



CNL(15)58

NASCO Implementation Plan for the period 2013-18

EU – Germany

Updated 1 December 2015

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The main purpose of this Implementation Plan is to demonstrate what actions are being taken by the jurisdiction to implement NASCO Resolutions, Agreements and Guidelines.

Questions in the Implementation Plan refer to the following documents:

- *NASCO Guidelines for Management of Salmon Fisheries, CNL(09)43 (referred to as the 'Fisheries Guidelines');*
- *Minimum Standard for Catch Statistics, CNL(93)51 (referred to as the 'Minimum Standard');*
- *NASCO Guidelines for Protection, Restoration and Enhancement of Atlantic Salmon Habitat, CNL(10)51 (referred to as the 'Habitat Guidelines');*
- *Williamsburg Resolution, CNL(06)48; and*
- *Guidance on Best Management Practices to address impacts of sea lice and escaped farmed salmon on wild salmon stocks (SLG(09)5) (referred to as the 'BMP Guidance').*

Party:	European Union
Jurisdiction/Region:	Germany

1. Introduction
1.1 What are the objectives for the management of wild salmon? (Max 200 words)
<p>The aim of the current management of wild salmon is the reintroduction and establishment of self-sustaining populations of Atlantic Salmon in some German watersheds occupied in the past. In the long run a sustainable use of salmon for fishing purposes may be envisaged. Prior and parallel to the reintroduction activities former salmon habitats are restored. The restoration of habitats as well as the opening of migratory pathways are carried out within the Water Framework Directive of the European Union (WFD) and meet major points of the <i>NASCO Plan of Action for the Application of the Precautionary Approach to the Protection and Restoration of Atlantic Salmon Habitat.</i></p>
1.2 What reference points (e.g. conservation limits, management targets or other measures of abundance) are used to assess the status of stocks? (Max 200 words) (Reference: Sections 2.4 and 2.5 of the Fisheries Guidelines)
<p>Most German salmon habitats are sited in designated Special Areas of Conservation (SACs) under the EU Habitats Directive (92/43/EEC). Under the Habitats Directive member states are called upon to establish the necessary conservation measures and, if need be, appropriate management plans with the goal to achieve a favourable conservation status for the species and habitat types. The conservation status of salmon will be determined with special assessment and evaluation keys. The management target is a favourable conservation status of salmon populations.</p> <p>In addition a number of monitoring and evaluation programmes are implemented in Germany to evaluate the status of salmon stocks and the efficiency of management measures:</p>

1. Direct counting of upstream migrating salmon can only be done in a limited number of rivers. Fish-counting stations connected to fish ladders , partly equipped with video counters, are already installed in a number of rivers in the catchment of the river Rhine and in few rivers of the Elbe catchment.
2. Salmon redd mapping surveys are carried out in various rivers.
3. The control of natural reproduction and stocking success is carried out by using electrofishing.
4. The recording of smolt output is carried out with screw traps, fyke-nets or in fish-counting stations in various rivers of the Rhine and Elbe catchment.
5. Different fish marking techniques are carried out in the Rhine catchment (adipose fin clips and NEDAP Transponder) and the Elbe catchment (HDX Transponder).
6. A regular genetic monitoring (microsatellite-analyses) is carried out in the Elbe catchment (Brandenburg+Saxony).
7. Additional Data are delivered by the monitoring according to the Water Framework directive (WFD).

1.3 To provide a baseline for future comparison, what is the current status of stocks relative to the reference points described in 1.2, and how are threatened and endangered stocks identified?

Category	Description of category and link to reference points	No. rivers
1	Rivers have been classified according to the NASCO criteria for the Salmon Rivers Database. Currently German Salmon rivers are only compatible with the river category “maintained”: “Rivers in which there is no natural stock of salmon, which are known to have contained salmon in the past, but in which a salmon stock is now only maintained through human intervention.”	All 42 tributaries of the Rivers Rhine, Ems, Weser and Elbe where efforts aiming at the reintroduction of Atlantic salmon are in progress.
2		
3		
4		

Insert additional categories as required

TOTAL:

Additional comments:

Some rivers are in transition to the category “restored” according to the NASCO criteria for the Salmon Rivers Database. That means in these rivers salmon have a good natural reproductive success but restoration stocking is still necessary to maintain the salmon stocks. After 2015 it is contemplated to stop stocking in one or more rivers of the Rhine catchment in order to observe the development of these salmon stocks without stocking.

1.4 How is stock diversity (e.g. genetics, age composition, run-timing, etc.) taken into account in the management of salmon stocks? (Max 200 words)

Because all wild salmon stocks were extinct in German rivers the selecting of suitable donor-strains for reintroduction efforts is one of the mayor tasks for salmon management in Germany. The reproductive success of different donor-strains is closely related to life history patterns in the freshwater phase, like age composition (e.g. Multiple-Sea-Winter ratio) and run timing respectively spawning time. The comparison of life history patterns of extinct salmon strains from the river Rhine with different strains of European origin has provided valuable information for the correct selection of suitable donor-strains ([SCHNEIDER 2010](#)).

Also genetic tools like Microsatellites genotyping are used for selecting the right source populations for reintroduction programs.	
1.5 To provide a baseline for future comparison, what is the current and potential quantity of salmon habitat? (Max 200 words) (Reference: Section 3.1 of the Habitat Guidelines)	
Currently about 25 % of the potential salmon spawning and juvenile habitats (1039 ha) in the Rhine system are accessible. In 2009, only 20% of the potential habitats had been accessible. In the Weser river watershed the potential quantity of salmon habitat is estimated at 478 ha. About 30 % of these are “potentially good accessible”, that means, that despite cumulative effects of all barrages, accessibility is possible for at least 50 % of the salmon spawners. In the Elbe river catchment actually only about 10% of the potential spawning habitats are accessible. The most important spawning grounds on major Elbe tributaries such as the rivers Havel, Mulde, Saale and most of Czech spawning grounds are inapproachable for ascending salmon spawners.	
1.6 What is the current extent of freshwater and marine salmonid aquaculture?	
Number of marine farms	Marine salmonid aquaculture is not relevant in Germany
Marine production (tonnes)	0 t
Number of freshwater facilities	In entire Germany 2.248 freshwater facilities produced salmonids in 2011 according to the <i>Statistisches Bundesamt</i> (Federal Statistical Office). 773 of these freshwater facilities are located in from salmon reintroduction concerned <i>Bundesländer</i> (Federal States).
Freshwater production (tonnes)	Around 11.000 t of salmonids were produced in freshwater in Germany 2011. Of this amount, approximately 6000 t in Federal States affected by salmon reintroduction.
Append one or more maps showing the location of aquaculture facilities and aquaculture free zones in rivers and the sea. <i>Maps showing the locations of German freshwater aquaculture facilities are not available.</i>	
1.7 To aid in the interpretation of this Implementation Plan, have complete data on rivers within the jurisdiction been provided for the NASCO rivers database? <i>Yes/no/comments</i>	
Yes – in the current NASCO rivers database German salmon reintroduction rivers are grouped to the main catchments of the rivers Rhine, Ems, Weser and Elbe. It recommended to maintain these classification.	
2. Fisheries Management:	
2.1 What are the objectives for the management of the fisheries for wild salmon? (Max. 200 words)	
There is no commercial salmon fishery in the German NASCO convention area neither in marine area nor in freshwater. In most of the German federal states, salmon is listed as a protected species and even angling is not permitted. However in few lowland rivers of the Elbe catchment, angling on salmon is allowed under restricted conditions. Nevertheless the primary goal of the current fisheries management is the reintroduction and establishment of self-sustaining wild Atlantic Salmon stocks in the former German salmon distribution area. After achieving this goal a sustainable use of salmon for fishing purposes may be envisaged.	

<p>2.2 What is the decision-making process for fisheries management, including predetermined decisions taken under different stock conditions (e.g. the stock level at which fisheries are closed)? <i>(Max. 200 words)</i> <i>(This can be answered by providing a flow diagram if this is available.)</i> <i>(Reference: Sections 2.1 and 2.7 of the Fisheries Guidelines)</i></p>
<p>Since there are no self sustaining stocks yet, conservation limits cannot be drawn. The monitoring of stocking and returning salmon may give a good estimation whether restocking succeeds. Although stocking seems to be successful in German river systems, it is still a long way to achieving self sustaining stocks that are adjusted to their new habitats. A harvestable surplus from these stocks cannot be expected in the current reporting period.</p> <p>A special case are seven little lowland rivers of the Elbe catchment in Lower Saxony where angling clubs exert something like a mitigation stocking with salmon. The historical occurrence of salmon populations in these rivers is controversial, they are primarily sea trout rivers. A sustainable establishment of reproductive salmon populations is very unlikely.</p>
<p>2.3 Are fisheries permitted to operate on salmon stocks that are below their reference point and, if so, how many such fisheries are there and what approach is taken to managing them that still promotes stock rebuilding? <i>(Max 200 words.)</i> <i>(Reference: Section 2.7 of the Fisheries Guidelines)</i></p>
<p>In managing German salmon fisheries, priority is given to developing self-sustaining salmon stocks. Hence no commercial salmon fisheries is carried out in Germany and a targeted recreational fishing on salmon is usually forbidden by law.</p> <p>An exception are the lowland rivers in Lower Saxony (see also point 2.2) where mitigation stocking is practiced by angling clubs. The catch of salmon is not illegal in these rivers. According to the fisheries law of Lower Saxony legal catch of salmon is only possible in rivers with documented salmon stocking (in compliance with the legal minimum length and the closed season). The fisheries legislation of Lower Saxony tolerates salmon stocking activities because salmon is not completely allochthonous for the mentioned river types. Nevertheless a stock rebuilding of salmon in these rivers is not promising because they are sea trout dominated and habitat conditions are suboptimal for salmon. That is why the stock rebuilding of salmon in this case is not supported with public funding. The salmon catch in these rivers is negligible.</p>
<p>2.4 Are there any mixed-stock salmon fisheries and, if so, (a) how are these defined, (b) what was the mean catch in these fisheries in the last five years and (c) how are they managed to ensure that all the contributing stocks are meeting their conservation objectives? <i>(Max. 300 words in total)</i> <i>(Reference: Section 2.8 of the Fisheries Guidelines)</i></p>
<p>There are no mixed-stock salmon fisheries in the German NASCO convention area.</p>
<p>2.5 How are socio-economic factors taken into account in making decisions on fisheries management? <i>(Max. 200 words)</i> <i>(Reference: Section 2.9 of the Fisheries Guidelines)</i></p>
<p>The primary management objective is to ensure the restoration and rehabilitation of salmon stocks. Currently socio-economic factors play a minor role in making decisions on salmon management. The salmon stocks are still too low as to be seen as usable resource.</p> <p>Angling associations and activists are important supporters, mostly on a voluntary basis, of reintroduction and restocking programs of salmon. In the case of the few rivers in Lower Saxony where salmon angling is permitted (2.2, 2.3), salmon is a rare by-catch in recreational sea trout fishing and there is no targeted salmon fishing. 2012 less than 50 salmon catches were reported.</p>

2.6 What is the current level of unreported catch and what measures are being taken to reduce this? (Max. 200 words) <i>(Reference: Section 2.2 of the Fisheries Guidelines and the Minimum Standard)</i>	
<p>The amount of salmon taken as accidental by-catch in commercial river fisheries or recreational fisheries and the amount of illegal catches is not known. Only for the lower section of the Elbe river rough estimations for unreported catches are available (approx. 300-400 kg p.a.).</p> <p>Fishing ban areas around fish passes, barrages and the mouths of salmon tributaries were extended to avoid accidental by-catch, respectively illegal salmon catch. Additionally the fisheries surveillance were strengthened, by volunteering fisheries inspectors during the salmon run.</p> <p>For the Rhine catchment the International Commission for the Protection of the Rhine (ICPR) has developed recommendations for the reduction of by-catches and illegal catches (see "Master Plan Migratory Fish Rhine").</p>	
2.7 What are the main threats to wild salmon and challenges for management in relation to fisheries, taking into account the Fisheries Guidelines and the specific issues on which action was recommended for this jurisdiction in the Final Report of the Fisheries Management FAR Review Group, (CNL(09)11)?	
Threat/ challenge F1	Reducing by-catches and illegal catches of salmon by professional and recreational fishing in the Rhine catchment.
Threat/ challenge F2	Maintaining the salmon population in the Agger river without stocking measures.
Threat/ challenge F3	
Threat/ challenge F4	

Copy and paste lines to add further threats/challenges which should be labelled F5, F6, etc.

2.8 What actions are planned to address each of the above threats and challenges in the five year period to 2018?		
Action F1:	Description of action:	The ICPR has drafted recommendations aimed at improving legal compliance and thus reducing by-catches and illegal catches of salmon by professional and recreational fishing (see " <u>Master Plan Migratory Fish Rhine</u> ").
	Planned timescale:	Efforts must be maintained continuously until the circumstances have significantly improved.
	Expected outcome:	Diminish the pressure due to fishery.
	Approach for monitoring effectiveness & enforcement:	Experts annually exchange information within the ICPR on the implementation of these recommendations in the Rhine bordering countries and report on their effectiveness in practice.
Action F2:	Description of action:	Developing of a self-sustaining salmon population in the Agger river without stocking
	Planned timescale:	From 2015 onwards.
	Expected outcome:	Verification if the salmon population in this river is restored successfully.
	Approach for monitoring	This pioneering project will be accompanied by the LANUV.

	effectiveness & enforcement:	
Action F3:	Description of action:	
	Planned timescale:	
	Expected outcome:	
	Approach for monitoring effectiveness & enforcement:	
Action F4:	Description of action:	
	Planned timescale:	
	Expected outcome:	
	Approach for monitoring effectiveness & enforcement:	

Copy and paste lines to add further actions which should be labelled F5, F6, etc.

3. Protection and Restoration of Salmon Habitat:	
3.1	How are risks to productive capacity identified and options for restoring degraded or lost salmon habitat prioritised, taking into account the principle of ‘no net loss’ ? (Max. 200 words) <i>(Reference: Section 3 of the Habitat Guidelines)</i>
<p>To achieve the international goal of maintaining the productive capacity of Atlantic salmon habitat efforts on national scale, river catchment level and on local scale are in progress. At the national scale, management of salmon habitat is delivered at a strategic level through the Water Framework Directive (WFD). The Water Framework Directive sets the goal of attaining “good status” for Europe’s rivers, lakes, groundwater bodies and coastal waters in accordance with a clearly defined timeline.</p> <p>At the catchment scale the Master Plan Migratory Fish Rhine shows a detailed time table for the implementation of the restoration of up- and downstream river continuity and the development of quantitative and qualitative aspects of spawning and juvenile habitats. At local scale a variety of activities and approaches are used on habitat issues in responsibility of the <i>Bundesländer</i> (Federal States) in close partnership with angling associations and scientific institutions.</p> <p>Due to the numerous efforts related to the restoration of habitats an increase of the accessibility of spawning and juvenile habitats is expected for German rivers in the current reporting cycle.</p>	

3.2 How are socio-economic factors taken into account in making decisions on salmon habitat management? (Max. 200 words) <i>(Reference: Section 3.9 of the Habitats Guidelines)</i>	
<p>Currently socio-economic factors play a role in relation to environmental aspects e.g. as indicator of a sound environment. The reintroduction of salmon is seen as a complement to the ecological rehabilitation of riverine environments which is mandatory under the EU water framework directive (WFD).</p> <p>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 WFD.</p>	
3.3 What are the main threats to wild salmon and challenges for management in relation to estuarine and freshwater habitat taking into account the Habitat Guidelines, and the specific issues on which action was recommended for this jurisdiction in the Final Report of the Habitat Protection, Restoration and Enhancement FAR Review Group, (CNL(10)11)?	
Threat/ challenge H1	Migration hindrances in nautical inland waterways.
Threat/ challenge H2	Systematic river training on the Upper and High Rhine, on major Rhine tributaries such as the rivers Aare, Neckar, Main and Moselle and along several further tributaries in the entire catchment has heavily interfered with river continuity in the Rhine system. Spawning and juvenile fish habitats for migratory fish have been partly destroyed or are no longer accessible in the Rhine catchment.
Threat/ challenge H3	In Elbe river catchment the transverse structures in the main and secondary tributaries are the most significant threat for running salmon spawners. For downstream migrating smolts small hydropower plants are the highest cause of loss.
Threat/ challenge H4	

Copy and paste lines to add further threats/challenges which should be labelled H5, H6, etc.

3.4 What actions are planned to address each of the above threats and challenges in the five year period to 2018?		
Action H1:	Description of action:	The German Federal Ministry of Transport, Building and Urban Development launched the program “ <i>Durchgängigkeit Bundeswasserstraßen</i> ” (Patency Federal Waterways) in 2012. It`s objective is to preserve and restore the ecological passability at about 250 barrages in German federal waterways to improve fish migration. Many of the proposed measures in the catchments of Rhine, Ems, Weser and Elbe are located in the migration routes to current or potential salmon reintroduction rivers. Hence these activities have a high priority for reintroduction of salmon in Germany.
	Planned timescale:	The program shall be implemented in three stages until 2027. At the first stage measures at 46 barrages will be implemented. These measures are expected to start before 2015.
	Expected outcome:	Increased accessibility of spawning and juvenile habitats.
	Approach for monitoring effectiveness & enforcement:	For all the implemented measures monitoring is provided. Here, the functioning of the fish passes will be tested for all relevant fish species.
Action H2:	Description of action:	Restoration of up- and downstream river continuity and development of the quantitative and qualitative aspects of spawning and juvenile habitats in the entire Rhine catchment The specific measures planned for anadromous migratory fish in the different sections of the Rhine are listed in the "Master Plan Migratory Fish Rhine".
	Planned timescale:	Priority measures will be chosen based on aspects of efficiency (proportionality), technical feasibility and financing possibilities. A timetable for their implementation will be established until 2015, 2021 or 2027.
	Expected outcome:	Increased quality and quantity of spawning and juvenile habitats and decreased mortality due to barrages and hydropower plants.
	Approach for monitoring effectiveness & enforcement:	The functioning of the new built fish passes will be tested for all relevant fish species.
Action H3:	Description of action:	Reestablishing continuity of the Elbe river and its primary tributaries from estuary to the springs. The action includes 34 weirs in Brandenburg, 6 in Hamburg, 3 in Mecklenburg-Western Pomerania, potentially 1 in Lower Saxony, 9 in Saxony-Anhalt, 1 in Schleswig-Holstein, 23 in Thuringia, 54 in Saxony and 3 under responsibility of the Federal Government.
	Planned	Integrated into the activities of Water Framework Directive in

	timescale:	the Elbe river catchment (1 st Management plan 2015).
	Expected outcome:	Improved access to spawning grounds and decreased mortality due to barrages and hydropower plants.
	Approach for monitoring effectiveness & enforcement:	Under control of the Elbe river riparian “Bundesländer” (Federal states) and the “Bund” (Federal Government).
Action H4:	Description of action:	
	Planned timescale:	
	Expected outcome:	
	Approach for monitoring effectiveness & enforcement:	

Copy and paste lines to add further actions which should be labelled H5, H6, etc

4. Management of Aquaculture, Introductions and Transfers, and Transgenics:
4.1 What is the approach for determining the location of aquaculture facilities in (a) freshwater and (b) marine environments to minimise the risks to wild salmon stocks? (Max. 200 words for each)
<p>The approach for determining the location of aquaculture facilities in freshwater is regulated on the EU Council Directive 2006/88/EC and the Fischseuchenverordnung (Federal Law on fish epidemics) as well as EU Council Regulation No 708/2007 concerning use of alien and locally absent species in aquaculture. According to 2006/88/EC the authorization of aquaculture production businesses and processing establishments shall not be granted if the activity in question were to lead to an unacceptable risk of spreading diseases to areas with wild stocks of aquatic animals in the vicinity of the farming area.</p> <p>Under Article 6 (3) of the Habitats Directive and Article 34 of the Bundesnaturschutzgesetz (Federal Nature Conservation Act), all plans and projects which are likely to have a significant effect on Natura 2000 sites (protected under the Habitats Directive) shall be subject to appropriate assessment of its implications for the site in view of the sites conservation objectives. The competent authorities can only agree to the plan or project after having ascertained that it will not adversely affect the integrity of the site concerned. Because Atlantic salmon is protected under the Habitats Directive new permits of aquaculture facilities are covered by Article 6 (3) of the Habitats Directive.</p>
<p>(b) Due to different restrictions an introduction of a marine salmonid aquaculture production in German coastal regions is hardly possible. These restrictions usually are caused by the different stakeholders of the coastal regions as well as the requirement of Marine Protected Areas (MPAs). Therefore, marine salmonid aquaculture facilities are currently not an issue in Germany.</p>

<p>4.2 What progress can be demonstrated towards the achievement of the international goals for effective sea lice management such that there is no increase in sea lice loads or lice-induced mortality of wild stocks attributable to sea lice? (Max. 200 words) (Reference: BMP Guidance)</p>
<p>As there is no saltwater rearing of salmonids in Germany, there are no problems with sea lice-induced mortality of wild salmon. Nevertheless as part of the salmon parasite monitoring which is performed in the Rhine catchment by the North Rhine Westphalia Landesanstalt für Natur, Umwelt und Verbraucherschutz (LANUV), sea lice was first detected in 2011 in a tributary of the Meuse river.</p>
<p>4.3 What progress can be demonstrated towards the achievement of the international goals for ensuring 100% containment in (a) freshwater and (b) marine aquaculture facilities? (Max. 200 words each) (Reference: BMP Guidance)</p>
<p>The issue of escaped farmed salmon is not relevant to Germany, because there is no salmon farming for food purposes. There are a number of hatcheries used for artificial propagation of wild Atlantic salmon for restoration purposes. The operators of these hatcheries have a strong interest to ensure that screens are in place to prevent the egress of salmon from the hatchery, even though there is no explicitly legal requirement for freshwater facilities to prevent escapes. Furthermore all salmon hatcheries require authorization and are subject to regular health inspections.</p>
<p>(b) Not applicable to Germany (see 4.1)</p>
<p>4.4 What progress has been made to implement NASCO guidance on introductions, transfers and stocking? (Max. 200 words) (Reference: Articles 5 and 6 and Annex 4 of the Williamsburg Resolution)</p>
<p>From 2013 the North-Rhine Westphalia Atlantic salmon reintroduction program is independent from foreign origin ova for the first time. This is an important prerequisite in order to establish a separate local adapted indigenous salmon population in North Rhine Westphalia Rhine tributaries. Stocking for reintroduction purposes of salmon in Germany was not previously possible without using non- indigenous donor populations, because indigenous Atlantic salmon is totally extinct in the entire watersheds occupied in historical times. A regular Genetic monitoring of Salmon returnees and determination of the genetic polymorphism in the supportive breeding of the <i>Landesamt für Natur, Umwelt und Verbraucherschutz</i> (LANUV) North Rhine-Westphalia is planned from 2013 onwards.</p>
<p>4.5 What is the policy/strategy on use of transgenic salmon? (Max. 200 words) (Reference: Article 7 and Annex 5 of the Williamsburg Resolution)</p>
<p>Deliberate release of genetically modified organisms (GMOs) is regulated in Germany in the Gentechnikgesetz (Gene Technology Act 1993) and in the European Union by European Directive 2001/18/EC and Regulation (EC) 1829/2003 on genetically modified food and feed. Unintentional movements of GMOs between member states and exports of GMOs to third countries are governed by Regulation (EC) No 1946/2003 on transboundary movements of GMOs. Apart from the fact that there are no salmon farms operating in Germany the approval of the production of food from genetically modified animals is currently out of the question in Germany because of consumer resistance against GMOs. Additionally it is forbidden to import or sell transgenic fish for consumption in the EU.</p>

4.6 What measures are in place to prevent the introduction or further spread of <i>Gyrodactylus salaris</i>? (Max. 200 words)	
The salmon parasite monitoring which is performed by the LANUV, has so far not detected any <i>Gyrodactylus salaris</i> on salmon in the Rhine catchment. To prevent the introduction of <i>Gyrodactylus</i> in Germany all ova and fry imported from abroad require a health certificate and all material is subject to a health check before stocking.	
4.7 What are the main threats to wild salmon and challenges for management in relation to aquaculture, introductions and transfers, and transgenics, taking into account the Williamsburg Resolution, the BMP Guidance and specific issues on which action was recommended for this jurisdiction in the Final Report of the Aquaculture FAR Review Group, (CNL(11)11)?	
Threat/ Challenge A1	Independence from foreign origin ova for reintroduction purposes of Atlantic salmon in order to establish a locally adapted indigenous salmon population in North Rhine Westphalia Rhine tributaries.
Threat/ challenge A2	Atlantic salmon (<i>Salmo salar</i>) has not yet fully re-established self-sustaining populations in the Rhine River and is therefore still dependent on stocking exercises. In this regard different ongoing genetic monitoring activities will be bundled up within the ICPR to contribute to a successful stocking strategy for the Rhine catchment.
Threat/ challenge A3	
Threat/ challenge A4	

Copy and paste lines to add further threats/challenges which should be labelled A5, A6, etc.

4.8 What actions are planned to address each of the above threats and challenges in the five year period to 2018?		
Action A1:	Description of action:	Stocking material is completely attained from material gained from returning spawners, from reconditioned kelts and captive breeding in North Rhine Westphalia Rhine tributaries.
	Planned timescale:	From 2013 onwards.
	Expected outcome:	No further use of ova from foreign origin. Establish a separate locally adapted indigenous salmon population in North Rhine Westphalia Rhine tributaries.
	Approach for monitoring effectiveness:	Regular salmon monitoring and if possible implementation of a regular genetic monitoring.
Action A2:	Description of action:	Experts annually exchange information within the ICPR expert group FISH about the possibilities of genetic monitoring of salmon in the Rhine catchment. The different initiatives in the Rhine catchment now aim at harmonizing their genetic monitoring.
	Planned timescale:	From 2014 onwards.
	Expected outcome:	Genetic monitoring will allow assessing 1. the efficiency of o stocking measures performed;

		<ul style="list-style-type: none"> o different strains that are stocked; o different stocking strategies (age, parents used, the origin of broodstock etc.) <p>2. the relative importance for stocking of the different streams of the Rhine catchment.</p>
	Approach for monitoring effectiveness & enforcement:	The outcome of the different ongoing genetic monitoring activities will be bundled up within the ICPR to contribute to the aetiology on salmon stock decline and the strategy against it.
Action A3:	Description of action:	
	Planned timescale:	
	Expected outcome:	
	Approach for monitoring effectiveness & enforcement:	
Action A4:	Description of action:	
	Planned timescale:	
	Expected outcome:	
	Approach for monitoring effectiveness & enforcement:	

Copy and paste lines to add further actions which should be labelled A5, A6, etc