. (See Flylife Project in case studies) Links: **1a, 2a, 2b, 3a,** 3b, **4a**, 4c, 4d, 4e, **4g**, 4f, **5a**.	Wey Catchment	**Short term** Establish a regular monitoring programme for the Wey choosing specific locations throughout the catchment. Establish a database of species and population densities. Identify areas of impoverished fly life. Establish experimental enhancement techniques.	Explore links with Agency Fly Life Project & River Fly Project. Consider potential implications of new Water Framework Directive (WFD) monitoring programme. Promote techniques to all anglers both game and coarse. **EA, AC**	High	Medium	10k
		Medium term Identify limiting factors and produce management plan. Raise awareness amongst farmers and landowners of diffuse pollution issues and how they affect river ecology.	**EA, AC**			15k
		Long term Maintain healthy river insect life throughout catchment.	**EA, AC**			N/k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Species protection - Issue 4g: **Water crowfoot establishment** Anglers have noticed a sharp decline in the presence of water crowfoot in the Wey Catchment. This plant is an indicator of clean flowing water over river gravels. It is possible that increased sediment deposition coupled with low river flows is impacting heavily on this important aquatic plant species. Links: **1a**, **2a**, 2b, **3a**, 3b, **4a, 4d,** 4e, **4f**, **5a,** 5b, 6c.	Wey Catchment	**Short term** Identify status of water crowfoot beds within catchment.	Review river corridor surveys, produce report to assess spatial and temporal status of water crowfoot in catchment. Questionaire to AC. Identify small number of target study sites. **EA, AC, LO**	High	High	5k
		Medium term Understand water crowfoot limiting factors/pressures within catchment.	Review studies on other rivers. Use evidence as driver for improvements. Consider transplanting schemes. **EA, AC, LO**			N/K
		Long term Enhance and maintain water crowfoot abundance within Wey catchment.	**EA, AC, LO**			N/k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Alien species- Issue 5a: **Alien fauna** **Signal crayfish** Since its introduction into this country in the 1970s, the American signal crayfish has become widespread through the Wey catchment. The fungal disease it carries has caused the almost total collapse of the native crayfish populations in the catchment. The Wey now supports an extensive biomass of the signal crayfish which significantly impacts native aquatic flora and fauna and presents a major nuisance to angling. It also has burrowing habits which lead to bank instability. **Other alien fauna** Topmouth gudgeon Zander Wels catfish Pumpkin seeds Grass carp Koi Goldfish Chinese mitten crabs Mink All are non-native species which impact on local populations and affect the natural environment. Links: 1a, 3a, 3b, 4a, **4b**, 4c, 4d, **4e**, **4f**, **4g**, 5a, 5b, 5c, **6a**, 6c.	Wey Catchment	Reduce size of signal crayfish population. Control introduction and spread of alien fauna and promote best management practice.	The Wey to form part of a strategic review of non-native crayfish which will include distribution mapping. Regional research and development project looking at ecological impacts and effectiveness of trapping to inform Good Practice. Distribute early warning leaflets to waterbody owners and managers and to appropriate trade outlets. Develop public relations campaign to spread awareness of the issue. **EA, LO, LA, NT, NE**	High	High	N/k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Alien species - Issue 5b: **Alien flora** **Floating Pennywort** is an alien species that has established population in the catchment. It is likely to have originated from careless disposal following purchase though the aquatic pet trade. It has since been discovered that this is a highly invasive species and is having a significant impact affecting waterways, recreation, flood defence and ecology. Once in the wild environment, it is extremely difficult to control effectively. Other alien flora: Himalayan balsam Japanese knotweed Parrot's feather Australian stonecrop Water fern (Azolla) All are invasive non-native species, which impact on local plant populations and affect the natural environment. Links: 1a, **4a**, **4b**, **6a**, **6c**.	Wey Catchment	Control introduction and spread and promote sensible management.	Education of the general public that they have a responsibility when disposing of non-native species. Educate garden centres and pet trade that they have a responsibility when selling such plants. Distribute information leaflets to appropriate outlets. Distribute early warning leaflets to waterbody owners and managers and appropriate trade outlets. **EA, LO, LA, aquatic pet and garden trade, NE**	Low	Low	1k

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Alien species - Issue 5c: **Cormorants** Cormorants are an increasing problem on all freshwater fisheries where they prey on coarse and game fish and they can quickly decimate stocks. However, finding effective ways of controlling these predatory birds particularly on rivers is not easy. There are a number of methods for stillwater fisheries, which have had some success. Deterrents may not be effective or practical and killing some birds (under licence) as an aid to scaring may be necessary at some sits. Links: 4b, 6a.	Wey Catchment	**Short term** Inventory of key cormorant locations. Improve reporting/licence application.	Use questionnaires to identify fisheries where impacts are perceived significant. Support Cefas research into use of refuges. Promotional campaign and support to fill in Defra application forms. **EA, AC, LO, Commercial Fisheries, Cefas, NE**	Low	Low	5k
		Medium term Reduced impact of cormorants at key fisheries.	Implement control measures and/or mitigation measures (for example, install refuges/large woody debris). Refer to Cefas work. **EA, AC, LO, Commercial Fisheries, Cefas, NE**			50k
		Long term Sustainable fisheries throughout catchment.	On-going control and mitigation **EA, AC, LO, Commercial Fisheries, Cefas, NE**			50k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Recreation - Issue 6a: **Promotion of angling participation on local authority owned stillwaters** There are a number waters in the catchment that are not realising their potential due to poor management and lack of understanding of angling benefits. Angling is a healthy recreation and its enjoyment and availability, especially to the young, is proven to have extensive social benefits to the community. Links: 2b, 4a, **4b**, 4e, **5a**, **5b**, **5c**, **6b**.	Wey Catchment	**Short term** Raise awareness of angling benefits for the community.	Circulation of FAP document. Named representatives for angling promotion on at all LA. **EA, LO, LA, Developer**	Medium	Medium	N/k
		Medium term Improved local authority owned angling facilities.	Training and coaching of LA staff. Development of angling partcipation events. Explore leasing of waters to local angling clubs. Development of stillwater enhancement projects. **EA, LO, LA, Developer**			N/k
		Long term Widespread, diverse and high quality sillwater angling opportunities for all within catchment.	Development of stillwater enhancement projects. **EA, LO, LA, Developer**			N/k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Recreation - Issue 6b: **Access conflicts** Anglers, canoes, motorboats, towpath users. The main areas for conflict are likely to occur on the sections of the navigable waterway rather than the non-navigable natural sections. Links: 6a, 6c.	Wey Catchment	Raise awareness of benefits of multi-user initiatives. Improved communication between groups.	Identify areas where conflict occurs. Raise awareness of where user groups have different access rights. For example, canoeists using the non-navigable natural sections of river. Communication initiatives at specific locations. **EA, LO, LA, NT**	Low	Low	N/k

Issue	Location	Target/Objective	Actions and responsibilities	Significance	Priority for FAP action	Estimated cost
Recreation - Issue 6c: **Navigation impacts** The navigation allows thousands of people to access the waterway every year both along the towpath and by boat and these people undertake a variety of different recreational activities. The navigation is optimally managed and the objectives for this in many cases are well aligned with environmental aspirations, however, the waterway infrastructure and its management can have a number of negative impacts on the River Wey. Issues relating to flow share, impoundment, barriers to fish movement and access conflicts are covered in Issues 1a, 4a, 4c, and 6b. Additional impacts include those on water quality through increased turbidity and hydrocarbon spillage; boatwash, erosion and bank protection; infrastructure developments such as mooring facilities and effects of dredging on the river environment. Links: **1a**, 2b, 3a, 3b, **4a**, **4c**, 4e, 4f, 4g, **5a**, **5b**, **6b.**	Wey and Navigation	Ensure no detriment to environment from navigation. Seek to employ best practice mitigation measures where feasible. Wey Navigation managed optimally for the river environment it impacts.	Incorporate mitigation and enhancement measures in management and development of navigation infrastructure. **NT, LO, LA, EA**	Medium	Low	N/k

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