

Pre-project ecological status reference points for each river within ReBorN-LIFE (LIFE15 NAT/SE/000892)

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Introduction

To monitor the status of salmon and trout stocks, annual electro-fishing surveys are carried out in Sweden's wild salmon rivers. In the main stems, the surveys are carried out via the national monitoring program for salmon and sea trout. In some tributaries, for example in River Lögdeälven, surveys are conducted as part of the national liming program.

In order to create reference points in the form of juvenile densities (fry / 100 m²) and the number of spawning salmon and trout, this report compiles all available electro-fishing and migration data for the rivers of project ReBorN-LIFE: Kalixälven, Råneälven, Piteälven, Åbyälven, Byskeälven and Lögdeälven (Fig. 1).



Figure 1. Rivers of project ReBorN-LIFE.

Reference points for monitoring within ReBorN-LIFE.

The densities (salmon/100m²) of 0+ and older salmon fry have increased in the main stems and in tributaries in recent years in all project rivers, while the densities of 0+ and older trout (trout/100m²) have generally been constant or decreased slightly. Although salmon has increased in the tributaries, trout are dominant. The opposite pattern exists the main stems where the densities of salmon are much higher than the densities of trout.

The number of migratory salmon has increased significantly in the Kalix River, Piteälven, Åbyälven and Byskeälven during recent years. No increase is seen in the Råne River or the Lögde River, however, the data quality of these two rivers is uncertain. In Råneälven, counting of migrating fish has only been carried out in 2013-2016, and then with an echosounder and in the Lögde River, the fish counter is placed high up in the river (about 50 km from the mouth) and hence, does not reflect the entire river's potential. In addition, the fish counter has been subjected to some malfunctions. Also, the migration of trout has generally increased and resembles the trend of salmon in Kalixälven, Piteälven, Åbyälven and Byskeälven. However, as in the case of salmon, the estimation of migratory trout in Råneälven and Lögdeälven is uncertain.

As the densities of fishes and the number of migratory adult fish vary between years for natural causes, reference points in the form of five-year mean values should be used within the project (Table 1). In the electrofishing, a five-year mean is used for the main stems and for the tributaries. However, only in the Lögde River there is tributary data to the extent to calculate a five-year mean of high quality.

Table 1. Five-year mean value (2012-2016) of densities of salmon and trout fry (fry/100m²) and number of spawning migrating adult fish. Migration data are from fish counters of VAKI-type, but in River Råneälven in which an echo sounder (Simsonar) has been used in 2014-2016. The counter in River Lögde was not in use during 2015 and thus, the mean value is from; 2012-2014 and 2016. Electrofishing data from River Piteälven is for 2013-2016, since no survey was conducted in 2012.

River	Salmon 0+	Salmon >0+	Trout 0+	Trout >0+	Migrating salmon (MSW)	Migrating salmon (Total)	Migrating trout (Total)
Kalix main stem	27,0	13,4	0,3	0,3	7777	9513	244
Råne main stem	6,6	4,1	0,0	0,03		2071	32
Pite main stem	7,8	5,3	0,3	0,5	1352	1603	955
Åby main stem	22,6	13,0	0,7	0,7	91	106	94
Byske main stem	31,7	17,3	0,8	0,6	4069	4936	103
Lögde main stem	12,6	5,9	0,5	1,1		308	139
Lögde tributaries	2,4	1,0	26,2	17,0			

*MSW = Multi Sea Winter (salmon that spent more than one winter in the ocean).