NASCO	**Council** ***Climate change threatens recovery of the Atlantic salmon in German rivers***	**CNL(23)64** **Agenda item: 7a)**

Climate change threatens recovery of the Atlantic salmon in German rivers

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In Germany, the overarching wild salmon management objective is the re-establishment of self-sustaining salmon stocks in the rivers Elbe, Weser, Ems and Rhine. As noted in the German Implementation Plan (CNL(21)69), the key management objectives to achieve this objective are:

- maintaining and improving river connectivity;
- quantitative and qualitative improvement of spawning and nursery habitats;
- genetically based salmon brood stock management.

Although many salmon recovery projects have been running for more than twenty years, and considerable progress has been made in addressing obstacles to migration, almost all German salmon stocks remain fully dependent on artificial sustaining measures. Besides the high level of degradation of German watercourses, a number of reasons hamper the success of reintroduction programs including high predation rates by predatory fish, birds and mammals, poaching and, for the Rhine river, the barrier of the Haringvliet dam in the Dutch Rhine delta.

Recently (May 2023), an international Salmon Conference was held at Landau University with the objectives, *inter alia*, of increasing awareness of the salmon recovery projects in Germany and improving coordination of the projects and collaboration amongst those involved. Experts from Germany, Switzerland, France, Belgium and the Netherlands attended the conference. Alarmingly, the information presented confirmed the critical situation facing salmon reintroduction efforts in Germany. The effects of climate change apparently have a devastating impact on the recovery progress in the Rhine and the other rivers in Germany. As a result of droughts in the last five summers, the efforts to re-introduce and maintain Atlantic salmon in the Rhine have suffered a severe setback. The existing challenges in the recovery of salmon in German rivers, including upstream and downstream fish passage, predation and illegal fishing, are being greatly exacerbated by climate change. The salmon recovery projects in the Rhine and other German rivers, including the Weser and Elbe, are now at an important crossroad and the regional consequences of climate change appear to be a critical factor affecting the chances of success. If targeted climate adaptation measures are unable to maintain the successes of the last twenty years, the major investment of resources and the efforts of all the dedicated individuals involved will be undermined and the restoration program will be threatened.

As indicated in the 2023 German Annual Progress Report (CNL(23)47rev), the Federal States of the Rhine catchment are commissioning a study to monitor the success of the reintroduction programme. The study is expected to provide insights into the causes of the low success (e.g. mirrored by low numbers of returnees, low smolt abundance and low detection rates of natural reproduction) as well as proposals for countermeasures. In this regard, the NASCO 2023 Special Session '*Informing a Strategic Approach to Address the Impacts of Climate Change on Wild Atlantic Salmon'* is an important initiative, which will hopefully lead to meaningful recommendations on climate adaptive management efforts to mitigate the negative impacts of climate change on Salmon stocks worldwide, which are being strongly felt in German salmon rivers. Germany welcomes such international sharing of experience and best practice on this topic which should be an important focus of NASCO's work.