UK Technical Advisory Group on the Water Framework Directive

ISSUE NOTE:

WETLANDS AND THE PROGRAMME OF MEASURES

(Final)

This Guidance Paper is final guidance defined by the UKTAG. It documents the principles to be adopted by agencies responsible for implementing the Water Framework Directive (WFD) in the UK.			
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1. Purpose of this paper

This paper examines the role of wetlands in the programme of measures (PoM). Wetland habitats can help to achieve WFD objectives because of their functionality. Wetland loss and degradation has increased the vulnerability of many catchments to negative impacts. Wetland restoration therefore has the potential to offer benefits in terms of flood protection and groundwater recharge, restoration of flow regime and morphology, nutrient/sediment/pollutant load abatement in rivers and lakes, the conservation of biological diversity and the enhancement of recreation and tourism opportunities to benefit local communities.

Wetland creation, restoration and management may therefore prove a **cost-effective and socially acceptable** mechanism for helping to achieve the requirements of Article 11 and Article 4.

This paper aims to clarify how wetlands should be incorporated into PoMs and provides examples of cases where:

i) wetland protection and/or restoration is required as part of the basic programme of measures to comply with the achievement of environmental objectives specified in Article 4 (i.e. **measures for wetlands**), and

ii) where the restoration or creation of wetlands should be considered as a measure to improve water bodies at less-than-good status (i.e. **wetlands as measures**).

In surface water body classification, objectives for wetlands that form part of the hydromorphological quality elements (i.e., wetlands in riparian or lake shore zones) are directly linked to biological and physico-chemical quality

objectives. This means the boundary between *i*) and (*ii*) above is often indistinct.

Description of the issues

A. When measures may be needed for wetlands

Article 11 of the Directive requires Member States to establish a Programme of Measures to achieve the environmental objectives defined in Article 4. Measures are triggered if a water body or protected area fails to meet its status objectives, or if any such feature is deemed to be at high risk of deterioration in status. Thus, the ultimate objective is to improve water body or protected area status, but the pressures on wetlands may need to be the recipients of measures in the following circumstances:

1. The wetland is a **terrestrial ecosystem that is directly dependent on a groundwater body** [Article 1(a), & Article 4 (1) (b ii)], and the achievement of good groundwater status requires measures to ensure that anthropogenic alterations to groundwater levels, flow or chemical quality are not such as would result in significant damage to that wetland (Annex V.2.1.2 and 2.3.2);

2. The wetland is wholly or forms part of a **Natura 2000 Protected Area** and depends, wholly or in part, on appropriate measures to protect, enhance or restore water-dependent habitats and species for the achievement of its standards and objectives, in accordance with Article 4.1(c).

3. The wetland is part of a **hydromorphological quality element** of an inland surface water body (i.e., part of the riparian or lake shore zone) and requires protection, enhancement or restoration of functionality to ensure that the hydromorphological conditions of the water body are consistent with achievement of the relevant good status values for the biological quality elements (Annex V.1.2).

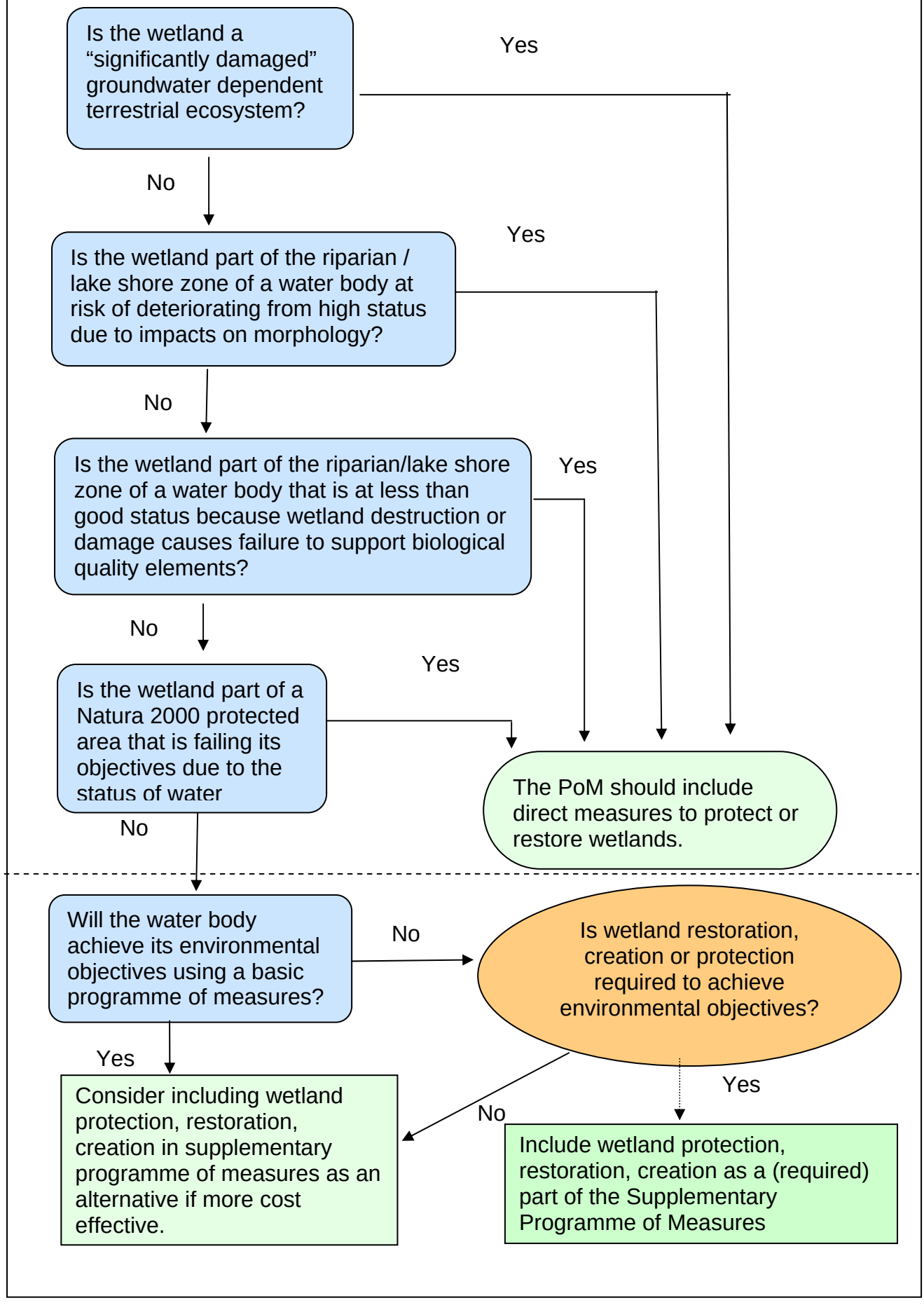
B Wetlands as measures

Additionally, wetland creation, restoration and management may prove a cost-effective and socially acceptable mechanism to supplement a basic programme of measures and help to improve water body status (and contribute to other WFD objectives) even in cases where wetlands are not a direct part of status assessment [Article 11.4; Annex VI, Part B(vii)].

Wetlands may help to reduce the costs to society of flood risk management (e.g. flood storage and reduced costs of dredging) and the provision of clean water (groundwater recharge and reduction of suspended solids).

The flow chart below is a simple decision tool to help determine whether wetland protection and restoration should be considered as part of the programme of measures. In each case, more detailed analysis will be required to determine the actual measures that will be needed.

Box 1 Decision tool for Wetlands and POM



3. A – Measures *for* Wetlands

3.A.1 Groundwater Dependent Terrestrial Ecosystems (GWDTEs).

To meet good status, a groundwater (GW) body must supply water of sufficient quantity and quality to meet the needs of associated groundwater-dependent terrestrial ecosystems. If a GWDTE is significantly damaged due to anthropogenic pressures on the GW body, then measures must be applied to reverse this effect. Measures are likely to include reduction or relocation of groundwater abstraction, reduction or removal of point discharges, and diffuse pollution control. In cases where the use of such primary measures is impractical or multiple pressures act on a single site, additional or alternative measures may be required.

Where there is uncertainty about the pressures on a GWDTE from a GW body there needs to be an assessment of the risk of not meeting WFD objectives. Gathering evidence of cause and effect would need to take place as part of further characterisation.

Measures may also be required for other groundwater quality objectives. These may be required to ensure objectives for trend reversal, 'prevent or limit' or 'no deterioration' are met. Some 'prevent or limit' measures may not be included within the programme of measures but may be taken immediately, for example under the Groundwater Directive. These immediate measures are not subject to the same economic analysis procedures as WFD status measures.

Single pressures

- If wetland damage is a direct result of a single abstraction or point discharge, the measure should be to reduce or remove this pressure. If this is impossible or prohibitively expensive, alternative solutions should be sought.
- If wetland damage is a result of other factors that affect quantitative GW supply such as land use (e.g. large-scale forestry) or local drainage networks, this will not normally lead to poor GW body status. Removal of such pressures is not normally a requirement under PoM for GW bodies; but if the GWDTE in question is part of a Natura 2000 site, it may be a requirement under PoM for WFD protected areas (see section 3.A.2).
- Alterations to surface water drainage and land-use issues were raised as a significant and damaging pressure in a series of Regional workshops in England and Wales (EA/NE/CCW, March-April 2007). Dealing with surface drainage systems that alter or reduce GW flow to dependent ecosystems and prevent GW recharge may be the most cost-effective option for dealing with multiple pressures acting on a given site (see following section).

Multiple pressures

- Where there are multiple pressures acting on the same site (e.g. a wetland affected by an abstraction that is also under pressure from local or regional drainage), several alternative measures may be available to reverse wetland damage. If this is the case, then the most cost-effective option should be given priority.
- In some situations, several simultaneous measures may be required. Removal of an abstraction pressure, for example, may be ineffective unless drainage control is implemented at the same time.
- If this is the case, then decisions have to be made in a connected way in the RBP process to make sure that all required measures are implemented and adequate monitoring is put into place to ensure they are effective.
- If the pressures in question are due to chemical factors, a causative link between wetland damage and the GW body may only be established after more detailed site investigation. This means the GW body may initially achieve good status but with low confidence. In such cases, further characterisation would be needed to define the nature of the problem and cause and effect links. This may include wetland monitoring.

Where there is a risk of deterioration in status and this is demonstrated with sufficient confidence measures should be put in place to **prevent status deterioration.**

3.A.2 The wetland forms part of or is wholly a water-dependent Natura 2000 Protected Area present on the Register of Protected Areas.

Natura 2000 wetlands that are not achieving favourable conservation status must have a programme of measures established in order to achieve appropriate targets which support the European site standards and objectives. This may include control of discharges and abstraction, protection from toxic substances and diffuse pollution, removal of adverse drainage and any measures available within the Habitats and Birds Directives.

These are identified in Article 6 (Habitats Directive), which requires member states to:

i. Establish any conservation measures (including site management plans) required to support the ecological requirements of Natura 2000 habitats and species

ii. Take steps to avoid deterioration of habitats and significant disturbance of species

iii. Carry out appropriate assessment of any plans/projects likely to have a significant effect on the designated features.

This does not limit the measures available to any specific list contained within any current legal instrument. Rather, it requires member states to use existing and new mechanisms such as grants, voluntary agreements and incentives and the implementation of other legislation to ensure a feature contributes to the favourable conservation status of the whole European Network. In the

context of the WFD and individual sites on the register, UK TAG has established separate guidance (UK TAG - Guidance on Objectives and Standards for Protected Areas) for the interpretation of this requirement.

3.A.3 Wetlands that form part of surface water bodies

Wetlands that are part of the riparian (river), littoral (lake shore) or intertidal zones form part of the hydromorphological quality elements of inland and transitional surface water bodies.

Hydromorphological quality elements are a consideration mainly in determining the boundary between high and good surface water body status (CIS guidance 13 - Classification). To meet high status, water bodies need full hydromorphological functioning, which includes having riparian, littoral or intertidal zones with structure and condition that correspond totally or almost totally to undisturbed conditions.

- Measures may be required in such instances to **protect** these wetlands to prevent deterioration from high status.

At good and less-than-good status, the requirement for morphological quality elements is that they should **support** biological quality elements.

- Measures to protect, enhance and restore wetlands where they are part of a hydromorphological quality element in these instances may be necessary to **achieve** GES or GEP.

Where the relevant biological and physico-chemical quality criteria are met, a water body can potentially achieve good status even if its morphology has been significantly altered.

- Measures to protect or restore wetlands where they are part of a hydromorphological quality element in these instances may still need to be considered if they are required to prevent deterioration from good status.

Any measures taken should be based on actual and known functional interactions between the water body and adjoining habitats and not be restricted to any set distance from the active channel or lake shore.

This means the boundary between measures for morphology and use of wetlands as measures for water bodies is blurred. An overview of possible measures is given in the following section.

3.B Wetlands *as* measures for water bodies

Wetlands have the potential to offer benefits in the following areas:

- flood protection;
- nutrient/ sediment/ pollutant load abatement,
- GW recharge and chemical status;

- Maintenance/restoration of surface water body biology / chemistry.

The creation or restoration of wetlands may therefore prove to be a cost-effective mechanism for helping to achieve the objectives of the WFD as well as yielding multiple benefits to society (e.g. recreation and tourism).

Many of these measures also allow for the partial fulfilment of the purpose of Article 1, which requires the establishment of a framework that “contributes to mitigating the effects of floods and droughts”. The text in Annex A also supports this. Annex B contains a diagram from the CIS Horizontal Guidance on the Role of Wetlands in the Water Framework Directive of the range of wetlands within a river basin that may be relevant to the achievement of the Directives objectives

Examples of where protection, enhancement or restoration or wetlands may serve as part of a POM are:

- Lake shore habitats - sediment trapping; nutrient processing; increasing habitat availability for invertebrates and fish spawning,
- Restoration of moorland habitat through 'grip' blocking - improved water quality; attenuation of water leading to flood attenuation and drought mitigations
- Riparian wetlands/wet woodland - sediment and nutrient attenuation; increases in habitat availability for fish and invertebrates; heavy metal attenuation; more 'natural' hydrograph,
- Created wetlands - urban and rural - benefits for sediment, nutrient and heavy metal attenuation
- Forestry removal and wetland creation/enhancement in areas with low GW recharge - increased winter water storage of wetlands which can increase aquifer recharge.

There will need to be a process established for identifying where wetlands have been created as part of a measure. It is likely that, at least initially, these should not be protected as 'receptors' for a groundwater body or as part of a surface water body but this may be appropriate over a longer term.

RECOMMENDATIONS

Given the multifunctional role and potential multiple benefits of wetlands, wetland creation and restoration should be considered wherever possible/appropriate when deriving a cost-effective programme of measures for water bodies that fail to meet status objectives.

The use of wetlands within the POM needs to be tested to enable greater definition of their cost effectiveness as a measure and to enable assessment of their effectiveness alongside other measures.

Annex A

Common text on wetlands agreed upon at the Water Directors Meeting in Copenhagen, November 2002:

> "Wetland ecosystems are ecologically and functionally significant elements of the water environment, with potentially an important role to play in helping to achieve sustainable river basin management. The Water Framework Directive does not set environmental objectives for wetlands. However, wetlands that are dependent on groundwater bodies, form part of a surface water body, or are Protected Areas, will benefit from WFD obligations to protect and restore the status of water. Relevant definitions are developed in CIS horizontal guidance documents on water bodies and are further considered in guidance on wetlands.
>
> Pressures on wetlands (for example physical modification or pollution) can result in impacts on the ecological status of water bodies. Measures to manage such pressures may therefore need to be considered as part of river basin management plans, where they are necessary to meet the environmental objectives of the Directive.
>
> Wetland creation and enhancement can in appropriate circumstances offer sustainable, cost-effective and socially acceptable mechanisms for helping to achieve the environmental objectives of the Directive. In particular, wetlands can help to: abate pollution impacts, contribute to mitigating the effects of droughts and floods, help to achieve sustainable coastal management and to promote groundwater re-charge. The relevance of wetlands within programmes of measures is examined in the horizontal guidance paper on wetlands."

ANNEX B

Diagram illustrating the various types of wetlands within a river basin that may be relevant to the achievement of the Directives objectives. (From: CIS Horizontal Guidance on the Role of Wetlands in the Water Framework Directive, Final Draft, 7 October, 2003.)