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Protection, Restoration and Enhancement of Salmon Habitat Focus Area Report

EU-Germany

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Focus Area Report on the Protection, Restoration and Enhancement of Salmon Habitats

EU/Germany

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1. Overview of salmon rivers in Germany

Germany once had four large river systems that supported Atlantic salmon. These were the rivers Rhine, Ems, Weser and Elbe. The industrial revolution affected the rivers due to straightening of the watercourse, building of barrages to make shipping possible, generating power, and water pollution. As a consequence the salmon were unable to reach their spawning grounds. Other factors like fishing and bad water quality accelerated this process and salmon in Germany were extinct by 1950 at the latest.

In recent years water quality has been improved and enormous efforts have been made to enable salmon to reach at least some of their former spawning grounds. Since 2000 these efforts have been supported by implementation of the EU Water Framework Directive (EU WFD). The improvement of water quality, habitats and access to spawning grounds were the absolute minimum requirements to start reintroduction programmes.

According to the criteria of the EU WFD the mainstreams and the main tributaries have in most cases to be regarded as heavily modified rivers. Some of the tributaries and smaller waters upstream from the tributaries are still in their natural condition. These areas, where a lot of spawning and juvenile habitats are located, are often in good ecological condition and suitable for salmon reproduction. One of the main challenges for salmon is to overcome the obstacles on their way to the spawning ground.

Under the EU-German Implementation Plan, the four river systems are regarded separately.

A: Rhine

The maps given have been approved by the ICPR. Map K-1 (Fig.1) shows the historically documented distribution of salmon and sea trout (light green), and trout from Lake Constance (dark green). The whole drainage basin is marked in grey. Although there is no differentiation between waters inhabited by salmon and those inhabited by sea trout, all areas can be assumed to be at least potential salmon habitats.

Map MP-K2 (Fig.2) will be approved with the "Master Plan Migratory Fish Rhine" which is expected to come into force by January 2010 at the latest and which will be implemented by the riparian states in three steps, in the periods up to 2015, 2020 and 2027. Only the waters that are integrated into the programme are marked on the map. The green colour indicates waters that are accessible for migratory fish as they swim upstream. This means, with some

cutbacks in the Rhine delta, that the main stream is already continuous up to the upper Rhine. The green triangles point out barrages that enable an upstream migration. The yellow river stretches have only limited accessibility and the red stretches are not accessible. The red triangles stand for impassable barrages. An analysis of the current habitat areas that are suited for salmon and the accessibility of these habitat areas shows that only about 20% of the potential habitats can be accessed (Tab.1). Thus the main emphasis of the masterplan will be to improve the continuity of the waterways. This also conforms with the aims of the WFD that have to be achieved in the EU by 2015.



Fig. 1 Historic salmon and sea trout habitats in the Rhine system



Fig. 2 Current status of migration routes in the Rhine system

Tab. 1: Potential spawning and juvenile habitats in the Rhine system

	Salmon habitat areas [ha]	Accessible Salmon habitat surfaces [ha]
Lower Rhine	215	65
Middle Rhine	121	84
Moselle System	170	0
Main System	12	0
Upper Rhine	275	63
downstream Strasbourg		
Upstream Strasbourg	251	0
	1033 [ha]	212 [ha]

Currently about 20 % of the potential salmon habitats are accessible in the Rhine system.

B: Ems

There is no map available that shows the historic salmon waters. Fig.3 shows the current status of fishing waters. Cyprinid waters are marked in green whereas Salmonid waters are coloured yellow and are found in the south (Ems Süd). According to the German IP the stocked areas are located in the largest eastern tributaries Hase and Leda-Jümme and the Upper Ems (the area of Ems Süd).

C: Weser

According to the strategy on migratory fish in the Weser system "Gesamtstrategie Wanderfische in der Flussgebietseinheit Weser", as of April 2009, 2,385 km of the Weser system are seen as potentially suited to be spawning or juvenile habitats for anadromous salmonids. 930 km or 30 % of these have "potentially good accessibility", this means that despite the cumulative effects of all barrages, accessibility is at least 50 % (Tab.2). Fig. 4 shows the historic salmon waters and their estimated potential for reintroduction.

Tab. 2: Potential spawning and juvenile habitats in the Weser system

	Potentially suitable spawning and juvenile waters [km]	Spawning and juvenile waters with potentially good accessibility [km]
Lower Weser	365	365
Aller/Leine System	315	206
Middle/Upper Weser	390	214
Fulda/Diemel System	970	80
Werra System	270	65
	ca. 2,385 km	930 km



Fig. 3 Biological reserves, fish and mussels waters and bathing waters in the Ems system



Fig. 4 Historical Salmon spawning and migration waters in the Weser System

The red line shows historically proved spawning grounds and migration routes. The grey lines mark, as predicted by experts, putative historic salmon waters. These waters appear to be suited for salmon reintroduction even if not historically documented.

D: Elbe

Formerly, each of the bigger Elbe tributaries had a salmon stock of its own. The main historic spawning grounds were primarily on the northern edge of the highlands of Saxony, Thuringia and Bohemia (Czech Republic). The Elbe main stream as well as some larger tributaries, mainly in Lower Saxony, Schleswig Holstein, Hamburg, Berlin and Saxony Anhalt were basically used as transit routes. This is at least known for the bigger tributaries in Saxony Anhalt like Saale, Mulde, Weiße Elster and Schwarze Elster. Some of the tributaries of the Saale (Bode, Selke and Wipper) and Weser (Ilse and Ecker), which have their source in the Harz mountains, have spawning areas. Figures 5 and 6 show the salmon waters in Brandenburg and Saxony Anhalt. Historic reservoirs are marked in green, current ones in blue. There are some uncertainties about salmon in some of the rivers. In some cases sea trout may be have been mistaken for salmon. Although salmon is regularly found in the Elbe system, stocking is absolute necessary to sustain and built up self sustaining populations. Saxony (Fig. 7) has three programme areas for salmon reintroduction: "Sächsische Schweiz", "Mulde" and "Schwarze Elster". Stocking of the Elbe System is done in the areas given in table 3.



Fig.5 Salmon in Brandenburg Historic occurrences in green, current occurrences in blue.

Fig. 6 Salmon in Saxony Anhalt Historical occurrences in green, current occurrences in blue.

Fig. 7 Salmon in Saxony with the programme areas "Sächsische Schweiz" (near Krippenbach), "Mulde" (near Chemnitz) and "Schwarze Elster" (near the Pulsnitz)

Tab.	3 St	ocking	activities	in the	Elbe	River	System:	

Federal state	Stocked tributary or area		
Schleswig Holstein	Stör		
Lower Saxony	Luhe, Ilmenau, Steeve, Schwinge		
Brandenburg	Stepenitz, Pulsnitz		
Saxony	Programme area "Sächsische Schweiz"		
	stocked at		
	Lachsbach, Polenz, Sebnitz, Kirnitzsch,		
	Müglitz, Wesenitz		
	Programme area "Mulde" stocked at		
	Chemnitz, Würschnitz, Zwönitz, Zwickauer		
	Mulde, Vereinigte Mulde		
	Programme area "Schwarze Elster" stocked		
	at Pulsnitz		

2. Current status of Salmon Habitats

A: Rhine

The habitats putatively suited for spawning and juvenile salmon are chosen on the basis of a "Comprehensive fish-ecological analysis including an assessment of the effectiveness of ongoing and planned measures in the Rhine watershed with respect to the reintroduction of migratory fish" (ICPR report 167), that led to the proposed master plan for migratory salmon. The actual size is estimated to be 1033 [ha] (see table1). From these only 212, which is about 20%, are accessible. Since improvements of water quality and sediment structure were made, the bottleneck that is slowing the reintroduction is the issue of continuity of migration routes. As depicted in MK-2 (Fig.2), a precise bundle of measures is given to overcome migration obstacles. This conforms with the EU WFD. The exact measures can be given after ratification of the master plan, which is expected to take place at the latest in January 2010 and which will by published by the ICPR.

The introduction programmes in the River Rhine are successful as in quite a number of tributaries there is evidence of a natural reproduction of salmon over a period of several years (table 4). Although stocking is still necessary it seems that shortly the Sieg system will become independent from stocking with foreign eggs. Stocking material should be gained exclusively from returners and aquaculture of reconditioned returners or parent stocks.

G		D 1 4
System	Project water (with	Reproductive success
Surface of habitat	most important	
[ha]	tributaries)	
Sieg	Sieg NW ¹	Little success $(1 - <=5 \text{ parr} / 100 \text{ m}^2)$
25	Agger	High success (>50 parr/100 m ²)
	Naafbach	High success (>50 parr/100 m ²)
	Bröl	Considerable success (>5-50
		$parr/100 m^2$)
	Homburger Bröl	Little success (1-<=5 parr/100 m ²)
	Waldbröl	Considerable success (>5-50
		parr/100 m ²)
	Sülz	Little success (1-<=5 parr/100 m ²)
	Schlingenbach	High success (>50 parr/100 m ²)
	Middle Sieg RP ²	High success (>50 parr/100 m ²)
	Nistersystem	High success (>50 parr/100 m ²)
	Wisserbach	High success (>50 parr/100 m ²)
	Elbbach	Little success $(1 - \langle =5 \text{ parr}/100 \text{ m}^2)$
Saynbach	Saynbach	High success (>50 parr/100 m ²)
10	Brexbach	Considerable success (>5-50
		$parr/100 m^2$)
Wisper	Wisper	High success (>50 parr/100 m ²)
2		

Tab.4 Natural reproduction in the Rhine System

¹NW North Rhine Westfalia, ² RP Rhineland Palatinate

B: Ems

There are no available data on natural reproduction in the Ems system.

C: Weser

Potential salmon habitats were evaluated. Tab. 5 gives an evaluation of potentially suited spawning or juvenile habitats. No natural reproduction of salmon has yet been quantified, thus a final estimation of habitat quality cannot be made. Currently special surveys are being conducted in the Werra and its influents Ulster, Felda and Schleuse.

Part of the Weser Migration route/		Name of putative	Potential
System	tributary	spawning and juvenile	accessibility
		habitat	of habitat
Tideweser	Unterweser/Geeste	Grove, Frelsdorfer	1.0
		Mühlenbach, Geeste	
	Unterweser/Hunte	Lethe, Rittrumer	0.81
		Mühlenbach, Twillbäke,	
		Visbecker Aue	
	Wümme/Hamme	Wörpe, Wümme, Rodau,	0.6 – 1.0
		Wiedau, Veerse,	
		Ruschwede, Fintau	
	Lower Weser/ Ochtum	Ochtum, Delme,	1.0
		Klosterbach, Varreler	
		Böke, Hache	
Aller	Middle Weser/ Aller	Böhme, Ilster/Örtze,	0.5-0.9
		Örtze, Lutter, Lachte,	
		Oker	
Leine	Middle	Leine, Ilme, Rhume	0.36 - 0.51
	Weser/Aller/Leine		
Middle/ Upper	Middle Weser/Werre	Werre, Rehmerloh-	0.4 -0.54
Weser		Mennighöffer	
		Mühlenbach,	
		Bramschebach,	
		Johannisbach,	
		Linnebach, Passade,	
		Bega	
	Middle/ Upper Weser	Westerkalle, Kalle,	0.66-0.7
		Twiesbach, Exter,	
		Hamel	
	Middle/ Upper	Emmer, Wörmke,	0.42
	Weser/Emmer	Heubach, Beberbach	
	Middle/ Upper	Nethe, Brucht, Aa	0.66
	Weser/Nethe		
	Middle/ Upper Weser	Schelpe, Bever,, Lenne,	0.66
		Schwülme, Heiferbach,	
		Schede	
Fulda/ Diemel	Middle/ Upper	Lower Diemel, Holzape,	0.4 -0.57
	Weser/Diemel	Warme, Erpe, Twiste,	
		Eggel, Mühlengraben,	
		Hoppecke, Upper Diemel	
	Middle/ Upper	Losse, Lower Eder	0.44 - 0.54
	Weser/Fulda		
	Weser/Fulda/Eder/	Schwalm, Efze, Gilsa,	0.34- 0.44

	Schwalm	Antreff, Ohebach	
	Weser/ Fulda / Eder	Elbe, Aar, Okre,	0.29- 0.38
		Nemphe, Upper Eder,	
		Odeborn, Röspe, Benfe	
	Weser/ Fulda	Middle Fulda, Pfieffe,	0.31- 0.44
		Nüst, Haune, Geisbach,	
		Aula, Jossa, Lüder,	
		Döllbach, Fliede	
Werra	Weser/Werra	Sontra, Wehre, Frieda,	0.11-0.54
		Ness, Hershel, Shun,	
		Ulster, Felda, Schleuse,	
		Upper Werra	

E: Elbe

The main stream and some main tributaries may be regarded as migration routes with no or only little reproductive capacities. The main spawning grounds were in Saxony, Thuringia, the Czech Republic and Poland. Historic or potential salmon habitats in Saxony Anhalt are Bode, Selke, Nuthe, Rossel, Wipper, Thyra, Ilse and Ecker. As described in the IP amendments 2009, stocking in the Nuthe started in 2008. Overall, the quantity and quality of spawning habitats in Saxony Anhalt is limited. Although the Stepenitz is semi-natural over a stretch of 55 km, the adjacent spawning habitats are limited to an area of about 100,000 m². In the Pulsnitz small habitats of about 5,000 - 10,000 m² exist. The other potential salmon habitats are located in Saxony and have not yet been quantified.

For the region of Bode, Selke, Nuthe and Rossel in Saxony Anhalt, an area of 338,000 m² was mapped. A great number of barrages inhibit access to some of the potential spawning habitats. In the Bode system the salty influents of the soda industry at Straßfurt form a chemical barrage. Thus besides the new project of the Nuthe, stocking in Saxony Anhalt is not envisaged until accessibility is guaranteed.

In Saxony salmon inhabited almost all bigger rivers and went up bigger streams for spawning up to the epi- and metarhithral. The decline of salmon took place concurrently with industrialisation in the ore mountains and the establishment of stamp mills, soap factories and mills that polluted water. On the other hand the number of barrages increased. The number of spawning habitats also decreased due to the consequent alternation of impounded parts and quick-flowing stretches. Due to the implementation of the EU WFD the water quality and number of potential spawning habitats is increasing.

3. Identification of priority/ key habitats

A. Rhine

The criteria for identification of habitats were chosen as described in the comprehensive fishecological analysis (IPCR Report 167, see also 2.A). According to this, spawning grounds lie in the hyporhithral or metarhithral and only in exceptional cases in the epipotamal. Temperature, oxygen concentration, sediment structure (gravel), hydraulic conditions and water depth have to be appropriate. The upstream river must have sufficient patency and the downstream river must have sufficient continuity.

B: Ems

Criteria for identification of salmon habitats were not given. The draft of the river management plan 2008 sees river continuity and the reduction of fine sediments as important measures to assist migratory fish.

C: Weser

The strategy on migratory fish in the Weser system by the River Basin Commission (RBC) Weser provides in the annex a list of potential spawning habitats. The list was made on the basis of information from the fisheries authorities of the federal states. The spawning habitats are also based on the requirements of the ecological analysis for salmon according to the EU WFD. The annex also lists requirements for better river continuity and improvements of spawning and juvenile habitats. Thuringia drew attention to the importance of an optimal composition of the substrate (gravel).

E: Elbe

In Brandenburg the selection of key habitats was made according to criteria given by Nemitz & Molls (1998). Main factors comprised the structure of the river bed (coarse gravel, gravel), the depth and width of the water, (about 0.3-0.5 m; >3m) and the fluid flow (>0.5 m/s, low to moderate turbulence).

In Saxony Anhalt a priority list for salmon habitats was not established. A report to examine fish-ecological potential for the reintroduction of large salmonids in Saxony Anhalt was made on behalf of the ministry. It concludes that due to the current structural deficiencies, only a small number of lowland rivers in the metarhithral are suited for reintroduction, if any. Historically, sea trout was the main species and salmon played only a minor role.

A lot of historic spawning grounds are located in Saxony (Fig. 7). A priority habitat should be a historical spawning ground and the structure of the river bed (gravel) must be suited. Furthermore the water quality has to be sufficient and fine sediments should be low. Another important criterion is the ratio between mean high water and mean low water discharge (MHW/MLW). Finally the habitat has to be accessible for migratory salmon. Thus the number and passability of barrages is included in the evaluation.

4. Activities and approaches used to share and exchange information on habitat issues and best management practices between relevant bodies within the jurisdiction.

As stated before, fisheries are the responsibility of the federal states and thus administered on a decentralised basis. The structure of this FAR reflects the more or less co-ordinated river system management between different federal states and different countries.

A: Rhine

Salmon management in the Rhine system is efficiently co-ordinated by the ICPR. The topic "migratory fish" is always an agenda item at the three annual meetings of the expert group

FISH. In the January 2010 meeting, a whole day will be devoted to exchange on the migratory fish programmes of the riparian states. In a workshop in Freiburg on 27./28. April 2010, the "Masterplan Migratory Fish Rhine" will be presented; this plan aims to promote information exchange between stakeholders and NGOs. The symposium entitled "Lachs 2000", which took place in 1999, accumulated information on more river systems. The NASCO (Peter Hutchinson) presented at the 5th international Rhine Symposium in Bonn. The IPCR is basically open for EU-wide exchange on salmon. The precise requirements have to be evaluated by the FISH expert group.

B: Ems

There is no known co-ordination of the activities in the Ems system. The management plan of the FGE includes inter alia measures in favour of migratory species including salmon.

The working group for the protection of fish species and the protection of water in northern Germany ("Arbeitsgemeinschaft für Fischarten- und Gewässerschutz in Norddeutschland", AGFN) plays an important role in the exchange of experiences on river development between many different initiatives, mainly anglers, and project areas in northern Germany, including the Ems system. The AGFN holds two workshops each year on the introduction of migratory fish species, biological water analysis, water management, fish-ecology, hydropower, netcatches of fish in the rivers, in the estuaries and at sea, renature projects and cormorant issues. Reports are regularly completed with national contributions from all over Germany and with international contributions from Denmark, Sweden, Poland, Iceland and the Netherlands.

C: Weser

The main instrument of information exchange is in the Weser system due to the River Basin Commission (RBC) Weser with its expert group on fishfauna. The AGFN is also of some importance.

D: Elbe

Information exchange takes place first of all mainly within the International Commission for the Protection of the River Elbe (IKSE) for the whole Elbe system. Another information source for projects on salmon is also the AGFN.

Besides that there are a lot of working groups in the federal states, above all in Brandenburg, Saxony Anhalt and Saxony. They include stakeholders from fisheries, water management and nature conservation. The main scientific responsibility in Brandenburg and Saxony Anhalt is borne by the institute of inland fisheries (Institut für Binnenfischerei e. V. (IfB)) in Brandenburg and in Saxony by the fisheries department of the Saxon State Institute for Agriculture. There is close contact and information exchange between projects in Brandenburg, Saxony Anhalt and Brandenburg, and a more informal contact with projects in Lower Saxony and Schleswig Holstein. The first experiences from the Rhine system proved to be very helpful, especially at the beginning of the restocking process.

5. Description of work undertaken and/ or planned to establish comprehensive salmon habitat protection, restoration, and enhancement, in order to evaluate whether action plans are implemented

A: Rhine

For the Rhine system the programme Rhine 2020 with its special subsection Salmon 2020 has been implemented (see ICPR report 162). Within this programme, impacts and potential risks to the productive capacity of habitats were evaluated. ICPR report 167 on the comprehensive fish-ecological analysis is a survey of the success of the already implemented measures; it also gives advice to the riparian states for the development of further measures for salmon reintroduction.

The burden of proof on impacts on the habitat is handled differently throughout the riparian states. In general the operators of power plants and the water and shipping directorates are responsible for the restoration of river continuity and are included in financing and implementation of measures. The weighting of the respective interests between habitats and socio-economic implications is made by the federal states within the implementation of the EU WFD.

The effect of measures of habitat improvement on the Rhine system is already visible. The composition of the fish community has become much more diverse since the first programme, the "Rhine 2000" programme, was started. The measures currently envisaged to improve river continuity will support all migratory species as well as macrozoobenthos. The improvements of spawning habitats will also improve conditions for sea trout and eventually for macrozoobenthos. Some other biological factors that affect the productive capacity of Atlantic salmon populations have to be taken into account. Meanwhile cormorants are regarded as a danger for salmon, especially smolts in the Upper Rhine, the Ijsselsea and at the coast. Farmed salmon are rarely seen at the coast and the Rhine delta and appear to be a minor danger. Invasive species may become a problem. An increasing population of asp (Aspius aspius), which is a predator of salmon, has been monitored. Problems with parasites are not known within the Rhine system. As stated in ICPR report 167 a higher mortality of multiple sea winter salmon is due to the higher risk of parasite infestation during the time at sea.

Non-biological factors which are of influence include the increasing temperature and low efflux. Salmon ceases upmigration at a temperature of 25°C and above. A low efflux impedes upstream migration of adult salmon as well as downstream migration of smolts.

B: Ems

There is no special action plan. In the process of implementation of the EU WFD, improvements of habitats and river continuity are enhancing the efforts to reintroduce salmon.

C: Weser

The strategy for the reintroduction of long distance migration fishes from the River Basin Commission Weser (RBC Weser) on behalf of the riparian states meets the demands of the NASCO plan of action. It conforms with the EU WFD, including the development of spawning areas, the establishment of a better river continuity and the improvement of the water quality. This strategy was published in April 2009 and can be downloaded from the website of the RBC Weser (available only in German, http://fgg-weser.de/Download-Dateien/gesamtstrategie_wanderfische_0904.pdf). A detailed analysis of habitats and potential migration routes is given as well as measures for improvement. The socio-economic factors are accounted for in the context of the EU WFD. Although a lot of measures are on-going, it has to be kept in mind that the Weser is a highly modified water with economically important industries in the region.

E: Elbe

A programme as demanded by the NASCO Action Plan does not exist for the Elbe system. All riparian states are obliged to put the EU WFD into force, thus supporting measures that have at least positive side effects for salmon.

Brandenburg and Saxony Anhalt state that special programmes for the protection and restoration of salmon habitats neither exist nor are they planned. Having a programme such as this is viewed as essential, in particular by scientists, in order to achieve sustainable success in reintroduction. The steps that need to be undertaken should not be left to the fisheries alone. There is a demand to integrate water management, especially operators of power plants and the responsible water and shipping directorates, to a greater extent in the financing and implementation of measures. In addition fisheries law, law on waterways and nature law should be regarded equally.

As a good step in the right direction Saxony Anhalt drew up a concept on the establishment of an ecological continuity of waters in Saxony Anhalt with an identification of priority waters. This takes demands of salmon into consideration to a certain extent. The concept was made on behalf of the "Landesbetrieb für Hochwasserschutz- und Wasserwirtschaft (LHW)", the authority which is responsible for the management of federal waters.

In Saxony a programme to restore and protect river continuity was developed. The basis for the selection of priority waters was the importance as salmon water. The implementation of measures in favour of river continuity is due to the EU WFD.

A negative impact on salmon is seen in the growing cormorant population. Cormorant are expanding their hunting grounds from the hyporhithral into the metarhithral, thus parts and smolts are increasingly falling prey to these fish-eating birds.

6. Overview of ongoing habitat activities that demonstrate progress in implementing habitat protection, restoration and enhancement plans identified above.

Above all the overall improvement of rivers with habitat quality, water quality and river continuity is monitored in implementation of the EU WFD and the FFH Directive.

A: Rhine

The proposal of the masterplan Migratory fish Rhine gives a summary of measures already implemented for migratory fish and planned measures in the Rhine system. As depicted in Tab. 1 it is estimated that 1000 ha of spawning and juvenile habitats will be made accessible in the programme waters. Precise measures, including cost estimates, are given for a timeframe up to 2015. These measures are depicted for the Rhine delta, in association with the

Netherlands, the Lower, Middle and Upper, High Rhine, Lake Constance and the Alpine region. Annex 1 lists the barrages that have to be rebuilt and the habitat measures along the main stream and the tributaries. The Masterplan will be published by the ICPR as soon as it is adopted, which is assumed to be in January 2010.

In general the reintroduction projects are scientifically monitored. The data from the monitoring stations along the river document the success of the reintroduction measures by the number of returners and control of egg deposition in spawning habitats. Success of stocking is measured by counts of downstream migrating parr.

B: Ems

There is no special monitoring for the Ems system.

C: Weser

Up to now the strategy on migratory fish gives in annex 3 recommendations to improve spawning and juvenile habitats. These are:

- Enough structural diversity and sufficient variance in the current;
- A good quality (i.e. gravel) of spawning and juvenile habitats;
- A cross-linking of marine and freshwater habitats;
- To have a supra-regional concept for priority habitats;
- Scientific monitoring of all projects.

There has not yet been any control made of the success of all these measures.

E: Elbe

One key project in Saxony Anhalt is the building of a fishpass at a barrage at the Mulde storage lake. This gives access to the Mulde system, that used to be one of the most important spawning areas for the Elbe salmon.

Brandenburg failed to get sponsoring for reintroduction programmes via the EU INTERREG IVC programme. It is now trying to get support for a pilot project at the Stepenitz that was initially sponsored by the federal fisheries fund "Fischereiabgabe" with a limited budget.

Existing salmon habitats are detected via telemetric studies with upmigrating spawners as well as inspection of potential habitat sites. Although it was possible to provide evidence of spawning grounds, it was not possible to obtain funds to cover the necessary operating expenses.