

SUPPORTING INFORMATION

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Attachment S1

Annex VII of the WFD

RIVER BASIN MANAGEMENT PLANS

- A. River Basin Management Plans shall cover the following elements:
1. a general description of the characteristics of the River Basin District required under Article 5 and Annex II. This shall include:
 - 1.1. For surface waters
 - mapping of the location and boundaries of water bodies,
 - mapping of the ecoregions and surface water body types within the river basin,
 - identification of reference conditions for the surface water body types;
 - 1.2. For groundwaters:
 - mapping of the location and boundaries of groundwater bodies;
 2. a summary of significant pressures and impact of human activity on the status of surface water and groundwater, including:
 - estimation of point source pollution,
 - estimation of diffuse source pollution, including a summary of land use,
 - estimation of pressures on the quantitative status of water including abstractions,
 - analysis of other impacts of human activity on the status of water;
 3. identification and mapping of protected areas as required by Article 6 and Annex IV;
 4. a map of the monitoring networks established for the purposes of Article 8 and Annex V, and a presentation in map form of the results of the monitoring programmes carried out under those provisions for the status of:
 - 4.1. surface water (ecological and chemical);
 - 4.2. groundwater (chemical and quantitative);
 - 4.3. protected areas;
 5. a list of the environmental objectives established under Article 4 for surface waters, groundwaters and protected areas, including in particular identification of instances where use has been made of Article 4(4), (5), (6) and (7), and the associated information required under that Article;
 6. a summary of the economic analysis of water use as required by Article 5 and Annex III;
 7. a summary of the programme or programmes of measures adopted under Article 11, including the ways in which the objectives established under Article 4 are thereby to be achieved;
 - 7.1. a summary of the measures required to implement Community legislation for the protection of water;
 - 7.2. a report on the practical steps and measures taken to apply the principle of recovery of the costs of water use in accordance with Article 9;
 - 7.3. a summary of the measures taken to meet the requirements of Article 7

- 7.4. a summary of the controls on abstraction and impoundment of water, including reference to the registers and identifications of the cases where exemptions have been made under Article 11(3)(e);
- 7.5. a summary of the controls adopted for point source discharges and other activities with an impact on the status of water in accordance with the provisions of Article 11(3)(g) and 11.3(j);
- 7.6. an identification of the cases where direct discharges to groundwater have been authorised in accordance with the provisions of Article 11(3)(j);
- 7.7. a summary of the measures taken in accordance with Article 16 on priority substances;
- 7.8. a summary of the measures taken to prevent or reduce the impact of accidental pollution incidents;
- 7.9. a summary of the measures taken under Article 11(5) for bodies of water which are unlikely to achieve the objectives set out under Article 4;
- 7.10. details of the supplementary measures identified as necessary in order to meet the environmental objectives established;
- 7.11. details of the measures taken to avoid increase in pollution of marine waters in accordance with Article 11(6);
8. a register of any more detailed programmes and management plans for the River Basin District dealing with particular sub-basins, sectors, issues or water types, together with a summary of their contents;
9. a summary of the public information and consultation measures taken, their results and the changes to the plan made as a consequence;
10. a list of competent authorities in accordance with Annex I;
11. the contact points and procedures for obtaining the background documentation and information referred to in Article 14(1), and in particular details of the control measures adopted in accordance with Article 11(3)(g) and 11(3)(i) and of the actual monitoring data gathered in accordance with Article 8 and Annex V.

B. The first update of the River Basin Management Plan and all subsequent updates shall also include:

1. a summary of any changes or updates since the publication of the previous version of the River Basin Management Plan, including a summary of the reviews to be carried out under Article 4(4), (5), (6) and (7);
2. an assessment of the progress made towards the achievement of the environmental objectives, including presentation of the monitoring results for the period of the previous plan in map form, and an explanation for any environmental objectives which have not been reached;
3. a summary of, and an explanation for, any measures foreseen in the earlier version of the River Basin Management Plan which have not been undertaken;
4. a summary of any additional interim measures adopted under Article 11(5) since the publication of the previous version of the River Basin Management Plan

Attachment S2

General Description of Environmental and Demographic Characteristics of the South West Scotland River Basin District

Climate

The climate of the South West RBD is dominated by the prevailing westerly to south-westerly air flow. This tends to bring mild moist conditions, which in combination with the elevation of the land and coastal proximity, largely controls the spatial variation of climate across the RBD.

Large differences in average annual rainfall exist across the South West RBD (**Maps S2-1 and S2-2**). These range from average annual values of between 2000 and 3000 mm in the mountainous north and islands, to further inland with 800 mm, the lowest average annual precipitation recorded in the RBD, around Ayr and along the eastern end of the Solway Firth, in the Coastal margins.

Although the average amount of rainfall can markedly differ across the South West RBD, on average most rain occurs during the autumn and winter months and the driest period of the year tends to be during the early summer. However wet conditions can occur at any time of the year.

Storm events giving rise to the most serious fluvial floods in the South West RBD are typically related to autumn and winter depressions arriving from the west and south-west. Although convective rainfall, particularly during the summer, does occur; its influence upon catchment runoff is relatively less than that in the more south-eastern regions of Britain.

Normally snow conditions in all but the mountainous north play a relatively minor role in the hydrology of the South West RBD. For example estimates based on data from 1961 to 1990 suggest that the central lowland belt and the coastal margins have on average less than 20 days of snow lying each year (Harrison et al, 2001). However this number rises to between 40 and 80 days in the mainland mountains away from the coast and up to about 100 days of snow lie on the highest mountains in the north east of the South West RBD.

Average annual temperature is highest around the coastal margins and through the central belt. Typically average annual temperatures are between 7 and 9°C. Average temperatures in the Southern Uplands and the mountainous inland region in the north are about 1 °C and 2 °C cooler respectively. Average seasonal temperature patterns across the South West RBD are similar.

Potential evapotranspiration is very similar across the South West RBD with the maximum occurring in mid summer and a minimum of almost zero in mid winter

Predicted Climate Change

Significant climate change, as a result of greenhouse induced changes to the composition of the atmosphere, has been projected for the 21st century for the United Kingdom (Hulme and Jenkins, 1998). Average annual temperatures for the South West RBD are projected to rise by between 1.2 to 2.6 °C by the 2080s, with the warming being slightly more rapid in winter than in summer and greater during night-time than day-time.

Precipitation over Scotland as a whole is projected to increase by between 5 to 20% by the 2080s, with the winters up to 20% wetter and the summers just slightly wetter. These UKCIP98 projections do not provide regional scale information suitable for discriminating the likely changes between the west and east coast of Scotland. Subsequent work by Hulme et al (2001) at a scale of 50 km suggests that for the Medium-High scenario, average annual precipitation may rise by between 15 and 35% by the end of the 21st century. Seasonal increases in precipitation range from 35 to 45% in the autumn to only a marginal increase in the summer. Extreme rainfall is also tentatively suggested to increase with

2-year return period daily precipitation projected to increase by about 10 to 20% by the end of the 21st century (Hulme et al 2001).

The suggested increases in temperature are projected to result in a reduction in the average numbers of days on which snow lies, particularly in the low lying areas, and a raising of snow-lines during the winter months (Harrison et al, 2001).

Average annual potential evapotranspiration is also projected to increase by between 5 and 8% for southern Scotland by the 2080s (Hulme and Jenkins, 1998). The largest percentage increases are projected to occur during the autumn (9-23%, which only equates to about 10 to 20 mm) whilst more moderate increases (2 to 8%) are suggested for the spring (equivalent to 3 to 11 mm) and summer (equivalent to 8 to 17 mm).

As well as average conditions changing it is also predicted that year-to-year variability in many climatic factors will increase in the future. This is likely to lead to more severe extreme conditions.

The only key climate variable to show a sustained long-term trend up to the end of the 20th century is air temperature (SNIFFER, 1999). Although others, such as annual precipitation and potential evapotranspiration, have shown marked increases at the end of the 20th century, it remains difficult to distinguish any sustained long-term trend within the natural fluctuations that occur on a decadal timescale (Price and McNally, 2001).

Changes in climatic factors can have a significant influence on hydrological characteristics of a catchment. For example, groundwater quality and quantity can be influenced. Intricately linked to the water cycle, groundwater is recharged via precipitation and the infiltration of water to the underlying saturated zones. As a result, changes in rainfall patterns can affect the recharge of important aquifer zones that may be used for potable water supplies. With precipitation rates across Scotland predicted to increase, groundwater levels will likely also to increase. This may provide a greater potential for use of groundwater as a potable water supply across the South West RBD, and Scotland as a whole. However, increases in groundwater levels and extremes in weather may also mean greater risk of flooding and risk to urban developments and settlements.

Due to the process of recharge via precipitation and infiltration, groundwater quality can also be affected by changes in climatic conditions. Increased precipitation rates may result in greater runoff of heavy metals and other contaminants and subsequent infiltration to underlying sensitive groundwater aquifers.

Topography

Topographically the South West RBD encompasses highland regions with mountain peaks over 1000m high in the northern portion, the central lowland region principally comprising floodplains and undulating glacial features and the flatter coastal regions of Ayrshire and Dumfries & Galloway. In addition the Southern Uplands occupy much of the southern portion of the region, characterised by mountains and moorlands with elevations up to 840m above sea level. These mountainous features soften within the western portion of Dumfries and Galloway, which has wooded hills and valleys and fertile rolling fields.

The District's coast is heavily indented, with sea lochs and estuaries penetrating many kilometres inland. Principal among these is the Firth of Clyde and Clyde Estuary. These, together with the offshore islands, mean that the coastal waters defined in the Directive encompass a very large area of open sea, of the order of 10 000 km² (JNCC website, 2001). The southern boundary of the South West RBD is formed by the Solway Firth and its associated mudflats.

Map S2-3 provides an illustration of the topography of the RBD.

Geology and hydrogeology

The geology of the South West RBD can be divided into three distinct areas. The areas are separated by major fault lines, namely; the Southern Upland Fault, the Highland Boundary Fault and the Great Glen Fault, which separate the country into the Southern Uplands, the Midland Valley and the Western Highlands.

The Southern Uplands are formed of a thick sequence of poorly permeable Silurian and Ordovician shales and greywackes bordered to the north by the Southern Uplands Fault. There are several granite intrusions and major west-north-west trending dykes. Devonian and Carboniferous strata extend north from England to overlie the shales and greywackes north of Carlisle and there are several outliers of permeable Permian and Triassic sandstones and breccias around Dumfries, Stranraer and Lochmaben.

The Midland Valley of Scotland comprises a comparatively low lying block of land bounded by the Highland Boundary Fault to the north and the Southern Upland Fault to the south. The basement rocks here are covered by between 7000 to 9000m of Upper Palaeozoic rocks, comprising a complex pile of volcanic and sedimentary strata of the Devonian and Carboniferous periods with small inliers of older, lower Palaeozoic strata found in the south. There is a single Permian outlier in Ayrshire and another in south Arran.

Strata of the Midland Valley have been exploited significantly for aggregate and other minerals and the superficial deposits throughout this area have been changed significantly by industrial activities including quarrying, mining, steel working and landfilling. Groundwater is found on a small scale throughout much of the sedimentary strata in this area, although its occurrence and quality is complicated by the history of mining. Little information is available on the exact nature of groundwater across the Region in general, and as noted above, this is an areas which requires further research.

North of the Highland Boundary Fault the crystalline metamorphic and igneous basement rocks are exposed. These comprise the Dalradian sequence of metamorphosed sediments and igneous rocks, which extend along the Kintyre peninsula and comprise much of Jura and Islay. The Island of Mull comprises a significant Tertiary igneous complex with associated north west to south east trending dykes radiating out from here across much of the area. Around Oban extrusive Devonian igneous deposits are present as lava sheets, while to the north the hills around Glen Etive are formed by intrusive granite, as are those in the north of Arran. The water bearing potential of the majority of rocks in this area is generally poor, being limited to cracks and joints, and any groundwater potential is generally limited to the occurrence of local and recent alluvial deposits.

Land Cover

Map S2-4 and Map S2-5 shows the Land Cover of Scotland Map 1988 which breaks land use down into over one hundred classes and provides a good indication of the variety of land cover within the District.

Large parts of the South West RBD are covered by a variety of grass types. Much of Dumfries and Galloway, Ayrshire and Argyll and Bute are shown to be acid grassland which may provide grazing for the area's sheep and cattle farms. In addition large areas of the District, in particular parts of North and East Ayrshire, the rural outlying districts of Glasgow and southern parts of Dumfries and Galloway, are covered by improved grassland. This is again a good indication of areas used for livestock farming. In comparison, however, arable farming is found in small, sparse pockets, with a concentration apparent in Ayrshire and along the southern coast of Dumfries and Galloway.

The more mountainous parts of the District are principally covered by acid and non acid grassland, heathland and bogs with lower slopes often utilised for forestry. Planted coniferous woodland covers much of Dumfries and Galloway and Argyll and Bute and is typically interspersed with the acid grassland, heath and bogs also found on higher ground. More extensive bogs are found on a number of the islands, with good examples existing in Islay, Jura and Arran, and on the mainland in parts of Ayrshire, Inverclyde and South Lanarkshire. Broad leaved and yew woodland is also present in small pockets within areas of planted forestry and more extensively along the coast and the shores of lochs. Loch Lomond provides a good illustration of the extent of these woodlands around surface water features.

The coastal areas also present a diverse range of land cover types. The long Ayrshire coast has a number of regional towns situated along it including Ayr, Irvine, Troon and Girvan. These towns are separated by lengths of sand dunes, non acid grassland and some arable and improved grassland. Further south around Stranraer and Loch Ryan land use is dominated by improved grassland and arable land with occasional dunes and other grasslands. The headlands of the south Dumfries and Galloway Coast overlooking the Solway Firth are principally made up of improved grasslands, occasional arable lands and non acid grasslands. However the sheltered bays are often characterised by salt marshes. The Solway Firth is a European Marine Site due to its unique habitats and wildlife and an important

part of that designation is the salt marshes that occupy a number of the sheltered inlets and bays between Caulkerbush and Gretna and around Sillioth on the English bank of the Firth. Approximately 13% of the UK's extent of saltmarsh is to be found in the Solway Firth and represents a valuable habitat for extensive bird life. In addition the intertidal mud and sand flats are an essential part of the Solway ecosystem and play host to numerous sediment dwelling animals, fish and roosting birds.

Further north the coast of Argyll and Bute and its islands is heavily indented and supports a variety of land types. In a number of places the planted coniferous forestry extends to the high tide mark, whilst grass and heathland is also common along many coastal areas. A number of the islands also display extensive sand dunes such as those found on Tiree, Coll, Islay and Mull.

Population

The approximate total population of Scotland is 5,061,000, of which 2,428,000 live in the South West RBD (SEPA West Region, 2001). Despite the apparent rural nature of much of the area the South West RBD accounts for 48% of the total population of Scotland but covers only 28% of its land area. As outlined above, the principal concentration of the region's population is in the urbanised central lowlands around the city of Glasgow, the largest urban concentration in Scotland. Within this area approximately 25% of the population lives in just 0.8% of the land area. Other concentrations of population occur at the regional centres such as Ayr, Dumfries, Kilmarnock, Lochgilphead and Helensburgh. In contrast, the rural areas of the South West RBD have population densities as low as 0.12 persons per hectare. In particular, parts of Argyll and Bute are extremely sparsely populated especially on some of the west coast islands.

	Scotland	South West RBD
Total Surface Area	718.65 ha (71865 km ²)	205.25 (20525 km ²)
Total Population	5061000	2428000
Average Population Density	7042 per ha (70.4 per km ²)	11829 per ha (118.29 per km ²)

Table S2-1: Population and Surface Area in Scotland and the South West RBD

(Adapted from SEPA South West Region, 2000)

Although the RBD is predominantly rural, a high concentration of people live within the central urban area and in the regional towns. Table A2-2 provides a break down of population per Local Authority area based on the 1991 census results and **Map S2-6** illustrates the principal settlements and their populations across the region. **Map S2-7** is an example of a detailed illustration of density distributions in the West Coast Cumnurbation

Table S2-2 Population per Local Authority Area (adapted from The gazette for Scotland, 1991)

Local Authority	Area in Hectares	Population (1991)
Argyll and Bute	702300	90550
West Dunbartonshire	17573	97790
East Dunbartonshire	17551	110220
Inverclyde	16724	89990
Renfrewshire	26250	176970
East Renfrewshire	16802	86780
Glasgow City	17472	623850
South Lanarkshire	177789	307100
East Ayrshire	127527	123820
North Ayrshire	139020	88755
South Ayrshire	123021	113960
Dumfries & Galloway	644567	147900
North Lanarkshire (Part of)*	47648	326750
Stirling (Part of)*	42664	81630

*These council areas are only partly included in the South West RBD, however population figures for the appropriate area are not available.

Attachment S3

Current Situation in Scotland in regard to meeting requirements for Protected Areas

Areas for the Abstraction of Drinking Water

The majority of water abstracted for drinking water in the South West is derived from surface water courses. Surface water abstraction is controlled under the Drinking Water Directive 90/778/EEC (and amendment 98/83/EEC), and the Quality of Surface Waters for Abstraction Directive 75/440/EEC, surface waters used for abstraction for drinking water must be classified into three categories, A1, A2 and A3. Categories below A3 should be used for drinking water abstraction only in exceptional circumstances.

Groundwater is also used in some areas for water supply, particularly in the Dumfries area. There is no current controls for groundwater abstraction operating in Scotland, however groundwater quality must meet the requirements specified in the Drinking Water Directive 90/778/EEC (and amendment 98/83/EEC).

The WFD now requires water bodies from which drinking water is abstracted at more than 10m³ a day or to serve more than 50 people to be identified. Water bodies intended for such use in the future must also be included. The Directive's requirement goes beyond the general objectives of preventing deterioration and achieving good status to protecting such water bodies with the aim of reducing the levels of treatment needed. Safeguard zones can be established to meet this requirement. WFD requires that the quality of water intended for abstraction meet the requirements of the Drinking Water Directive 90/778/EEC and its amendment 98/83/EEC.

WoSWA already own and manage Loch Katrine catchment with a view to the protection of drinking water sources. Their powers are however limited to their land ownership, although they can make management agreements with other landowners.

Map 8 illustrates current data relating to the abstraction of water for potable supply.

Areas Designated for Economically Significant Aquatic Species

The primary impact of this requirement of the Directive in the Scottish context is on designated freshwater fish and shellfish waters. The Shellfish Directive 79/923/EEC is transposed into Scottish law through the Surface Waters (Shellfish) (Classification) (Scotland) Regulations 1997 (S.I. 1997/2470) and the Surface Waters (Shellfish) (Scotland) Directions 1997. The Shellfish Directive specifies chemical water quality standards to ensure that the waters will continue to support healthy fisheries. The Scottish Executive establishes designations and the geographical extents are illustrated in **Map 9**. In addition to the designated catchments shown, a number of other catchments have recently been proposed as shellfish waters by the Scottish Executive. This includes 30 catchments within the South West RBD. These proposed designations are also shown on **Map 7**. These proposed shellfish designations are currently undergoing public consultation.

Under the Freshwater Fish Directive (78/659/EEC), implemented through the Surface Waters (Fish Life) (Classification) (Scotland) Regulations 1997 (S.I. 1997 2471) together with the Surface Waters (Fish Life) (Scotland) Directions 1997, the Scottish Executive can classify rivers as salmonid or as cyprinid waters. Water quality standards are specified in the Directive. Approximately 72% of all rivers in Scotland are designated under the Directive. Within the South West RBD 68 areas are designated as freshwater fisheries, the majority designated for salmonid fisheries, with only two areas designated as cyprinid fisheries (located on the Forth and Clyde canal). Areas designated as salmonid and cyprinid fisheries within the South West RBD are illustrated on **Map 1**

Recreational and Bathing Waters

The Bathing Water Directive 76/160/EEC is transposed into Scottish law by the Bathing Waters (Classification) (Scotland) Regulations 1991 (S.I. 1991/1609) and by amendment of COPA 1974. Bathing beaches are designated by the Scottish Executive and the locations are illustrated in **Map 10**

SEPA also monitor water quality at a number of 'recreational waters' round the coast of south west Scotland at which recreational activity (e.g. surfing) may take place. As a matter of policy SEPA operate a consenting regime which is aimed at achieving the same standards as those of the Bathing Water Directive at these sites. These designations however did not, prior to the WFD, have the force of either national or EU law, and they are not mapped

Nutrient Sensitive Areas

Nitrate Vulnerable Zones (NVZs)

NVZs can be designated through the Nitrates Directive 91/676/EEC, transposed through the Protection of Water Against Agricultural Nitrate Pollution (Scotland) Regulations 1996 (S.I. 1996/1564), amended by the Designation of Nitrate Vulnerable Zones (Scotland) Regulations 2000 (S.S.I. 2000/96). The objective is to reduce nitrate levels in watercourses at source, by placing controls on farm practices. NVZs are identified under the Nitrates Directive as areas where groundwaters have concentrations \geq 50 mg/l or are thought to be at risk of nitrate contamination.

Currently, only two NVZs have been designated in Scotland to date, although these are not within the South West RBD. However, six further designations have been proposed by SE, including the Nithsdale area of Dumfriesshire. This area, located within the South West RBD, is an important aquifer for drinking water supply for the Dumfries area. It also supports much of the towns industrial water supply, and provides water for two large fish farms, various dairy and arable farms and a mineral water company. Recent research indicates that the average nitrate concentration of water recharging this aquifer is 40 – 50 mg/l (BGS, 2001). The proposed NVZ designations are likely to be adopted following completion of the consultation process in 2002.

Map 21 provides an indication of the levels of nitrate at monitoring point across the RBD. Where nitrate levels are shown to be between 10 and 50 mg/l this is likely to indicate point source discharges.

Sensitive Areas under the Urban Waste Water Directive

Sensitive areas can be designated through the Urban Waste Water Treatment (UWWT) Directive 91/271/EEC, transposed in the Urban Waste Water Treatment (Scotland) Regulations 1994 (S.I. 1994/2842). These are areas designated for the prevention of eutrophication through inputs of sewage, or where treatment beyond secondary is required to meet the requirements of other Directives.

It should also be noted that there are no areas designated as High Natural Dispersion Areas (HNDAs) under the UWWT Directive in the South West RBD.

Protection of Habitats and Species

Areas can be designated for the protection of habitats and species under the Habitats Directive 92/43/EEC, transposed into UK Legislation in the Conservation (Natural Habitats etc.) Regulations 1994 (S.I. 1994/2716). The Habitats Directive requires the maintenance of certain natural habitats and species at a favourable conservation status through the notification of sites as Special Areas of Conservation (SACs). The Birds Directive 79/409/EEC is implemented through the SSSI mechanism of the Wildlife and Countryside Act 1981 and the 1994 Regulations (see below). The Act also implements the Ramsar Convention on Wetlands of International Importance 1973 (Cmnd 6647: 1973), which aims to protect wetland habitats for bird conservation. Bird habitat sites are termed Special Protection Areas (SPAs) under the Birds Directive. SPAs and SACs together make up the Natura 2000 network of protected habitats in the EU under the Habitats Directive. A number of SPAs

have been designated in Scotland, and candidate SACs have been proposed and are likely to be approved by the European Commission in the next 12 months. The SPAs and SACs in the South West RBD are illustrated in **Map 12**.

Under the Wildlife and Countryside Act 1981, sites can be designated as Sites of Special Scientific Interest (SSSIs), which also allow for the protection of habitats and species. A wider range of habitats and species are included than those in the Habitats and Birds Directive, comprising sites considered to be of national importance but which are not necessarily of Europe-wide importance. SPAs and SACs are however normally supported by a SSSI designation, although SSSIs cannot be designated below the low water mark, whereas SACs can. Therefore under the 1994 Regulations a marine SAC can be designated without corresponding SSSI designation.

The Water Framework Directive will make a contribution to protect aquatic biodiversity and more broadly will make a contribution towards the conservation of biodiversity depending on the water cycle at water-catchment level.

Accordingly it is expected that River Basin Management Plans cover the whole of each river basin reflect biodiversity concerns by;

- producing a clear picture of the state of aquatic biodiversity inter alia through a regular assessment of the ecological status of waters (every 6 years).
- Characterisation of aquatic ecosystems to provide detailed information to be used as the reference condition for assessing changes to the ecological status of waters, inter alia species composition and abundance, spatial and temporal variations, specific indicator organisms and indicator functions.
- A better understanding will be provided on hydrological and ecological interaction between wetlands, the riverine zone and the aquatic ecosystem in a river basin
 - indicating protected areas and taking account of them.
 - establishing a string of aquatic ecosystems with restored or improved ecosystem function and structure, which may function as aquatic ecological corridor.
 - ensuring a good status for groundwater quality and quantity, which in a broader sense contributes to the protection of terrestrial ecosystems and their biodiversity.
 - promoting sustainable water use based on a long-term protection of available water. Water cannot be abstracted or diverted in large quantities without a thorough examination of the possible impact on aquatic ecosystems
 - establishing a sound basis for collection and analysis of information on the aquatic biodiversity and pressures upon it. This will provide a necessary information base upon which competent authorities in Member States can develop sensible, sustainable policies; and in particular River Basin Management Plans in line with Annex VII of the Water Framework Directive.
 - Achieving transparency through publication and dissemination of information and through public consultation on draft River Basin Management Plans, including but not restricted to, the directly interested parties. This open participatory process should ensure better quality in establishing and implementing the River Basin Management Plan

Protected areas therefore should also include all terrestrial water dependent ecosystems (WDE's), under EU and national designation, for example raised bogs and blanket bogs.