www.blueprintforwater.org.uk

Blueprint for Water response to the UKTAG consultation on Phosphorus and Biological standards

1. Introduction

These comments are set in the general context of ongoing threats to both the freshwater and marine environments in which:

- a very large proportion of all types of water bodies have nutrient levels which are known to damage ecosystems;
- in the lowlands, available evidence indicates that c. 90-95% of all waterbodies (ponds, rivers, stream, lakes) have biologically damaging levels of nitrogen and phosphorus;
- nutrient sensitive biota have been eliminated from large parts of the freshwater environment;
- only 43% of coastal waters and 14% of estuaries were of good ecological status potential or better as of 2009, and phosphorus is a significant factor in the failure to meet the full aspirations of the Water Framework Directive (WFD).

The review of phosphorus standards is largely based on what we expect to happen if we control phosphorus in rivers, rather than what has actually happened following phosphorus reductions. This highlights the urgent need for good data on the benefits of controlling phosphorus in running waters. Given the very large investments which are potentially being made, there is a major need for practically-orientated research to assess the effects of nutrient reduction programmes.

There is currently clear evidence from worldwide scientific literature that uncontaminated water with naturally very low levels of phosphorus is likely to be in biologically good condition. This evidence is often overlooked in policy making.

2. Phosphorus standards for rivers

Principle 1: The UK Technical Advisory Group on the Water Framework Directive (UKTAG) recommends that new site-specific phosphorus standards for rivers are adopted based on a new model of the relationship between biology and phosphorus concentrations.

The revised phosphorus standards are a welcome development reflecting more realistically the levels at which phosphorus in rivers are likely to be biologically detrimental.

It is hard to overstate how little phosphorus is naturally present in freshwaters, and how vastly in excess of that level most waters are. More generally, we believe it is a vital part of ensuring no-deterioration that we should bear down on risk factors, such as excess nutrients.

In this respect, the review has made some important progress and we agree with the phosphorus standards proposed. We are pleased to see continued development and refinement of biological methods. However, we have substantial concerns in several areas which mainly relate to the application of the standards.

Principle 2: The UKTAG suggests that the proposed new default phosphorus standards for rivers are adjusted to take account of observed local biology (referred to below as adjusted standards)

The proposal that phosphorus will automatically be assumed to be non–problematic when below Good status, where overall biology is considered of Good Status (or High), is **unacceptable**. In some instances, few biological indicators have been tested to determine overall biological status, and therefore this assumption with respect to phosphorus is potentially misleading. This is not a precautionary approach, and assumes too much understanding of the impact of phosphorus on biology.

Specifically, we are **very concerned** by the idea that the phosphorus standard can be weakened to allow higher phosphorus concentrations in the water on the basis that overall biology is currently Good. There is insufficient evidence about the relationships between running water chemistry and biology, not least because there may be a significant time-lag between enrichment and plant response or other factors that may shift triggering the response.

As a result, the proposal is not precautionary and risks setting standards which allow for significant ecological deterioration.

This approach also appears to be abandoning the 'one-out, all-out' rule. This would represent a substantial philosophical change to the approach adopted under the WFD, and one which is neither protective for the aquatic environment nor legally compliant.

Finally, high levels of anthropogenic sources of phosphorus in rivers will present a significant challenge to meeting the requirements of Descriptor 5 in the Marine Strategy Framework Directive, the aim of which is to reduce human-induced eutrophication in marine waters, and which specifically mentions that the concentration of nutrients in marine waters is related to nutrient loads from rivers.

Question 1: Should the recommended new default standards be adopted as the basis for assessing status, decisions on whether or not to allow new discharges and identifying the likely scale of improvements that may be needed at existing discharges?

Yes, in light of our response to Principle 2, we believe that there should be an assumption that default standards should be used in classification and decision-making, unless there is compelling evidence that the water body in question is less sensitive to enrichment. This would maintain the integrity of classification and ensure a precautionary approach is being taken with regard to environmental protection.

Question 2: Should adjusted standards be used to assess status and take decisions relating to discharge control?

No, for the reasons given in our response to Principle 2 and Question 1.

Question 3: Should default standards be adopted as the basis for assessing status and decisions relating to new discharges and adjusted standards used, where applicable, when planning improvements at existing discharges?

No, unless there is site-specific evidence to suggest investment or regulation to reduce phosphate concentrations to default standards would represent wasted effort. Thus, the onus would be placed on planners to provide a weight of evidence that damage would not be done if site-specific standards were applied.

a. **Other comments**

   i. **The revision of the diatom baseline**

We welcome the improvement and refinement of the diatom reference conditions (Kelly *et al*., 2012).[1]

However, it is essential that we can be confident that diatom baseline is correctly defined as it has a fundamental impact on the way we classify rivers. Diatoms are one of the most sensitive markers of the impacts of nutrients on the water environment, and are therefore highly valuable in assessing the level of impacts on rivers. There is some danger that a current tendency to dismiss them as unimportant microscopic green slime, of no practical importance, is failing to recognise their role as indicative of ecosystem integrity.

Critical to the effective implementation of the WFD is the correct description of reference conditions. This requires that the sites chosen as references at least fulfil the criteria put forward by Pardo *et al*. (2012).[2] However, we are **concerned** to find that the England and Wales samples have not been subject to this procedure due to lack of resources.

Given the comparatively small amount of funds needed to do this work, compared to the large financial and biological implications of the adjustment of the standards, we think it is **essential** that the full criteria for reference conditions are undertaken.

SEPA samples used to define diatom reference conditions were subject to this process (Kelly et al. 2012). Of 48 sites proposed, eight (15%) were rejected on the grounds that they did not meet reference conditions. **This work should be completed in England before the new standards are adopted**.

ii. Alignment of WFD and standards for protecting freshwater biodiversity

We believe that it is appropriate that Protected Areas receive a higher level of protection than that afforded by standards set as Good Status where this is required to protect the features for which the site was designated.

We are **very concerned** about the ongoing failure to take action to meet the standards applied by the conservation agencies to protect the highest quality Protected Areas, e.g. Special Areas of Conservation and Special Protection Areas.

We recommend that, where there is a resource prioritisation need (i.e. should we spend money cleaning up waste-water treatment work x or waste-water treatment work y) the decision is largely based on freshwater biodiversity criteria, since the other benefits of nutrient reduction are poorly documented or irrelevant.

3. Biological methods

We are broadly content with the changes made to the biological methods.

We welcome the new invertebrate method (the Whalley Hawkes Paisley Trigg (WHTG) method) as a methodological development. But whilst WHPT is an improvement on the present methodology, incorporating as it does some abundance weighting as required for WFD compliance, it is still only a family level resolution biometric rather than species level one; this, despite pollution tolerance

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[1] Kelly M.K., Willby N., Phillips G. and Benstead R. (in prep), *The integration of macrophyte and phytobenthos surveys as a single biological quality element for the WFD*. Environment Agency, Bristol.

[2] Pardo I., Gómez-Rodríguez C., Wasson J.-G., Owen R., van de Bund W., Kelly M., Bennett C., Birk S., Buffagni A., Erba S., Mengin N., Murray-Bligh J. and Ofenböeck G. (2012), *The European reference condition concept: A scientific and technical approach to identify minimally-impacted river ecosystems.* Science of the Total Environment 420: 33-42.

scores being available for some species groups. In order for full compliance to be achieved, the species level is essential: different species within families have wide environmental water quality tolerances and thus there is a danger of water bodies being designated "good" based on family levels where key species are absent. In addition, the existing family level method is only really an effective assessment of organic pollution with some application to other pollution types; ideally, a more complete species level methodology should be designed to more effectively incorporate other pollution types.

We also note that the method must be made sufficiently backward compatible to ensure that we can trace the trend of improvements without improvement from 1990.

It is **critical** that the outstanding continuity of UK invertebrate biological monitoring is maintained to allow this assessment of the trends since the first effective implementation of RIVPACS-type approaches in 1990.

More generally, we also note that where work to reduce mismatch in the standards involves *removing* parameters, there is the risk that potentially relevant information is being screened out. For example, in order to improve the relationship between the Macrophyte standard and Phosphorus, one of the metrics previously used to generate the Macrophyte standard has been dropped. The dropped index was a hydraulic measure based on substrate, depth and stream energy – this kind of information may be useful when looking at wider interactions. The proposal that it will be built back in for the third round of River Basin Management Plans suggests that it is recognised as being of importance. We are therefore concerned that its temporary exclusion could lead to important information being lost from the system at least in the interim.

4. Blueprint for Water

The Blueprint for Water coalition is a unique coalition of environmental, water efficiency, fishing and angling organisations which call on the Government and its agencies to set out the necessary steps to achieve "sustainable water" by 2015. The Blueprint for Water is a campaign of Wildlife and Countryside Link. More information is available at www.blueprintforwater.org.uk.

This consultation is supported by the following 11 organisations:

- Amphibian and Reptile Conservation
- Angling Trust
- Buglife – The Invertebrate Conservation Trust
- Marine Conservation Society
- National Trust
- Pond Conservation
- Royal Society for the Protection of Birds
- Salmon & Trout Association
- The Rivers Trust
- Wildfowl and Wetlands Trust
- WWF

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