

EFNI: Minnisblað frá Hans-Petter Fjeldstad um virkjanir í Neðri-Þjórsá og áhrif þeirra á laxfiska

First of all, thank you for asking me to evaluate some of the aspects for Atlantic salmon in Þjórsá. I have read through the report from Skulason and Ingvason, and let me make it clear that this is my only knowledge about this river system and the hydropower development plans.

It appears to me as a Norwegian, and as a scientist, that the presented plans from Landsvirkjun belongs to "days of yore", and let me shortly explain what I mean:

One of the most important reasons for the start of the modern environmental "wave" in Norway evolved through the iconic hydropower projects in Mardøla and later in Alta. This is now 30, 40 and 50 years ago. There is no doubt that the famous sentence from our previous prime minister, Stoltenberg in 2001, saying that "The time for large scale Norwegian hydropower projects is over", reflects a national understanding of the large salmon rivers as major conservation targets. Since then, national legislation has incorporated the large rivers in conservation plans, which make future hydropower development very unlikely on anadromous reaches. In Sweden, the legislations are quite different, including infinite licenses, but with new demands expressed in the EU' WFD, it seems that hydropower companies must start to act also in our neighbor country.

In the above mentioned report, there are numerous references to technical countermeasures for efficient migration in the Pacific Columbia river system. The history of Columbia River and its many different Pacific salmon populations make this a remarkable example. Beyond doubt, lots of good research and many good solutions have been carried out, but to an economic cost which is hard to imagine. Without these investments, the hydropower company might well have been forced to blast some of their dams, and the enormous effort to solve the (migration) problems is rather an example on how difficult and how important it is to find site specific mitigation solutions for each single dam. One should also, however, be very aware that the fish species in Columbia River are not the same as the Icelandic salmonids. Thus, copying efficient solutions for Pacific salmon species must be done very carefully.

Going back to Þjórsá, one of the things that worries me is the plans with multiple dams over the anadromous reach. As I can read, the damming effect directly affects very important stretches of the salmonids habitat, including areas for both spawning and rearing of juveniles. Although very important, the negative impact of such damming on habitats is probably possible to estimate, if the required scientific studies are implemented over some years. More difficult, in my point of view, are the consequences of multiple dams on upstream migration and maybe even more difficult, to estimate the potential mortality of downstream migrating kelts and smolts. This mortality includes direct blade strike mortality (of course), but also delayed mortality from different injuries to sensory systems etc. and the fact that the dams and reservoirs will represent barriers that prevent a natural downstream migration velocity, which is crucial for the smolts to encounter the optimal sea conditions when they arrive to the ocean. The ecological consequences of any obstruction to the salmonid migration are difficult to calculate for a single river system, but the acknowledgement of such problems is one important reason for conservation of the large Atlantic salmon rivers.

One by one, and in collaboration between biologists, ecologists and engineers, the dams in a river can be designed for successful migration, upstream and maybe also downstream. When multiple dams are introduced in the assessments, and also different fish species, the analysis starts to become complicated.

The reflections outlined above is based on my interpretation of recent scientific studies and publications carried out by a large number of scientific experts, publications which I have not had time to systematize for this correspondence. In addition to the literature listed in the Icelandic report, I have a long list of relevant papers and reports which can be useful in the coming process.

Take care.

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