

# Implementation of the WFD from the perspective of nature conservation: Analysis of the programmes of measures and the River Basin Management Plans of the Danube and the Elbe river basins

JULIANE ALBRECHT<sup>1</sup>, MARTIN HOFMANN<sup>2</sup>, SANDRA POSSELT<sup>1</sup>, LARS STRATMANN<sup>1</sup>, KARSTEN GRUNEWALD<sup>1</sup>, CATRIN SCHMIDT<sup>2</sup>

*Keywords: Water Framework Directive, nature conservation, river basin management plans, Danube, Elbe*

## 1 Introduction: Links between WFD and nature conservation

Due to its ecological approach, the Water Framework Directive (WFD) interferes with nature conservation in various aspects. First of all, it sets the general target to protect and improve the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems (Article 1a WFD). The WFD considers water bodies as a whole and addresses their function as habitat for plants and animals. A direct relation to the question of nature conservation can be found in three aspects: (1) the biological quality components to determine the good status (cf. Article 4 para. 1 in conjunction with Annexes II and V WFD), (2) the inclusion of groundwater dependent terrestrial ecosystems (cf. Annexes II and V WFD) and (3) the reference to the water dependent protected areas for animals and plants and their habitats (cf. Article 4 para. 1c WFD) (Albrecht 2007, p. 481). However, the WFD does neither provide direct protection of animals and plants abundant in wetlands, such as amphibian, mammal (e.g. beaver or otter) or bird species nor wetlands as such (Petry et al. 2002, p. 12). The overlap between WFD and nature conservation is reflected in the content of the programmes of measures and the river basin management plans (RBM Plans) which had to be finalized and published by the end of 2009. Both types of plans follow the purpose to achieve the good status for surface and ground water as required in Article 4 WFD. They are to be reviewed and updated by the end of 2015 and every 6 years thereafter (Articles 11 and 13 WFD). From the perspective of nature conservation it is of interest, how its targets are connected in practice to the targets of the WFD and which possibilities exist to strengthen the influence on nature conservation. This question is addressed in the ongoing project „WFD and Nature Conservation: Analysis of the River Basin Management Plans“, which is funded by the Federal Agency for Nature Conservation of Germany. The project is carried out by the Leibniz Institute of Ecological and Spatial Development (IOER) in cooperation with the Chair in Landscape Planning at the University of Technology of Dresden. Basis of the analysis are assessment criteria to be derived from a comprehensive study of the plans existing in Germany regarding their contents and level of detail, but also from relevant literature and best practice examples. On this background it will be investigated which recommendations can be given for emphasizing the aspects of nature conservation in the practical implementation of the plans. Moreover, proposals for strengthening the concerns of nature conservation will be made for the scheduled revision of the plans in 2015. The

---

<sup>1</sup> Leibniz Institute of Ecological and Regional Development (IOER), Weberplatz 1, 01277 Dresden, Germany. e-mail: j.albrecht@ioer.de; s.posselt@ioer.de; l.stratmann@ioer.de; k.grunewald@ioer.de

<sup>2</sup> TU Dresden, Faculty of Architecture, Institute for Landscape Architecture, Helmholtzstraße 10, 01069 Dresden, Germany. e-mail: martin.hofmann.LA@mailbox.tu-dresden.de; Catrin.Schmidt@tu-dresden.de

present contribution to the IAD-Conference will show first results of the project with special focus on the Danube and the Elbe RBM Plans.

## **2 Content of the programmes of measures and river basin management plans**

The content of the programmes of measures and the RBM Plans is designated in Articles 11 and 13 WFD. Both plans form the basis for a coherent, all-embracing management concept for river basins. While the RBM Plans reflect the whole planning process in the river basin (cf. Annex VII WFD), the programmes of measures set out the actions to be taken during the plan period to attain Directive objectives. Both the programmes of measures as well as the RBM Plans contain a number of connections to nature conservation. There is, firstly, the data collected in the context of the initial characterization designated by the WFD (analysis of the characteristics of the river basins, review of the impact of human activity on the status of surface waters and on groundwater, protected areas according to Article 6 and Annex VI WFD). From the perspective of nature conservation, especially information on terrestrial ecosystems, with which the groundwater body is dynamically linked, is relevant, as well as information on areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor (including relevant Natura 2000 sites). In order to establish a coherent and comprehensive overview of water status within each river basin district, a map of monitoring networks and the results of monitoring programmes are included in the RBM Plans (Art. 8 WFD). In addition, RBM Plans list the specific environmental targets for the individual water bodies as well as exemptions according to Article 4 WFD and summarize the content of the programmes of measures. The setting of the targets, the respective exemptions and the determination of the derived measures provide the largest room for maneuver to optimize management planning from the perspective of nature conservation. Those measures should be selected and prioritized which correspond to both the targets of the WFD and nature conservation, e. g. the creation and restoration of wetlands areas (cf. Article 11 and Annex VI Part B WFD). In contrast to the RBM plan, the programme of measures is subject to strategic environmental assessment (SEA) that has to show which significant impacts on fauna, flora, biodiversity and various other environmental issues have to be expected. Furthermore, the RBM Plans contain a register of more detailed programmes and management plans for the river basin district dealing with particular sub-basins, sectors, issues or water types. Thus, it is easier to harmonize parallel planning documents, for instance special programmes for river meadows or flood risk management plans. Last but not least, a list of competent authorities and a summary of the public information and consultation measures taken are included in the RBM Plan (cf. Article 14 WFD). Here, it is important to consult nature conservation authorities, NGOs and other institutions in the process of planning, as it is their concern to emphasize issues of nature conservation.

## **3 Implementation of the plans in the international Danube and Elbe River Basin district**

Article 3 WFD stipulates transboundary river basin management from headwaters to estuary. The Danube River Basin as well as the Elbe River Basin are international river basin districts, so that cooperation is needed between various domestic and foreign authorities. Whereas the Elbe River Basin district covers the territory of only 4 states, there are 19 states sharing the river basin district of the Danube (8 out of them are non-EU members). In order to secure and facilitate coordination, the WFD requires the administrative authorities of a river basin district to establish appropriate administrative arrangements for such coordination. The responsibility for coordination is by the International Commission for the Protection of the Danube River (ICPDR) and the International Commission for the Protection of the Elbe River (ICPER), respectively. The obligation for coordination applies explicitly to the establishment of RBM Plans (cf. Article 13 para. 3 WFD). The plans are based on three levels of coordination: Part A: the international, basin-wide level (Roof level); Part B: the national level (e.g. German territory of the Elbe River Basin) and/or the internationally coordinated sub-basin level for selected sub-basins (e.g. Tisza, Sava, Prut and Danube Delta); and Part C: the sub-unit level, defined as management units in the national territory (ICPDR 2009, p. 1). The information of the plans increases in detail from Part A to Parts B and C. In the Danube and Elbe River Basins, there has been set up one international RBM Plan each coordinated by the ICPDR and the

ICPER, respectively. Regarding Parts B and C, further management plans for parts of the river basin district or sub-basins have been established which are coordinated by various institutions on the international or national level. For example, there is one common plan of the 10 federal states which share the German part of the Elbe River Basin district, coordinated by the River Basin Community Elbe. In contrast, the German part of the Danube River Basin district is shared only by 2 federal states (Bavaria and Baden-Württemberg), so that there is no common plan for those states. However, they have coordinated their individual planning by a so-called Chapeau-chapter (Baden-Württemberg) or a coordination document (Bavaria), respectively. The comparison of the planning documents of the Danube and Elbe River Basin districts reveal a lot of similarities, but also some differences. Regarding the content, the RBM Plans follow widely the structure given by Annex VII WFD. The A-level-plans contain mainly information on problems and measures of water management, which have to be discussed and coordinated river basin-wide (ICPER 2009, p. 97 et seq., ICPDR 2009, p. 73 et seq.). From the viewpoint of nature conservation is important, that the Danube and the Elbe RBM Plans both discuss the ecological continuum of rivers and the restoration of floodplains as target of basin-wide importance (ICPER 2009, p. 97, ICPDR 2009, p. 73 et seq.). The reconnection of adjacent disconnected wetlands and floodplains is treated with high priority in the Danube RBM Plan. It is emphasized, that those areas should be maintained or offset wherever possible ("no-net-loss-principle") (ICPDR 2009, pp. 21 and 81). Wetlands and floodplains with reconnection potential are listed and located in a map (cf. ICPDR 2009, Map 6). For detailed information, the plans usually refer to the plans of the B- and C-levels.

## 4 Analysis of the plans and programmes from the perspective of nature conservation

In general, many synergetic effects for nature conservation can be expected by the WFD objective to achieve the good ecological status and to protect water dependent ecosystems. Nevertheless the question remains, how far the potential of the WFD for nature conservation has been realized within the planning process, especially with regard to the selection and prioritization of measures. Furthermore, also conflicts in detail are expected, which are to be solved. To submit proposals for strengthening the concerns of nature conservation regarding the implementation and the revision of the plans, the following research topics are considered:

***River basin management planning and the objectives of nature conservation in general:*** To which extent will the implementation of the measures cause synergies or conflicts to particular objectives of nature conservation given by Section 1 German Federal Nature Conservation Act? To clarify this, the measure types brought out by LAWA (the working group of the federal states on water issues in Germany) have been graded in 20 groups of similar cause and effect relations. Those groups are confronted with the particular objectives for the different environmental goods designated in Section 1 Nature Conservation Act. Whereas about one half of those measure groups exhibit a high degree of conformity or neutral impact on the other environmental goods, the other half requires an adjustment on following planning levels because conflicts with the objectives for the other environmental goods might arise depending on the concrete spatial situation. For instance, by measures for habitat improvement in waters by water course modification, very favorable effects can be expected on enabling the exchange of populations. At the same time, these measures can provoke impairment on areas of historical cultural landscapes. An as early as possible coordination between representatives of water management and nature conservation as well as a raising of awareness for the interdependence of all environment goods are essential for the optimization of the results within the implementation process till 2012.

***River basin management planning and Natura 2000:*** Furthermore, the degree of conformance of WFD management planning with conservation objectives of NATURA 2000 areas has to be investigated. In parts, different directions of objectives can arise, because the ones of the WFD are normally process oriented and the ones of EC Habitats Directive have objectives of literal conservation in addition to process protection (Hübner 2007, p. 9). By a confrontation of water dependent species and habitat types of the Habitats Directive abundant in Germany plus their requirements and the impact factors of the LAWA measure types, the necessity for further coordination in case of certain species presence can be indicated and pointed out. Overlaying the areas concerned by those measures and the Natura 2000 sites with relevant species and habitat types in Germany, this necessity of coordination can be spatially defined. This can particularly give hints for nature

conservancy, where conflicts of objectives have to be internally solved, concerning which species/habitat types are to be supported in certain spatial situations. This is relevant for practical implementation as well as for the following revisions of the management plans.

**River basin management planning and the ecological network:** As another important subject from the point of view of nature conservation, the conformance of WFD management plans with the objectives of the ecological network is to be explored. Rivers themselves, and especially their floodplains, if intact, are important transboundary network elements. Although floodplains are not literally mentioned in the WFD, they are of vital importance for the maintenance or achievement of the good status of the water body (Korn et al. 2005, p. 18). A development implemented for that reason can bring essential contribution for the transposition of the national ecological network. Therefore, it has to be clarified, how the WFD management plans are methodically laid out concerning the delineation of surface water bodies and prioritization of measures. By overlaying maps of relevant measure types such as "Initiation/allowing of a dynamic natural development of surface waters" or "Support of natural retention (including inland moving of dykes and dams)" and maps of current loss of floodplain structures, the synergistic effect for the national ecological network can be estimated. This implies important strategic foundations for politics, water management and nature conservation concerning the next cycle of WFD management planning.

**River basin management planning and floodplains:** The knowledge developed in this research module helps to clarify, to which degree the present WFD management plans exhaust the potentials for the protection and development of floodplains as hotspots of biodiversity in Central Europe. In fact, floodplains are of greatest importance for the protection of species as well as for the protection and the development of biodiversity, and as mentioned above, they are of vital relevance to achieve the good ecological status of the surface water body, too. Given the problem of space availability, it seems that space encompassing measure types for floodplain development are considered with hesitance within the first cycle of WFD management planning. As an example, in 22 of 61 planning units of the FGG Elbe the measure type "Measures for improvement on habitats in the corridor of river development including floodplain development" is basically not intended (FGG Elbe 2009, Annex A3-1, p.4). For the next cycle of management planning the floodplains should be consistently included in the consideration of water bodies and literally more space should be given to rivers. To that topic the political discourse has to be carried on.

**River basin management planning and groundwater dependent surface ecosystems:** It is questioned, to which extent the current WFD management planning respects the capabilities for protection of groundwater dependent ecosystems and wetlands. In addition to this protection generally claimed by Article 1a WFD the state of directly groundwater dependent ecosystems is used as a criterion for the quantitative status of the connective groundwater bodies in the WFD. According to Annex II WFD, the groundwater bodies with directly dependent ecosystems had to be designated within the so-called initial characterization. In case of risk of impairment, also the associated surface ecosystems have to get an inventory (cf. Annex II No. 2.2 WFD). These regulations are implemented in different ways by the German states. For instance, Bavaria assumes a minimum size of 50 ha (LfW 2005: p. 52), Baden-Württemberg of 5 ha (LfU 2005, p. 90) and Saxony of 20 ha (SMUL 2005, p. 34), respectively, for assessable groundwater associated ecosystems. Crucial questions of research refer to the delineation practice of regarded groundwater bodies, the definition and identification of considered ecosystems as well as to concepts of monitoring for the assessment of status changes of the affected ecosystems. Appropriate procedures from the nature conservation point of view can be used as good practice examples for the second cycle of WFD management planning.

## 5 Conclusions and Outlook

It has been shown that the management plans contain a variety of connectors which can be used to take into account the concerns of nature conservation in a proper way. The protection and restoration of floodplains and wetlands is a key factor in this respect. Indeed, the plans contain measures relating to those areas. However, the plans remain vague especially as far as the measures are concerned. Thus, it is difficult to link the statements of the plan to specific areas. Furthermore, the degree of detail varies considerably between the individual plans. This makes it difficult to derive improvement options. A more uniform approach to setting up the plans as well as a higher degree of detail for the contents relating to nature conservation would be beneficial. However, many questions can be addressed only at stage when the plans are actually applied. It is important, therefore, to make the water authorities

sensitive to the concerns of nature conservation and to encourage them to consult with the nature conservation authorities in an early stage of putting the plans in action.

## References

- Albrecht, J. (2007): Umweltqualitätsziele im Gewässerschutzrecht. Eine verfassungs-, verwaltungs- und europarechtliche Untersuchung zur Umsetzung der Wasserrahmenrichtlinie am Beispiel des Freistaates Sachsen, Schriften zum Umweltrecht, Band 158.
- ICPER (2009): Internationaler Bewirtschaftungsplan für die Flussgebietseinheit Elbe, Teil A.
- ICPDR (2009): Danube River Basin Management District Plan, Part A.
- FGG Elbe (2009): Maßnahmenprogramm nach Artikel 11 der Richtlinie 2000/60/EG bzw. § 36 WHG der Flussgebietsgemeinschaft Elbe.
- Hübner, T. ( 2007): Zur Umsetzung der FFH-Richtlinie und Wasserrahmenrichtlinie aus Sicht des Naturschutzes. NNA-Berichte 20. Jahrgang, Heft 1.
- Korn, N., Jessel, B., Hasch, B., Mühlighaus, R. (2005): Flussauen und Wasserrahmenrichtlinie. Naturschutz und Biologische Vielfalt, Band 27.
- Petry, D., Scholz, M., Lutosch, I. (2002): Relevanz der EU-Wasserrahmenrichtlinie für den Naturschutz in Flussauen.
- LfU - Landesanstalt für Umweltschutz Baden-Württemberg (2005): Methodenband Bestandsaufnahme der WRRL in Baden-Württemberg.
- LfW - Bayerisches Landesamt für Wasserwirtschaft (2005): Methodenband für die Bestandsaufnahme WRRL in Bayern.
- SMUL - Sächsisches Staatsministerium für Umwelt und Landwirtschaft (2005): Kompaktbericht zur Bestandsaufnahme nach WRRL im Freistaat Sachsen.