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Consultation on River Basin Planning Guidance 2
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Dear Sir/Madam

Consultation on River Basin Planning Guidance Volume 2

The Water Services Regulation Authority (Ofwat) appreciates the opportunity provided by Defra to comment on the River Basin Planning Guidance (Volume 2) consultation documents.

The water sector, in particular privatised water and sewerage and water-only companies in England and Wales, contribute to the pressures identified during the ongoing implementation of the Water Framework Directive (WFD). These comprise chiefly water quality and quantity pressures. Ofwat's role as the economic regulator of the water and sewerage sector is to protect consumers, promote value and safeguard the future. As such, we welcome the opportunity to express our views on an issue of significant interest to the companies we regulate and their bill paying customers.

Our response to this consultation is structured around the specific questions raised. The focus of our comments is on the areas with which the water industry is principally concerned, namely water resources and sewage treatment.

We are responding as Ofwat, and also as chair of the water industry preliminary cost-effectiveness analysis (pCEA) working group and have included comments from members of the group in this document.

You seek respondents' views on a number of consultation questions. We present below our responses to the specific question areas and also our general observations and queries.

Standards (questions after paragraph 65)

1. *Do you agree that the Secretary of State and Welsh Ministers should adopt all the new standards and environmental conditions limits recommended by UKTAG?*
2. *Do you agree with the approach to use the standards in classification and within the regulatory regime?*
3. *Is the UKTAG classification guidance on how to report water body status (including the confidence in our classifications) adequate?*
4. *Do the proposals in the UKTAG classification guidance adequately explain why a classification will not necessarily lead to a programme of measures?*
5. *Are the consequences of the standards proposed by the UK Technical Advisory Group adequately reflected in the measures that have been identified in the Impact Assessment (as a result of the preliminary Cost-Effectiveness Analysis?)*

We have serious concerns that the proposed UKTAG in-river standards are over-precautionary and have been set with a limited evidence base and no direct assessment of ecological impact. Setting the correct standards is crucial; they are the key criteria that will drive the scope and pace of the Programme of Measures. However, some of the stringent standards that are being proposed are very challenging to achieve and will need extensive work by all sectors to deliver. For example, we still have concerns that the proposed standard for phosphorus is overly stringent and consequently may lead to the implementation of unnecessary remedial actions in some catchments. The UKTAG standards¹ include a 120 µg/l (0.12mg/l) limit for soluble reactive phosphorus in rivers; this would be one of the most onerous phosphorus standards in Europe. We have serious concerns whether this is a sustainable option given the reliance on chemical dosing or energy intensive methods of treatment that this standard would entail.

Measures should ideally be informed by the health of the biological communities rather than mechanistically by chemical parameter. Chemical parameters are important but, so far, there appears to be limited evidence on the sensitivity of ecosystems to variations in specific environmental conditions. To justify investment we require companies to quantify the environmental benefits of the proposed work as part of their cost-benefit analysis (CBA) work. Therefore, we consider that it is imperative that more work be undertaken around sensitivity and precision before such tight standards are introduced.

¹ Reference: Table 10a (Standards for phosphorus in rivers) on page 29 of the 'UK Environmental Standards and Conditions (Phase 1) Final Report April 2008'. Online at: http://www.wfduk.org/UK_Environmental_Standards/ES_Phase1_final_report/LibraryPublicDocs/UKTAG%20ReportAug%202006UKEnvironmentalStandardsandConditionsFinalReport

We understand there was considerable uncertainty concerning particular standards and the dependency of specified ecosystems on the values, particularly of chemical parameters. Therefore, there should be the opportunity in the River Basin District (RBD) planning cycle to establish sensitivities of these ecosystems and the range of parameters, both individually and in conjunction with each other, for them to be healthy and sustainable.

Following the Ribble Pilot River Basin project, modelling has been carried out in the Yorkshire region assessing the compliance against the UKTAG standards for phosphorus, ammonia and BOD. The results of these, as reported by Yorkshire Water, are summarised in Appendix 1.

To provide certainty of benefits, measures should only be introduced where there is clear biological evidence of an impact from breaching the standard. And in this context, we consider that it would be worthwhile identifying pilot areas in the first RBD planning cycle to allow real-life extensive investigations to take place. This would help to ensure that future Programmes of Measures were more targeted and delivered more of the environmental objectives.

Objectives (questions after paragraph 85)

6. *Should the guidance advise the Environment Agency to indicate levels of certainty with objectives?*

The ten principles² of River Basin Planning which Defra and the Welsh Assembly Government (WAG) consider the Environment Agency (EA) should take into account when carrying out its river basin planning responsibilities include 'setting out a clear, transparent and accessible process of analysis and decision making' and also 'seek to be even-handed and transparent in the management of uncertainty'.

In this context, we believe that the Programmes of Measures should indicate levels of certainty with objectives, particularly those relating to protected areas (eg those under the Habitats Directive and those relating to Drinking Water Protected Areas).

Where there is insufficient certainty or confidence, local investigations will be important in order to firstly properly identify the problems and then specify the most effective solution, both in terms of cost and the environment.

² Defra and WAG River Basin Planning Guidance (August 2006, reference PB12116).
Online at <http://www.defra.gov.uk/environment/water/wfd/pdf/riverbasinguidance.pdf>

7. Should the guidance advise the Environment Agency that its preference should be to extend deadlines rather than setting less stringent objectives, where there is a choice between the two?

We fully support the promotion of Option 2 - the phased approach. We appreciate the approach taken with regard to addressing uncertainties and seeking to avoid abortive costs, work and subsequent carbon implications by the phased approach incorporated into Option 2. This seems to be a balanced and pragmatic approach.

If applied in a timely and focused way this option could help deliver 'no-regrets', cost-effective and sustainable investment. It should allow the EA and other deliverers to fine-tune the development of the Programmes of Measures which should be evidence-based to ensure that there are the commensurate improvements in the environment. We also agree that Option 2 is likely to be more effective over the long term than Option 1 because it provides for measures to be tailored to local conditions.

Adopting a phased approach would allow time for innovation to take place. Since there is uncertainty regarding the science surrounding some of the proposed projects it is essential for the water industry that investigations are undertaken prior to the delivery of some of the engineering schemes. We believe that the phased implementation will allow a more robust longer-term planning framework to be developed which, in turn, will increase future certainty, allow time to develop innovative solutions and ultimately deliver more sustainable outcomes both for the companies and their consumers.

The implementation of the most cost-effective solutions initially, combined with a comprehensive monitoring programme, would allow for the in-river effects of reductions to varying concentrations to be observed on the ecological status of the water body. This will ensure that any further investment is targeted to the most beneficial schemes and investment is in line with ecological needs as opposed to simply meeting stringent chemical standards.

Paragraph 84 of the Guidance states that comprehensive monitoring only started in December 2006, and several years of data is needed before sound decisions can be made. This is certainly true for the water industry. For example, in relation to improvements to reduce nutrients/chemicals, companies have confirmed that there is still a significant Freshwater Fish Directive (FFD) programme to complete in AMP4³ and they do not yet know how much further beyond that programme will be needed to meet the good ecological status. It would therefore be prudent to have a period of monitoring following these improvements. Companies already know of cases where rivers have improved to such an extent that salmonid fish are thriving,

³ Asset Management Plan - this is a water company's detailed description of its investment plans for its assets. AMP4 covers the period 2005-10.

even before the FFD schemes to provide that same improvement have been built. This is likely to be indicative of either precautionary models/consents and/or the lag time in the analysis of river water quality for chemical and biological indicators.

Policy trends (questions after paragraph 98)

8. *Do you agree with the summary, from the WRc report, of policy trends that should be considered in river basin planning?*
9. *What, if any, further work should be done for England and Wales to improve confidence in the trends in urbanisation, industry and transport?*

We believe that flexibility within river basin planning and objective setting is vital. It will ensure that the objectives set in each RBMP are achievable and affordable; and the RBMPs are able to consider major and strategic trends, drivers and issues affecting the water environment.

In terms of further work, it will be important to fully understand the potential carbon dioxide equivalent emissions resulting from the additional power consumption and sludge production that the potential water industry investments could drive.

Through modelling work for the pCEA and in preparation for PR09 one of the water and sewerage companies (WaSCs) explored future carbon emissions in relation to applying all proposed WFD standards. Results indicated that their carbon emissions would increase by around 50% (best case) due to the energy intensive nature of the technology required for reduction of organic substances. And even if the impact were to be restricted to the two key priorities of phosphorus reduction and ammonia reduction, there would still be a significant carbon dioxide impact. The potential obligations arising from the WFD could therefore conflict with the need to reduce carbon and the impact upon climate change.

The Environment Agency has a duty to protect and enhance the quality of the water, land and air environment. Energy intensive, and often costly, solutions should not be adopted without significant thought being paid to the disbenefits of the increased carbon emissions associated with them. With carbon emissions increasingly on the political agenda, and the introduction of the Carbon Reduction Commitment, it would be perverse indeed if industry, including the water companies, is required to implement these energy intensive measures unless it can be proven that they are the most cost-effective and sustainable solution.

The water industry expects to continue to improve on its estimates and understanding of both power consumption and total carbon footprint towards PR09 and throughout the AMP5 period. In this context, the guidance should direct the Environment Agency to consider the carbon costs for the water industry and other sectors when applying the guidance and setting standards. In particular if the current cost of carbon is used in assessments of disproportionate cost, it is

important to recognise that as these costs are small it will be difficult to make arguments against such investment. The guidance must also take into account the impact on trends such as climate change and resulting increased pressures over time.

Welsh Questions (questions after paragraph 98)

10. *Should the Welsh Ministers include further high level messages in this guidance to the Agency? If so, what do you suggest that it should say?*
11. *Should the Welsh Ministers guide the Environment Agency to consider specific scenarios in Wales? What are your views on the scenarios that should be explored?*

We support the ability for Welsh Ministers to make high level messages if they wish. However, we believe that, where possible, a consistent approach to the implementation of the Directive is at least as important.

The 'M3b' (national with regional input) and 'M4' (regionally led) new WFD measures should, where practicable, be based on local RBD-based actions and take account of local factors since there is such variability in the sources of the main pressures (nutrients, chemicals etc.) reaching any particular water body. This should apply to both England and Wales.

The 'M3a' measures should, as far as possible, be introduced at a national level to ensure consistency across England and Wales. For example, for controls on phosphates in domestic laundry cleaning products, the County Councils/Unitary Authorities (who could be charged with implementing the ban if controls were to be applied at a regional level) and the sewerage companies do not have boundaries that align and this is very likely to add complexity to applying this type of control at anything other than a national level.

A particular consideration for the water industry is that Dŵr Cymru Welsh Water, Severn Trent Water and Dee Valley Water all have boundaries that cross between England and Wales, and could therefore potentially raise issues of jurisdiction if there were to be conflicting messages in the guidance for the two constituent countries.

Technical infeasibility (questions after paragraph 128)

- 12. Are these the right grounds for justifying an alternative objective or defence on the grounds of technical infeasibility?*
- 13. How should we interpret the term 'infeasible' when compared with 'technically infeasible'? Can you give examples of cases where it is not 'technically infeasible' to reach an objective, but it is 'infeasible' to do so.*
- 14. Does the national evidence of technical infeasibility highlight the right list of problems - or should something be added or removed?*
- 15. What further data and research is needed to overcome technical infeasibility in these cases?*

In general, we agree with Defra and WAG's assessment of 'technical infeasibility'.

We support the view that the greater the effort expended in trying to overcome issues of a technical nature, the greater the need for the EA, and other stakeholders, to consider the costs and benefits alongside technical feasibility. Similarly, where the benefits resulting from achieving an objective would be substantial, a much higher degree of effort to find a technically feasible option is likely to be appropriate than where the benefits of an improvement are expected to be low.

We also support the view that where it is technically infeasible to achieve a WFD objective, the EA should ensure that action is taken to improve technical feasibility (eg by monitoring or research to increase understanding of the problem). It is also essential for the cost-effective attainment of improvements that a scientific approach is taken, rather than looking to put Programmes of Measures in place by unrealistic deadlines. We do not believe that Programmes of Measures should be taken forward where the standards of a determinand are below the current limits of detection unless a significant benefit to the environment would be observed due to the reduction in the in-river concentrations.

In the context of the major pressures on surface and ground waters, it will be important to have a common decision-making framework for assessing when the Directive's technical infeasibility tests may be met.

Disproportionate cost (questions after paragraph 187)

16. *Is it relevant to take account of distributional issues when justifying use of an alternative objective or defence on the grounds of disproportionate cost?*
17. *If so, do the four distributional arguments cover all the relevant issues? Are they double counting some issues?*
18. *Do we have the right checks and balances on the use of distributional arguments to avoid them being applied incorrectly? (For example should we require an analysis of the benefits of avoiding distributional consequences given the benefits of meeting the default objective)*
19. *Are there alternative funding approaches or mechanisms which would help reduce or avoid adverse distributional consequences?*

We welcome the guidance on disproportionate costs and largely agree with what is currently being proposed. We particularly welcome paragraph 151, which states:

“In general something should be considered to be disproportionate where the negative consequences (compliance costs, impacts on non-water outcomes, distributional issues) outweigh the positive consequences (benefits of water status improvements)”.

This aligns with the basic decision rule for CBA that the net present value (NPV) of investment should be positive (or strictly non-negative). However, this rule must be used appropriately dependent on the level of the analysis it is being applied to:

- At individual scheme level the rule follows the basic principle that the NPV of investment is positive;
- At strategic level the rule applies at the margin ie invest up to the point where the NPV of the marginal investment is greater than or equal to zero.

Any interventions that fail the basic test (ie have a negative NPV) are therefore disproportionately costly. This will help deliver the economically efficient level, by ensuring investment does not go beyond the level where the NPV of the marginal investment is greater than or equal to zero.

We agree that distributional issues⁴ are an important factor when assessing disproportionate costs and wish to ensure the impacts considered properly take

⁴ Examples of distributional arguments are:

- adverse consequences for vulnerable or disadvantaged social groups;
- deviation from the Polluter Pays Principle;
- the affordability of the improvement for those who would have to pay, taking into account the characteristics of the economic sector concerned; and
- the scale of recent investment in environmental improvements already made by those who would have to pay.

account of all relevant issues. Our main concern lies with the affordability of increases in water bills to vulnerable customers. There are potentially large increases to water bills and these will have a significant impact on lower income households. The benefits survey work identified a much higher mean than median, which resulted from the difference in valuations from those in higher income groups compared to those in lower income groups. We are concerned that ignoring these issues will benefit higher income groups at the expense of those on lower incomes.

It is also essential that differences in regional preferences are highlighted when deciding on schemes which are disproportionately costly. The benefits survey estimated values at the national level and did not fully consider regional differences. It is ironic that the benefits assessment surveys did not include any South West Water consumers. Consumers that have the highest water and sewerage bills in England and Wales may have the lowest willingness to pay values due to the impact of bills on disposable income. These values may not align with those estimated at national level.

Where a water company's willingness to pay work identifies a lower level of optimal investment on environmental quality we would expect these to be used to assist in identifying whether an intervention is in line with the preferences of the customers that will be impacted by the bill increase.

We believe there are sufficient checks on the way disproportionate costs will be applied. However, we are concerned that there are no checks to ensure schemes considered to be disproportionately costly under the WFD are not attempted to be pushed through under other Directives that do not have the disproportionate cost element within them. For example, there is a danger that the Habitats Directive could be used to drive through much WFD-related work since it does not include a cost-effectiveness criterion, and therefore the water industry may be forced to undertake the work irrespective of cost.

Impact Assessment

20. Does the Impact Assessment represent a fair picture of the expected costs and benefits and other consequences of the options?

21. Are there costs or benefits which have not adequately been accounted for or estimates which could be improved given readily available information.

We do have reservations that only some of the costs have been considered; social and environmental costs appear to have had insufficient consideration, furthermore the carbon cost does not feature strongly. Fuller consideration might well affect the reported rankings.

We reiterate our concerns expressed in response to the previous consultation that the benefits have been overestimated. For example, the survey concentrated on a single issue, which is shown to lead respondents to overestimate their valuations by failing to fully consider the wider impacts on their budget. We are also concerned that the baseline used in the benefits survey considerably overstated the proportion of river basins that are of poor quality. These figures used conflict with other river quality data on the EA's website. This will have led to significant overestimates in the values placed on the benefits. If there are any alterations to the baseline then the benefits estimates need to be reduced accordingly. However, we agree with the conclusion that there is no evidence that there will be direct market benefits from the WFD.

On a wider point, we also have some concern over how the benefit of measures will be measured going forward. The proposed environmental standards are in the main precautionary; similarly the River Basin characterisation is risk-based and largely theoretical. If investment is to be driven by perception of risk and on a precautionary basis in the absence of sound scientific data, then with application of 'no-deterioration' principle, it is possible to have ongoing commitment to significant chemical and energy use with no tangible benefit.

For this reason, we strongly urge that the characterisation exercise is supported by extensive real-world monitoring for baseline conditions, before any investment is planned, and that a commitment is made to review the benefit of installed treatment at regular intervals; again based on real world data.

General observations relating to the Impact Assessment (IA)

National level overview (IA, Key Assumption/Sensitivities/Risks)

We appreciate that an overview at the national level demonstrates an improved cost benefit for Option 2 when compared to Option 1; however, we are still unclear how this fits with the aspiration to have quality-driven objectives from the river basin planning process. This exemplifies the difference between top-down and bottom-up

approaches and could create future difficulties when specific catchments are being considered in the Programme of Measures. Page 5 explains that the costs included for Option 1 are based on national estimates and will be further refined in the individual Impact Assessments at the River Basin District level. Presumably this applies for Option 2 as well? There is so much variation between the River Basin Districts that these may give rise to very different approaches and outcomes from those assumed at the national level.

We are also concerned that an incorrect interpretation of the 'economic' level is being used, which is potentially leading to an inefficient allocation of resources. It is essential that benefits and costs are not just taken to be an overall national comparison. If total costs and total benefits are approximately equal (as is the case with Option 2) then customers are indifferent between the current situation and the proposed work. A Programme of Measures that maximises benefit relative to cost, where marginal benefits = marginal costs, is the optimal level. Anything beyond this point counteracts the benefits from any work that is cost-beneficial, thus is disproportionately costly. Concentrating solely on the overall level does not highlight that the additional benefits from schemes that are highly cost-beneficial are counter-balanced by those that are not, thus the programme as a whole is neutral, as demonstrated in Option 2.

Optimism bias (IA, page 5, Key Assumption/Sensitivities/Risks)

It is not clear to us why a 0% optimism bias has been used in the Impact Assessment. We accept that there is scope for costs and benefits to be underestimated as well as overestimated and consider that a confidence limit should be applied to the costs. Assuming that some costs are underestimated it is unlikely to balance out exactly with the overestimation and it would be beneficial to know within what confidence these costs are stated, particularly in relation to the water industry pCEA costs which had significant confidence limits in place.

This explicit adjustment procedure was introduced in the Green Book in an attempt to redress the systematic optimism that historically has afflicted appraisal processes. The Green Book explains that there is a demonstrated, systematic, tendency for project appraisers to be overly optimistic. Many project parameters are affected by optimism; appraisers tend to overstate benefits, and understate timings and costs, both capital and operational.

In terms of the WFD estimates, there is general agreement among the different sectors that the cost and benefit figures are subject to considerable uncertainty. However, the IA states that the costs are as likely to be underestimated as overestimated, and on that basis the latest headline figures include an allowance for optimism bias at 0%. Although the report says that more information on biases will be available during the preparation of the individual RBP impact assessments, we believe that it is still important to use this adjustment procedure at a national level in order to highlight the tendency to overstate benefits and understate timings and

costs. A zero per cent optimism bias suggests that the potential for differences in the estimated and actual figures is not being openly acknowledged.

Sustainable Urban Drainage Systems (IA, page 21, table 1: summary of measures)

Sustainable Urban Drainage Systems (SUDS) are proposed as a measure for Options 1 and 2. However, we believe that there are a number of requirements that need to be fulfilled for their effective implementation; not least an understanding of the long-term capital and operating cost implications of these assets, whoever is responsible for their ownership and maintenance. There may also be a need for new legislation to clarify aspects of their use.

Impact on small firms (IA, page 45, section 6.10)

We note that in the 'Water companies' sub-section of section 6.10 the guidance says that 'as a regulated sector, the water regulator Ofwat should be able to ensure that (these) smaller firms do not take on a disproportionate share of the costs'. This is referring to water only companies incurring costs for measures relating to water resources and morphology, and the fact that the costs are likely to vary widely across regions, with companies in water scarce areas incurring higher costs.

Ofwat aims to ensure that charges are fair and equitable. Customers who receive similar services in similar circumstances should pay similar charges, and charges should be transparent and broadly cost-reflective. However, we do not envisage cross-subsidies across company boundaries. Any differences in charges should properly reflect differences in the efficient costs of water supply and sewage disposal. To support this principle we encourage and support long-term planning for increased metering and a variety of tariff options that meet consumers' needs. We will encourage innovative, affordable and sustainable solutions within the water industry and we are developing our regulatory policies to that end.

Affordability (IA, pages 57/58, section 10.4 Affordability)

There appears to be an error on page 58 in relation to the estimated median bill impact for Option 1: '£1 for water resources measures' should read '£15 for water resources measures'. This is calculated as 42% (rounded down) of the £36.50 for water resources measures estimated for Option 1 (page 37 of the IA document).

Conclusion

In general, we are in agreement with the aims of the proposed phased option. We are pleased that the Guidance highlights the long-term nature of the options and also acknowledges that there is currently very limited information on the benefits of WFD improvements. As the Guidance and Impact Assessment acknowledge, there remain major knowledge gaps and other uncertainties in many areas. As such, the estimated costs and benefits identified in the pCEA need to be refined following further monitoring and research to a level sufficient to reach properly informed decisions.

In view of the level of uncertainty of costs, benefits and what could be delivered, we believe that the phased approach (Option 2) is the sensible and most prudent way forward. This option would allow for the necessary site-specific investigations, monitoring, and hence evidence gathering, including where appropriate, pilot projects to determine effectiveness, before implementing measures on a wider basis. We agree that Option 2 provides greater certainty about achieving WFD objectives by 2027, because of the greater use of monitoring and investigations, allowing for better targeting of the measures included. It would also help to provide a framework for long-term planning and sustainability, which is in line with the Government's approach on water industry and flood planning.

We do have concerns that the top-down approach being considered may not align with the bottom-up River Basin District driven outputs and risk a discrepancy between the predicted and actual costs/measures. This is highlighted by the issues noted that Option 2 is dependant on feasibility and proportionality that will have to be demonstrated if alternative dates/targets are to be used.

It will be important to secure application of the WFD Article 4 provisions for setting less stringent objectives or extended deadlines on grounds of disproportionate costs or technical infeasibility. Where it is technically infeasible to achieve a WFD objective, the EA should ensure that action is taken to improve technical feasibility eg by carrying out monitoring or research. We believe it is essential that there is active monitoring and research into the problems and potential solutions to ensure delivery of WFD objectives, particularly those for protected areas.

Where a need for an improvement to be undertaken by a water company has been determined (by investigations, monitoring or otherwise), it will then be vital to ensure that there is:

- adequate consumer support for the improvement as demonstrated by willingness to pay;
- an indication of the priority consumers attach to it;
- evidence that the proposed solution is cost beneficial; and
- a clear and measurable output.

In addition, it is essential that climate change impacts are taken into account in the river basin planning process. The implementation of the Water Framework Directive will result in increased greenhouse gas emissions and consequently the guidance must direct the EA and other deliverers to consider the carbon costs for all sectors when applying the guidance and setting standards.

Finally, we have concerns that the possible costs for good ecological potential (the target for heavily modified and artificial water bodies) have not been separately identified in the Impact Assessment. It is also not clear how the cost benefit analysis work will be undertaken for the potential measures associated with these water bodies, and to what standard (ie will it be undertaken to a similar standard as for good ecological status?).

We look forward to the opportunity to comment on the proposed measures to be taken forward for implementation of the WFD when the draft River Basin Managements Plans are put out to consultation. Should you wish to discuss any aspect of this response, please do not hesitate to contact the undersigned.

Yours sincerely

Kevin Ridout
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Ofwat

Appendix 1

UKTAG standards - modelling in the Yorkshire region

Following the Ribble pilot, Simcat⁵ modelling has been carried out in the Yorkshire region assessing the compliance against the UKTAG standards for phosphate, ammonia and BOD. The results of these are summarised below.

Phosphate

- Overall, the results show that even with the consents for virtually all sewage treatment works (STWs) set at current best available techniques (BAT) limits (ie 1 mg/l) there are widespread failures of the UKTAG phosphate in-river water quality standards, with over 48% of the water quality sample points not meeting the relevant targets.
- In order to challenge the UKTAG standards we propose that an outcome should be a robust programme of investigations. Investigations in AMP5 (RBMP1) should focus on comparing current ecological status with observed phosphate data, and further investigations (biological/modelling) must be carried out to determine if there is a problem, and if extended phosphate removal would result in ecological benefits.
- Currently the EA has the facility to issue seasonal consents. It is recommended that the guidance to the EA explicitly promotes the option of setting seasonal consents for phosphate, as the biological effect on, for example, fast flowing streams in winter is likely to be negligible, and any such consent would drive cost with no commensurate benefit.

Ammonia

- The BAT final effluent standard is currently 3 mg/l for ammonia, as per the EA's formal PR09 guidance. Water quality modelling confirms that UKTAG in-river water quality standards below 1 mg/l cannot be met in urban areas, and in some cases not without reducing diffuse pollution.
- We suggest that compliance against the in-river water quality standards in the existing Freshwater Fish Directive should be achieved in River Basin Management Planning cycle 1 (RBMP1) and will contribute towards the standards determined as suitable through investigations during RBMP1 to be applied in RBMP2, as proposed in the Impact Assessment (Option 2).

⁵ The Environment Agency's mathematical river water quality model. The model utilises the Monte Carlo Simulation approach to mix discharges and diffuse inputs with river waters and then routes flows in the river down through the catchment, applying water quality transformation processes en route. Hence, SIMCAT is able to predict flow and quality distributions at any selected point in the catchment and produce results as statistics for comparison with specific river quality standards.

Specific Pollutants

- Current standards for specific pollutants have been in place for several years and there have been no drivers to tighten them due to no adverse environmental impact being observed. The WFD introduces theoretical standards with safety factors, which are much more stringent. In some cases measurement of compliance is not possible as the standards are below the limits of detection (eg for cypermethrin).
- The standards proposed are precautionary, and companies remain concerned that the Environment Agency are not undertaking the science work required to determine appropriate standards, which will consider the economic and carbon impact on the water industry.
- Without such science work, it is clear from the requirements of the WFD that a precautionary approach would be adopted, which in turn could drive investment of poor value in the water sector as previously indicated in our pCEA submission. For this reason a phased approach fully utilising Article 4 of the WFD should be adopted to allow the water industry to carry out investigations to test and monitor the applicability of the standards in the RBMP1.