

Response to submissions from stakeholders on proposals for river flow for good ecological potential

January 2014

by

**Water Framework Directive – United Kingdom Technical Advisory Group
(WFD-UKTAG)**



Introduction

- 1.1 The United Kingdom Technical Advisory Group (UKTAG) sought comments on the review of guidance on classifying ecological potential as it applies to water bodies affected by the storage of water in reservoirs for uses such as water supply and hydropower.
- 1.2 The consultation report was issued over the summer of 2013 with a closing date of 16th August. A stakeholder workshop was held on 16th July to discuss the proposals. 22 responses were received.
- 1.3 This paper describes how UKTAG has taken account of the main issues raised by consultees. An updated version of the guidance, which takes account of these comments, is available on the [UKTAG website](#).
- 1.4 **Table 1** provides information on the range of interests represented in the responses.

Table 1: Interests represented in the responses	
Respondee category	Number of responses
Energy companies	5
Water companies	6
Non-government organisations e.g. Fishery Trusts	8
Consultants	2
Government	1
Total	22

2 Responses to specific questions

- 2.1 UKTAG asked consultees to consider a series of questions. The section below summarise UKTAG's response to issues raised by consultees in response to these questions.

Q1: Are there any additional flow regime building blocks that should be included and is there evidence to demonstrate the functions they support?

- 2.2 The guidance sets out flow regime building blocks for annual minimum flow, flood flow, late summer flow elevations, autumn and winter flow elevations and spring flow elevations.
- 2.3 The majority of respondees were content that the most appropriate building blocks had been identified.
- 2.4 Two respondees were concerned that there were too many building blocks, making the approach overly-complicated. Potential gaps mentioned included lowland rivers with abstractions to off-line reservoirs, impacts on tidal reaches,

summer spates that might help reduce impacts from fine-sediment settlement and enhanced late summer baseflow for adult fish refuge flow.

UKTAG response

One respondent provided evidence that migrating adult salmon may require an enhanced late summer baseflow as they await the final spawning period in refugia (e.g. deep pools) relatively close to their ultimate spawning destination. As a consequence, an additional increased requirement in the annual minimum flow has been included that requires baseflows to be elevated where there is evidence that migrating adult fish are compromised by a lack of suitable resting pools.

No further evidence was supplied to justify the inclusion of additional building blocks.

In terms of the need for summer spates to reduce the impact of fine sediment build-up, these were included in the original guidance

Q2: Do you have evidence which can be used to improve the guidance on the flow building blocks as detailed in section 3?

- 2.5 The guidance on the flow building blocks (section 6 in the final recommendations) is based on evidence from a wide range of studies.
- 2.6 Studies related to impacts from water resource pressures were highlighted by some respondees, for example a major investigation into the impacts of abstraction on the Thames. Evidence related to specific building blocks was highlighted in terms of baseflow sufficient for salmon spawning, the link between water depth and velocity and autumn and winter flow elevations for migration.
- 2.7 Some respondents stated that flows are site-specific and therefore so is the evidence supporting the magnitude of the flow building blocks.

UKTAG response

Several respondents made the point that they believed the flows required to provide the functions of the building blocks are site-specific.

Further clarification has been made within the guidance as to how local hydraulic or ecological evidence can be used to amend the building blocks' magnitudes, frequencies and timing.

Q3: Do you agree that deviations from the default building block flow requirements can only be made based on sufficient weight of ecological or hydraulic evidence?

- 2.8 The guidance states that the flow building blocks can be amended or omitted if there is site-specific hydraulic or ecological evidence available from stretches representative of the impacted reach which support the deviation from the default values.
- 2.9 Detailed criteria are set out within section 3 of the final recommendations to ensure the evidence supports the reduced or increased flow requirements.
- 2.10 There was a mixture of responses with some favouring an entirely site-specific approach to setting the initial flow building blocks and others agreeing that proposing a default and deviating in the light of local evidence would be more effective.
- 2.11 Several respondents felt that the local information should be used to determine the building blocks but recognised that, often, good ecological evidence is absent.
- 2.12 Several respondents indicated that where ecological or hydraulic evidence was not sufficient to determine the building block flow values, hydrological evidence could be used i.e. to mimic natural events
- 2.13 Respondees also highlighted that where local information was insufficient, an adaptive management approach could be used to refine the flow releases over time.

UKTAG response

The document has been revised to improve clarity on how the default building blocks will be used. It indicates how flows can be tailored to local conditions where local hydraulic or ecologic evidence is present. The method of proposing a default flow value was felt to be an important part of the classification process. It allows water bodies to be classified in terms of ecological potential based upon the best available evidence i.e. local evidence where available but, where not, data available from the literature.

In response to some of the feedback, the guidance has been revised so that local hydrological evidence may be used so that the higher flow building blocks mimic natural flow events. These changes have been made to the flood flows and late summer flow elevations.

Q4: Do you agree with the proposed approach to applying the building blocks as outlined in section 4?

- 2.14 The guidance outlines an approach for determining a set of flow building blocks designed to achieve explicit ecological functions and introduces the concept of adaptive management to monitor and adapt these flows.

- 2.15 Many of the respondents were in agreement with the approach to applying the building blocks and using an adaptive approach to identify site-specific ecologically appropriate flows.
- 2.16 Although agreeing with the approach, several respondents highlighted the potential difficulties with adaptive management. In particular they noted that some of the ecological responses may be gradual and, as such, monitoring may need to be carried out over a long period.
- 2.17 A few respondents had concerns over the number and complexity of the proposed building blocks.
- 2.18 Responses from the energy sector disagreed with the overall approach. They felt that the guidance would require that all building blocks needed to be in place regardless of whether an ecological impact was evident.

UKTAG response

It was evident from some of the responses that the approach outlined in the consultation document did not make it sufficiently clear that flow building blocks would only be required where there was evidence of an ecological impact. The guidance has been reworded in sections 3 and 4 of the final recommendations to make this clearer.

Multiple criteria for determining whether a deviation from the default flows have been proposed in the guidance to allow sufficient flexibility to incorporate local hydraulic or ecological evidence. This may appear complex but is designed to avoid a 'one-size fits all' approach.

Q5: Can you suggest criteria to help prioritise the building blocks where there is limited water available?

- 2.19 The proposals recommended that the annual minimum flow building block should be applied as a priority followed by whichever building block(s) would maximise the river's ecological potential. The priority of the remaining building blocks being determined by local ecological needs.
- 2.20 The majority of respondents suggested that the building blocks should be prioritised based on local ecological needs with many agreeing that the annual minimum flow building block should be the priority for implementation.
- 2.21 Some respondents also noted that the needs of particular fish species should drive the prioritisation of the other building blocks and one respondent suggested that an ecosystem services approach could help in the prioritisation. The difficulty in reaching a consensus on how to use the water from a limited 'water bank' was a common theme in the feedback.

UKTAG response

Revisions have been made to the proposals to clarify when a particular building block is required in relation to when a mitigation measure, mitigating the adverse impact of the impoundment, is deemed not to be in place.

Further direction is also provided on when a building block should be modified or even omitted altogether based on the consideration of site-specific and ecologically-relevant characteristics.

Whilst it is recognised that the annual minimum flow building block will be the priority in the majority of sites, this is no longer specified in the guidance as the principle of ecologically-led decision-making should dictate priority.

Q6: Do you agree with the principles to guard against deterioration as set out in 4.10?

- 2.22 The proposals stipulated increased requirements for the annual minimum flow where there is an existing elevated flow regime. This was required to guard against the risk of a deterioration of the biological quality elements expected in heavily modified water bodies.
- 2.23 Respondee from the energy related sector voiced concerns that as long as the ecological potential was maintained then higher flows should not be artificially supported. They highlighted that there is no requirement to go beyond the water body objective and maintaining an artificially high flow regime simply because this has been historically the case is not justified by the Water Framework Directive.
- 2.24 A number of respondees representing fisheries interest highlighted the importance of healthy fisheries to the local economy with the continuation of existing elevated flows required to support their health.
- 2.25 Five respondees agreed with the proposals and a couple of respondees highlighted the need for flexibility in relation to local conditions. One respondee identified that a natural low flow in the short term can lead to a deterioration in ecological quality but in the long term can weed out the weaker species and provide more ecological diversity compared to an elevated consistent river flow.

UKTAG response

UKTAG has incorporated more ecologically-led guidance within the building block detail. Specifically, this is on how to appropriately modify the building block flow criteria for use in identifying reductions in existing elevated flows that could be made without deterioration of ecological potential.

Q7: Do you agree that the flow regime building blocks could help to inform if the flow related mitigation measures are in place and adequate or not (i.e. at good ecological potential)?

- 2.26 The majority of respondents were in general agreement that the building blocks could help determine if the flow related mitigation measures could be deemed to be in place and adequate.
- 2.27 Those that didn't agree were concerned that a 'one-size-fits-all' approach (all building blocks must be in place) is not appropriate and that the decision to implement particular building blocks needs to be biologically evidence led.
- 2.28 Concerns were also raised about the complexity of implementing the building blocks.

UKTAG response

The final proposals provide more detail about how particular building blocks can help to determine if a classification mitigation measure is in place or not.

As per the existing UKTAG guidance on ecological potential classification, a mitigation measure will only be assessed for implementation if there is an impact from the existing operation of a reservoir. Therefore local conditions are always considered when determining which mitigation measures need to be implemented.

The guidance recommends that classifications of poor or bad ecological potential are assigned where there is ecological evidence of major or severe ecological impacts. UKTAG recommends that when prioritising rivers for improvement the focus should be on rivers for which there is ecological evidence of significant adverse impacts.

Q8: Do you have evidence to improve the main and additional functions identified for the flow building blocks identified in Appendix 4?

- 2.29 No additional substantial evidence was submitted to UKTAG. The majority of respondents stated that none was available or that they had previously submitted their evidence as part of the development of '*SNIFFER 2012, Project 21D; Ecological indicators of the effects of abstraction and flow regulation; and optimisation of flow releases from water storage reservoirs*¹' which is one of the key references underpinning the building block approach.

¹ SNIFFER (2012). Project WFD21D; Ecological indicators of the effects of abstraction and flow regulation; and optimisation of flow releases from water storage reservoirs; July 2012. SNIFFER (2012). Project WFD21D; Ecological indicators of the effects of abstraction and flow regulation; and optimisation of flow releases from water storage reservoirs; July 2012.
<http://www.wfduk.org/resources%20/ecological-indicators-effects-abstraction-and-flow-regulation-and-optimisation-flow>

- 2.30 It was recognised in some of the responses that there is further evidence associated with individual flow trials/studies but this requires further analysis for more certain conclusions to be drawn.

UKTAG response

No additional functions of the building blocks were identified. The change made to the annual minimum flow criteria in order to ensure sufficient late summer refugia is captured under the existing functions of supporting upstream fish migration and spawning.

Q9: Please let us know if you have any further points related to the consultation

- 2.31 One respondent suggested that catchment typology should be included in the guidance to account for the different ecological responses to hydrological change caused by water regulation.
- 2.32 One response disagreed with the overall approach on the grounds that they believed the recommendations took a 'one-size fits all' approach and made no allowance for site-specific ecology.
- 2.33 Several respondees felt that the collection of ecological evidence recommended by the guidance to determine the magnitude, frequency and timing of the flow building blocks would be difficult to achieve and costly.
- 2.34 Several respondees were concerned about the practicality and cost of implementing some of the measures, in particular some elements of the flow variability especially where no storage is available.
- 2.35 A few responses called for further clarification of how the issues of disproportionate cost, technical infeasibility and significant impact on use would be dealt with.
- 2.36 One response felt that it was not clear that the guidance only refers to HMWBs designated due to water storage and will not be applied for other designations.

UKTAG response

Although the majority of responses agreed with the approach taken in the guidance, several concerns were raised. These ranged from those who felt the flow regime required for the ecological functions were too complex and required onerous site-specific data collection to a concern that the method had a 'one-size fits all' approach with no ecological basis.

A balance has to be struck in the guidance for setting a flow regime that simultaneously addresses the ecological requirements of a particular river whilst providing a consistent and pragmatic approach to improving the ecological quality of rivers impacted by water storage. It is UKTAG's belief that the approach laid out in this guidance can achieve this. The guidance has clarified the position that mitigation will only be required where there is evidence of an ecological impact. Where such impacts do exist, the default building blocks are set out based upon peer-reviewed literature and the guidance accounts for site-specific evidence being used to tailor these.

The guidance makes it clear that where a measure is either targeted at an impact not present at the site, technically infeasible or would cause a significant impact on use, then such a measure is not required to meet good ecological potential. In addition, the guidance states that wider considerations beyond the provision of a downstream flow regime should be considered when addressing the impacts caused by water storage, in particular, sediment management and the temperature and oxygen conditions of flow releases.

To address the question of where this guidance is applicable, it is made clear in the document that this applies to mitigation measures for river water bodies identified as HMWBs because of the impacts of diverting water to, storing water in, or abstracting water from, reservoirs for uses such as drinking water supply or hydroelectricity generation.