



**IP(19)11rev3**

***NASCO Implementation Plan for the period 2019-2024***

***EU – Germany  
(Revised October 2021)***



## IP(19)11rev3

### *NASCO Implementation Plan for the period 2019 – 2024*

*The main purpose of this Implementation Plan is to demonstrate what actions are being taken by the Parties / jurisdictions to implement NASCO's Resolutions, Agreements and Guidelines.*

*In completing this Implementation Plan please refer to the **Guidelines for the Preparation and Evaluation of NASCO Implementation Plans and for Reporting on Progress**, CNL(18)49.*

*Questions in the Implementation Plan are drawn from the following documents:*

- *NASCO Guidelines for Management of Salmon Fisheries, CNL(09)43 (referred to as the 'Fisheries Guidelines');*
- *Report of the Working Group on Stock Classification, CNL(16)11;*
- *Minimum Standard for Catch Statistics, CNL(93)51 (referred to as the 'Minimum Standard');*
- *Revised matrix for the application of the six tenets for effective management of an Atlantic salmon fishery, WGCST(16)16<sup>1</sup>;*
- *NASCO Plan of Action for the Application of the Precautionary Approach to the Protection and Restoration of Atlantic Salmon Habitat, CNL(01)51;*
- *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;*
- *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');*
- *Guidelines for Incorporating Social and Economic Factors in Decisions under the Precautionary Approach (CNL(04)57); and*
- *Road Map' to enhance information exchange and co-operation on monitoring, research and measures to prevent the spread of G. salaris and eradicate it if introduced', NEA(18)08.*

<b>Party:</b>	<b>European Union</b>
<b>Jurisdiction / Region:</b>	<b>Germany</b>

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<sup>1</sup> This document can be obtained from the NASCO Secretariat; email [hq@nasco.int](mailto:hq@nasco.int)

# 1. Introduction

## 1.1 What are the objectives for the management of wild salmon? (Max 200 words)

The overarching wild salmon management objective is the re-establishment of self-sustaining salmon stocks in the catchment areas of the Elbe, Weser, Ems and Rhine rivers in Germany. In order to achieve this overarching goal, the following key management objectives are of paramount importance:

- Maintaining and improving river connectivity
- Quantitative and qualitative improvement of spawning and nursery habitats
- Genetically / scientifically based salmon brood stock management

Although many salmon recovery projects have been running for more than 20 years, almost all rebuilt German salmon stocks are still dependent on artificial sustaining measures. There are a number of reasons for this, but the main reasons are probably - beside the high level of degradation of German watercourses – high predation rates, poaching and for the River Rhine the barrier of the Haringvliet dam in the Dutch Rhine delta.

## 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)

Most German salmon habitats are situated 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. For the assessment of in-river stocks of salmon, concrete levels of parr abundance are defined in these evaluation keys.

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:

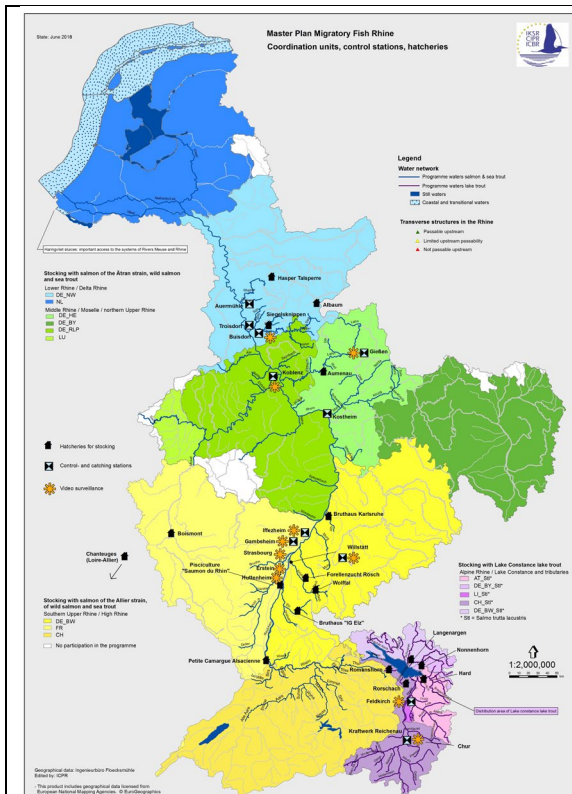
1. Direct counting of upstream migrating salmon can only be done in a limited number of rivers. Fish-counting stations connected to fish ladders, partly equipped with video counters, are already installed in a number of rivers in the catchment of the river Rhine and in few rivers of the Elbe catchment.
2. The control of natural reproduction and stocking success is carried out by using electrofishing and redd counting.
3. 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.
4. Different fish marking techniques are carried out in the Rhine catchment (adipose fin clips and NEDAP Transponder) and the Elbe catchment (HDX Transponder).
5. A regular genetic monitoring (microsatellite-analyses) is carried out in the Elbe catchment (Brandenburg+Saxony).

Additional Data are delivered by the monitoring according to the Water Framework Directive (WFD).

## 1.3 What is the current status of stocks under the new classification system outlined in CNL(16)11?

Stock Classification Score	Salmon Classification Category	No. rivers
0	Not at Risk	
1	Low Risk	
2	Moderate Risk	
3	High Risk	
N/A	Artificially Sustained	4 river systems
N/A	Lost	
N/A	Unknown	

Additional comments:	
<b>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)</b>	
<p>Because all wild salmon stocks are extinct in German rivers, the selecting of suitable donor-strains was one of the first milestones for salmon re-introduction in Germany. The comparison of life history patterns of extinct salmon strains with different strains of European origin has provided valuable information for the selection of suitable donor-strains.</p> <p>Today, more than 1 million stocked fish per year from different life stages are supporting the return of salmon to the Rhine, which come foremost from six hatcheries. The hatcheries produce fish of different genetic origin, which are released at different life stages and in many different Rhine tributaries. All these parameters influence the success of the stocking measures. However, in order to increase the chances of salmon reintroduction success throughout the Rhine basin, further knowledge on the genetic composition of Rhine salmon and on the success of stocking is of great importance, especially for administrations and hatcheries who are keen to maximise the effectiveness of the stocking measures. Therefore, strong efforts are currently being made to carry out a coordinated genetic monitoring in the entire Rhine catchment area. The main objective of this monitoring is to find out the most successful genetic management and stocking strategies for a successful reintroduction of salmon in the rhine catchment area.</p>	
<b>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)</b>	
<p>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.</p> <p>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.</p> <p>In the Elbe river catchment area, 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.</p> <p>The next update of potential quantity of salmon habitat can only be provided as of 2021.</p>	
<b>1.6 What is the current extent of freshwater and marine salmonid aquaculture?</b>	
Number of marine farms	Marine salmonid aquaculture is not relevant in Germany
Marine production (tonnes)	0 t
Number of freshwater facilities	According to the German Federal Statistical Office around 1.800 freshwater facilities have produced salmonids all over Germany in 2017.
Freshwater production (tonnes)	<p>10.837 t of salmonids (78% rainbow trout, 6% brown trout and 16% charrs) were produced all over Germany in 2017.</p> <p>For restocking purposes, 1.250.000 salmon of different life stages were produced in Germany for the Rhine catchment area in 2018.</p>
Append one or more maps showing the location of aquaculture facilities and aquaculture free zones in rivers and the sea.	



The appended map (International Commission for the Protection of the Rhine, Master Plan Migratory Fish Rhine 2018) shows the hatcheries used inter alia for salmon reproduction in the entire Rhine catchment area.

**1.7 Please describe the process used to consult NGOs and other stakeholders and industries in the development of this Implementation Plan. (Max 200 words)**

In Germany, the relevant federal states involved in salmon projects are responsible for the restoration and conservation of wild salmon. Accordingly, the fisheries officers responsible for the salmon projects in the respective federal states were included in the consultation on the preparation of the new implementation plan. If necessary, the query was forwarded to other authorities or institutions and NGO`s such as anglers and fishing associations. In this way, various German NGO`s were also involved in the development of this Implementation Plan. In addition, measures and contents of this Implementation Plan concerning the Rhine were coordinated with the International Commission for the Protection of the Rhine (ICPR).

**2. Management of Salmon Fisheries:**  
*In this section please review the management approach to each of the fisheries in your jurisdiction (i.e. commercial, recreational and other fisheries) in line with the relevant NASCO Resolutions, Agreements and Guidelines. For Parties / jurisdictions that prosecute mixed-stock fisheries, there should at least one action related to their 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. A targeted recreational fisheries on salmon is forbidden by law in the River Rhine catchment area.

**2.2 What is the decision-making process for the management of salmon fisheries, including predetermined decisions taken under different stock conditions (e.g. the stock levels at which regulations are triggered)? (Max. 200 words)**  
*(This can be answered by providing a flow diagram if this is available.)*  
*(Reference: Sections 2.1 and 2.7 of the Fisheries Guidelines)*

Not applicable to Germany

**2.3 (a) Are any fisheries permitted to operate on salmon stocks that are below their reference point (e.g. Conservation Limits)? If so, (b) how many such fisheries are**

<p><b>there and (c) what approach is taken to managing them that still promotes stock rebuilding?</b> (Max 200 words) (Reference: Section 2.7 of the Fisheries Guidelines)</p>	
(a) Not applicable to Germany	
(b) Not applicable to Germany	
(c) Not applicable to Germany	
<p><b>2.4 (a) Are there any mixed-stock salmon fisheries? If so (b) how are these defined, (c) what was the mean catch in these fisheries in the last five years and (d) how are they managed to ensure that all the contributing stocks are meeting their conservation objectives?</b> (Max. 300 words in total) (Reference: Section 2.8 of the Fisheries Guidelines)</p>	
(a) Not applicable to Germany	
(b) Not applicable to Germany	
(c) Not applicable to Germany	
(d) Not applicable to Germany	
<p><b>2.5 How are socio-economic factors taken into account in making decisions on management of salmon fisheries?</b> (Max. 200 words) (Reference: Section 2.9 of the Fisheries Guidelines)</p>	
(a) Not applicable to Germany	
<p><b>2.6 What is the current level of unreported catch and what measures are being taken to reduce this?</b> (Max. 200 words) (Reference: Section 2.2 of the Fisheries Guidelines and the Minimum Standard)</p>	
<p>The number of returning salmon is still very low in Germany so that a targeted catch of salmon is only possible in a few spots such as certain spawning river mouths or below barrages. However, the number of salmon catches known from social media and hearsay is relatively high, compared to the records at the monitoring stations. Nevertheless, there are no reliable figures on the subject available, and the number of poachers caught red-handed is extremely low all over Germany and all over the last 20 years.</p> <p>In order to reduce the level of unreported catches, the following measures are being taken:</p> <ul style="list-style-type: none"> <li>• Designation of protected areas at spawning river mouths</li> <li>• Intensifying information work to raise awareness of the problem among anglers</li> <li>• Intensifying fisheries surveillance</li> </ul>	
<p><b>2.7 Has an assessment under the Six Tenets for Effective Management of an Atlantic Salmon Fishery been conducted? If so, (a) has the assessment been made available to the Secretariat and (b) what actions are planned to improve the monitoring and control of the fishery? (c) If the six tenets have not been applied, what is the timescale for doing so?</b> (Max. 200 words) (Reference: Six Tenets for Effective Management of an Atlantic Salmon Fishery, WGCST(16)16)</p>	
(a) Although there is no salmon fishery in Germany, we have filled out the Six Tenets template conscientiously and made it available to the Secretariat.	
(b) Because the absence of a salmon fishery we have no reporting system.	
(c) Not applicable to Germany.	
<p><b>2.8 Identify the threats to wild salmon and challenges for management associated with their exploitation in fisheries, including bycatch of salmon in fisheries targeting other species.</b></p>	
Threat / challenge F1	The overarching objective of wild salmon management in Germany is the re-establishment of self-sustaining salmon stocks. Although many salmon recovery projects have been running for over 20 years, virtually all rebuilt German salmon



	stocks are still dependent on artificial sustaining measures. For salmon management in Germany, it is therefore of great relevance to know whether it is possible at all, to develop self-sustaining salmon populations under the given framework conditions (such as high smolt predation, turbine mortality, marine mortality etc.).
Threat / challenge F2	Illegal catches of salmon, in particular from angling, may pose a threat to the salmon's reintroduction efforts in Germany. No reliable data are available on this subject. Nevertheless, every effort must be made to protect vulnerable salmon stocks from illegal capture.
Threat / challenge F3	
Threat / challenge F4	

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

<b>2.9 What SMART actions are planned during the period covered by this Implementation Plan (2019 – 2024) to address each of the threats and challenges identified in section 2.8 to implement NASCO's Resolutions, Agreements and Guidelines and demonstrate progress towards achievement of its goals and objectives for the management of salmon fisheries?</b>		
<b>Action F1:</b>	Description of action:	A targeted and monitored attempt to build up a self-sustaining salmon stock is under implementation in the Agger river system. River Agger is a tributary of the river Sieg in the Rhine catchment area. The productive capacity of the Agger river system is sufficient to carry a vital salmon population. The aim of the project is to examine whether it is possible to develop a self-sustaining salmon stock under the current framework conditions in a tributary of the Rhine.
	Planned timescale (include milestones where appropriate):	Annually monitoring and assessment of the development of the salmon stock in the Agger river system until 2024.
	Expected outcome:	Development and verification of a vital salmon population in the Agger river system. The objective is to generate an average fry density of one individual/m <sup>2</sup> in early summer, and an average output of 9.000 downstream migrating smolts.
	Approach for monitoring effectiveness & enforcement:	Experts of the North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection (LANUV NRW) and the Fish Migration Program NRW annually evaluate the results of the monitoring (rotary screw trap, electro fishing) in the Agger river system and decide on further measures. Restocking measures in the main stream, corresponding to natural reproduction rate, no restocking in the tributaries. Comparison of the development of natural reproduction and verification with genetic analyses.
	Funding secured for both action and monitoring programme?	Yes
<b>Action F2:</b>	Description of action:	The Nahe river is the last major salmon project river in the middle section of the Rhine, where no fishing ban zone has yet been established at his mouth into the Rhine. There is a great need for action to designate a fishing ban zone in this sensitive area to protect migrating salmon during the salmon run.



	Planned timescale (include milestones where appropriate):	Establishment of a fishing ban zone in the area of the Nahe river mouth by 2020 at the latest.
	Expected outcome:	Avoidance of illegal catches at the Nahe river mouth.
	Approach for monitoring effectiveness & enforcement:	The fisheries surveillance authority of Rhineland-Palatinate will supervise the implementation of the measure.
	Funding secured for both action and monitoring programme?	Yes
<b>Action F3:</b>	Description of action:	
	Planned timescale (include milestones where appropriate):	
	Expected outcome:	
	Approach for monitoring effectiveness & enforcement:	
	Funding secured for both action and monitoring programme?	Choose an item.
<b>Action F4:</b>	Description of action:	
	Planned timescale (include milestones where appropriate):	
	Expected outcome:	
	Approach for monitoring effectiveness & enforcement:	
	Funding secured for both action and monitoring programme?	Choose an item.

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

<p><b>3. Protection and Restoration of Salmon Habitat:</b>  <i>In this section please review the management approach to the protection and restoration of habitat in your jurisdiction in line with the relevant NASCO Resolutions, Agreements and Guidelines.</i></p>
<p><b>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’ and the need for inventories to provide baseline data? (Max. 200 words)</b>  <i>(Reference: Section 3 of the Habitat Guidelines)</i></p>
<p>Identifying potential habitats and risks to productive capacity is a main emphasis of Atlantic salmon restoration efforts in Germany. To achieve the goal of maintaining and expanding the productive capacity of Atlantic salmon habitat efforts on national scale, river catchment level and on local scale are still in progress as already reported in the Implementation Plan of the 2nd reporting cycle. In this regard, the implementation of the EU Water Framework Directive remains the most important tool for restoring degraded and lost habitat as well as for improving river connectivity and habitat accessibility.</p> <p>Germany achieves the principle of “no net loss” of salmon habitats. Today, more salmon habitat are being restored than destroyed. However, only a fraction of the vast salmon habitats that once existed in German rivers is still available today.</p> <p>The need for inventories to provide baseline data on habitat restoration and habitat accessibility, results due to the requirements in the context of the implementation of EU Water Framework Directive. In this regard many baseline data are available, but this data normally are related to general morphological or ecological issues and are not focused especially only on salmon.</p>
<p><b>3.2 How are socio-economic factors taken into account in making decisions on salmon habitat management? (Max. 200 words)</b>  <i>(Reference: Section 3.9 of the Habitat Guidelines)</i></p>
<p>In Germany, the Environmental Impact Assessment Act (UVPG) specifies procedures for assessing the environmental compatibility of plans and programs, which are relevant to salmon habitats. In all planning and approval procedures subject to authorization, species protection concerns must be examined in accordance with European regulations such as EU Water Framework and EU Habitats Directive by environmental impact assessments (EIA). In the case that socio-economic concerns are affected these must be taken into account within the framework of the EIA. If, for socio-economic reasons, habitats are negatively impacted, corresponding ecological compensatory measures have to be implemented under Germany's nature conservation laws.</p>
<p><b>3.3 What management measures are planned to protect wild Atlantic salmon and its habitats from (a) climate change and (b) invasive aquatic species? (Max. 200 words each)</b>  <i>(Reference: Section 3.2 of the Habitat Guidelines)</i></p>
<p>(a) In the second management cycle of the EU Water framework Directive (2015-2021), climate change is now being discussed in connection with many river basins. It is presumed that climate change will increase the pressures on many river basins, and that this in turn will increase the number and severity of management issues. In some river basins, climate change is for the first time being seen as a key water resource management issue.</p> <p>For some river basins, recommendations for specific adaptive measures have been incorporated into management plans. Depending on regional river district conditions, these measures aim, in particular, at reducing water temperature through measures such as creating buffer strips planted with copse or by elaborating thermal load plans. Drought management and natural water retention are also mentioned as possible adaptive measures. Studies on the impact of climate change on certain river basins are mentioned as conceptual measures for the next management cycle. In addition, a series of ongoing research projects is studying the possible regional effects of these measures on water resources and groundwater recharge.</p> <p>However, special management measures focusing exclusively at wild Atlantic salmon have not yet been planned or implemented in the context of climate change.</p>
<p>(b) There are a large number of invasive species occurring in marine and freshwater habitats in Germany. Non-native organisms may strongly affect resident species communities and interactions.</p>

Concrete effects of invasive species especially on Atlantic salmon have not described yet for German water bodies. Nevertheless, everything must be done to avoid potential risks to the vulnerable Atlantic salmon stocks in Germany. In this context, we refer to the numerous international treaties as well as European and national legal regulations exist to prevent invasive alien species from having a negative impact on native flora and fauna. If new information becomes available in this regard, especially in the context of salmon we will report on it in the APR's.	
<b>3.4 Identify the main threats to wild salmon and challenges for management in relation to estuarine and freshwater habitat.</b>	
Threat / challenge H1	Migration barriers in nautical inland waterways.
Threat / challenge H2	Systematic river training on the Upper and High Rhine, on major Rhine tributaries such as the rivers 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	The locally and temporally high incidence of avian predation, especially by the great cormorant ( <i>Phalacrocorax carbo sinensis</i> ) entailed a massive collapse of fish stocks in many watercourses in Germany. There are indications that cormorant predation on juvenile salmon may also pose a threat on salmon populations.

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

<b>3.5 What SMART actions are planned during the period covered by this Implementation Plan (2019 – 2024) to address each of the threats and challenges identified in section 3.4 to implement NASCO's Resolutions, Agreements and Guidelines and demonstrate progress towards achievement of its goals and objectives for the Protection, Restoration and Enhancement of Atlantic Salmon Habitat?</b>		
<b>Action H1:</b>	Description of action:	The German Federal Ministry of Transport, Building and Urban Development launched the program "Ecological Connectivity in Federal Waterways" in 2012. It's objective is to preserve and restore the ecological connectivity 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 (include milestones where appropriate):	The program shall be implemented in three stages until 2027.
	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.
	Funding secured for both action and monitoring programme?	Expected
<b>Action H2:</b>	Description of	Restoring of up- and downstream river connectivity and habitat

	action:	quality is highly relevant for a successful salmon reintroduction in the German Rhine catchment area. In this context, many efforts are needed to reopen parts of the former salmon distribution area in order to establish stable salmon stocks on it.
	Planned timescale (include milestones where appropriate):	By 2027, approx. 357 measures are to be implemented to improve the river connectivity. In addition, the implementation of habitat improvement measures in 36 river sections is planned within this timeframe. In 2021, at the beginning of the third management cycle of the EU Water Framework Directive, the planning status will be adjusted once again.
	Expected outcome:	Increased accessibility of spawning and juvenile habitats, increased habitat quality and decreased mortality due to barrages and hydropower plants.
	Approach for monitoring effectiveness & enforcement:	For all the implemented measures, monitoring is provided. Here, especially the functioning of the fish passes will be tested for all relevant fish species. The enforcement of the measures is reviewed and evaluated a six-year cycle in the River Basin Management Plans management plans generated according to the EU Water Framework Directive.
	Funding secured for both action and monitoring programme?	Expected
<b>Action H3:</b>	Description of action:	One of the central tasks in the implementation of the EU Water Framework Directive in the Elbe catchment area is to establish river connectivity for fish. The coordination of this important water management issue takes place in the so-called supra-regional priority water network. The fulfilment of these tasks is of paramount importance for the reintroduction of salmon in the Elbe and its tributaries.
	Planned timescale (include milestones where appropriate):	By 2021, 172 measures are to be implemented to improve the river connectivity in 41 watercourses of the German Elbe catchment area.
	Expected outcome:	Improved access to spawning grounds and decreased mortality due to barrages and hydropower plants.
	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. The enforcement of the measures is reviewed and evaluated a six-year cycle in the River Basin Management Plans management plans generated according to the EU Water Framework Directive.
	Funding secured for both action and monitoring programme?	Expected
<b>Action H4:</b>	Description of action:	The German Ministry for Food and agriculture is funding a project, which is dealing with food web manipulation as a tool for the restoration of the hyporheic zone in eutrophicated rivers. <u>Inter alia</u> , this project is addressing the regulation of avian predation, as a central issue. The spatial transferability and thus

		the potential nationwide applicability of the project results is to be achieved by an experiment in 5 sections of two rivers (one of them is a salmon project river), in which an increased fish stock is created by a combination of stocking and cormorant deterrence. Cormorant predation will be quantified and the direct top-down effects is going to predicted using a model. A user's guide will be drawn up which presents the measure, describes its possible implementation and presents the effects and limits of the measure. This will be accompanied by intensive public relations work (press, scientific publications, training events, public lectures), which will mainly focus on the applicability and potential impacts of food web manipulation as an innovative measure to protect biodiversity.
	Planned timescale (include milestones where appropriate):	Total project duration: Jun 2019 – Dec 2022 1. Project Start: Jun 2019 2. Fish tagging: 2020-2021 3. Telemetric tracking of tagged fishes: May 2020 - May 2022 4. Estimation of cormorant predation: Jun 2019 – Dec 2022 5. Deterrence of cormorants: 2019-2022
	Expected outcome:	For the first time, this project generates scientifically reliable data relating to a sustainable cormorant management in Germany. Therefore, the project is among others also relevant for the reintroduction of Atlantic salmon.
	Approach for monitoring effectiveness & enforcement:	Monitoring of the effectiveness and enforcement of the measure is laid down in the project contract and is implemented by the contractor within the framework of the project.
	Funding secured for both action and monitoring programme?	Yes

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

<p><b>4. Management of Aquaculture, Introductions and Transfers, and Transgenics:</b></p> <p><i>Council has requested that for Parties / jurisdictions with salmon farms, there should be a greater focus on actions to minimise impacts of salmon farming on wild salmonid stocks. Each Party / jurisdiction with salmon farming should therefore include at least one action relating to sea lice management and at least one action relating to containment, providing quantitative data in Annual Progress Reports to demonstrate progress towards the international goals agreed by NASCO and the International Salmon Farmers Association (ISFA):</i></p> <ul style="list-style-type: none"> <li>• 100% of farms to have effective sea lice management such that there is no increase in sea lice loads or lice-induced mortality of wild salmonids attributable to the farms;</li> <li>• 100% farmed fish to be retained in all production facilities.</li> </ul> <p><i>In this section please provide information on all types of aquaculture, introductions and transfers, and transgenics (including freshwater hatcheries, smolt-rearing etc.</i></p>
<p><b>4.1 (a) Is the current policy concerning the protection of wild salmonids consistent with the international goals on sea lice and containment agreed by NASCO and ISFA? (b) If the current policy is not consistent with these international goals, when will current policy be adapted to ensure consistency with the international</b></p>

<p><b>goals and what management measures are planned to ensure achievement of these goals and in what timescale? (Max. 200 words for each)</b> (Reference: BMP Guidance)</p>	
(a)	Not applicable to Germany, because there is no commercial salmon farming in Germany
(b)	as under (a)
<p><b>4.2 (a) What quantifiable progress can be demonstrated towards the achievement of the international goals for 100% of farms to have effective sea lice management such that there is no increase in sea lice loads, or lice-induced mortality of wild salmonids attributable to sea lice? (b) How is this progress monitored, including monitoring of wild fish? (c) If progress cannot be demonstrated, what additional measures are proposed and in what timescale? (Max. 200 words each)</b> (Reference: BMP Guidance) <i>The measures by which these goals may be achieved, and against which the Review Group will be measuring the effectiveness of the Implementation Plan, are set out in the BMP Guidance SLG(09)5 (Best management practice; reporting and tracking; factors facilitating implementation) as agreed by NASCO and ISFA.</i></p>	
(a)	Not applicable to Germany
(b)	Not applicable to Germany
(c)	Not applicable to Germany
<p><b>4.3 (a) What quantifiable progress can be demonstrated towards the achievement of the international goals for achieving 100% containment in all (i) freshwater and (ii) marine aquaculture production facilities? (b) How is this progress monitored, including monitoring of wild fish (genetic introgression) and proportion of escaped farmed salmon in the spawning populations? (c) If progress cannot be demonstrated, what additional measures (e.g. use of sterile salmon in fish farming) are proposed and in what timescale? (Max. 200 words each)</b> (Reference: BMP Guidance) <i>The measures by which these goals may be achieved, and against which the Review Group will be measuring the effectiveness of the Implementation Plan, are set out in the BMP Guidance SLG(09)5 (Best management practice; reporting and tracking; factors facilitating implementation) as agreed by NASCO and ISFA.</i></p>	
(a)	(i) Farmed salmon according to the BMP Guidance (domesticated salmon as it is used in the salmon farming industry) are not produced in Germany neither in freshwater nor in marine sites. However, there are several conservation hatcheries in Germany that raise wild salmon. These conservation hatcheries are normally located in the headwater regions of the same river systems where the raised salmon are released. Salmon are in most cases kept in indoor facilities from which an escape of fish is hardly possible. Significant escape incidents from the conservation hatcheries didn't occur so far. Furthermore, according to EU-Regulation 2016/429 (Animal Health Law), operators of aquaculture facilities are obliged to prevent aquatic animals from leaving into the surrounding watercourses from the aquaculture facilities concerned. Controlling and monitoring of the respective measures is the responsibility of the competent veterinary authorities.
(a)	(ii) Not applicable to Germany
(b)	Not applicable to Germany
(c)	Not applicable to Germany



<p><b>4.4 What adaptive management and / or scientific research is underway that could facilitate better achievement of NASCO’s international goals for sea lice and containment such that the environmental impact on wild salmonids can be minimised?</b> <i>(Max 200 words)</i> <i>(Reference: BMP Guidance and Article 11 of the Williamsburg Resolution)</i></p>
<p>As there is no marine farming of salmonids in Germany, there are no problems with sea lice- induced mortality of wild salmon.</p>
<p><b>4.5 What is the approach for determining the location of aquaculture facilities in (a) freshwater and (b) marine environments to minimise the risks to wild salmonid stocks?</b> <i>(Max. 200 words for each)</i></p>
<p>(a) 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 near 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 an appropriate assessment of their implications for the site in relation to its 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, Article 6 (3) of the Habitats Directive covers new permits of aquaculture facilities.</p>
<p>(b) Due to different restrictions, an introduction of a marine salmonid aquaculture production in German coastal regions is hardly possible. The different stakeholder interests of the coastal regions as well as the requirement of Marine Protected Areas (MPAs) usually cause these restrictions. Therefore, marine salmonid aquaculture facilities are currently not an issue in Germany.</p>
<p><b>4.6 What progress has been made to implement NASCO’s guidance on introductions, transfers and stocking?</b> <i>(Max. 200 words)</i> <i>(Reference: Articles 5 and 6 and Annex 4 of the Williamsburg Resolution)</i></p>
<p>The aim of the German salmon re-stocking programmes is to ensure that the stocking material comes entirely from caught returners and live gene banks. Progress towards this goal is made in small steps and varies between the rivers. It will probably take a few more years before this goal is fully achieved all over Germany. Until then, purchases of fry and gametes from extern sources underlies national fisheries and veterinary legislation.</p>
<p><b>4.7 Is there (a) a requirement to evaluate thoroughly risks and benefits before undertaking any stocking programme and (b) a presumption against stocking for purely socio-political / economic reasons?</b> <i>(Max. 200 words each)</i> <i>(Reference: Guidelines for incorporating social and economic factors in decisions under the Precautionary Approach and Annex 4 of the Williamsburg Resolution)</i></p>
<p>(a) Germany is carrying out only restoration stocking programmes in Class III Rivers according to the Williamsburg Resolution. There are no existing wild salmon stocks that could be affected by the stocking programmes because all wild salmon populations are extinct. So far, salmon restoration activities have not lead to negative impacts on habitats or species. Rather, salmon fulfil in many cases the function of a flagship species. Therefore, habitats and species benefit from the re-introduction of salmon.</p>
<p>(b) These measures do not have purely socio-economic or economic reasons. Salmon reintroduction programs contribute to the recovery of lost biological diversity in German rivers.</p>
<p><b>4.8 What is the policy / strategy on use of transgenic salmon?</b> <i>(Max. 200 words)</i> <i>(Reference: Article 7 and Annex 5 of the Williamsburg Resolution)</i></p>
<p>Deliberate release of genetically modified organisms (GMOs) is regulated in Germany in the Gene Technology Act (1993) and in the European Union by European Directive 2001/18/EC and</p>



Regulation (EC) 1829/2003 on genetically modified food and feed. Regulation (EC) No 1946/2003 on transboundary movements of genetically modified organisms governs unintentional transboundary movements of GMOs as well as exports of GMOs to third countries. Apart from the fact that there are no commercially 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.

**4.9 For Members of the North-East Atlantic Commission only: What measures are in place, or are planned, to implement the eleven recommendations contained in the ‘Road Map’ to enhance information exchange and co-operation on monitoring, research and measures to prevent the spread of *Gyrodactylus salaris* and eradicate it if introduced, including the development and testing of contingency plans?**  
*(Max. 200 words)*  
*(Reference ‘Road Map’ to enhance information exchange and co-operation on monitoring, research and measures to prevent the spread of G. salaris and eradicate it if introduced, NEA(18)08)*

There is currently no coordinated monitoring of *Gyrodactylus salaris* in Germany. For a *Gyrodactylus salaris* monitoring programme or control measures, it is important to understand the structure of the German inland waters. In Germany, we have a heterogeneous picture of different rivers in different regions. An extensive network of waterways interconnects many water bodies. Various *Gyrodactylus* sp. can be detected on wild fish and in aquaculture. An identification of the parasites usually only takes place morphologically and at the level of the genus. Due to the predominant water structures in Germany and the native fish fauna, it must be critically questioned whether control of the parasite is possible at all. In order to comply with the "Road map"(NEA (18)08) the North Rhine-Westphalia State Office for Nature, the Environment and Consumer Protection (LANUV) is going to check opportunities to start with the creation of a monitoring project, which will examine samples from salmon waters for the presence of *Gyrodactylus salaris* at regular intervals. Since North Rhine-Westphalia plays a key role in the reintroduction of salmon in Germany, it makes sense for the LANUV Fish Health Service to carry out these monitoring. We will report on the further activities in this context.

**4.10 Identify the main threats to wild salmon and challenges for management in relation to aquaculture, introductions and transfers, and transgenics.**

Threat / Challenge A1	To optimize the genetic management of salmon in the Rhine catchment area reliable information about most efficient stocking strategies and most suitable strains are needed. A coordinated genetic monitoring of Rhine salmon would allow assessing the impact of various parameters on the success of different stocking strategies and could positively affect salmon reintroduction to the Rhine.
Threat / challenge A2	
Threat / challenge A3	
Threat / challenge A4	

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

**4.11 What SMART actions are planned during the period covered by this Implementation Plan (2019 – 2024) to address each of the threats and challenges identified in section 4.10 to implement NASCO’s Resolutions, Agreements and Guidelines and demonstrate progress towards achievement of its goals and objectives for aquaculture, introductions and transfers, and transgenics?**

<b>Action A1:</b>	Description of action:	Undertake a coordinated genetic monitoring in the entire Rhine catchment area.
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	Planned timescale (include milestones where appropriate):	Total Project duration: Oct 2017 – Dec 2025 1. Project Start: Oct. 2017 2. Sampling hatchery parent salmon: Jan 2017-2019 3. Sampling juvenile salmon in rivers: 2018-2020 4. Sampling adult returners: 2021-2024 5. Final reporting and end of project 2025
	Expected outcome:	Find out the most successful genetic management and stocking strategies for a successful reintroduction of salmon in the Rhine catchment area. Genetic monitoring will allow assessing 1. the efficiency of <ul style="list-style-type: none"> <li>• stocking measures performed;</li> <li>• different strains that are stocked;</li> <li>• different stocking strategies (age, parents used, the origin of broodstock etc.)</li> </ul> the relative importance for stocking of the different streams of the Rhine catchment.
	Approach for monitoring effectiveness & enforcement:	Experts annually exchange information within the ICPR EG FISH about the genetic monitoring of salmon and optimize the genetic management of salmon in the Rhine catchment area.
	Funding secured for both action and monitoring programme?	Expected
<b>Action A2:</b>	Description of action:	
	Planned timescale (include milestones where appropriate):	
	Expected outcome:	
	Approach for monitoring effectiveness & enforcement:	
	Funding secured for both action and monitoring programme?	Choose an item.
<b>Action A3:</b>	Description of action:	
	Planned timescale (include milestones where appropriate):	
	Expected outcome:	
	Approach for monitoring effectiveness & enforcement:	

	Funding secured for both action and monitoring programme?	Choose an item.
<b>Action A4:</b>	Description of action:	
	Planned timescale (include milestones where appropriate):	
	Expected outcome:	
	Approach for monitoring effectiveness & enforcement:	
	Funding secured for both action and monitoring programme?	Choose an item.

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