The ecology of Artic charr and brown trout in Lake Ellidavatn, Hafravatn and Vifilstadavatn

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The aim of this study is to compare the ecology of Artic charr (*Salvelinus alpinus*) and brown trout (*Salmo trutta*) in Lake Ellidavatn, Lake Hafravatn and Lake Vifilstadavatn with respect to stock size, stock composition, food and invertebrate abundance. The results from this study will be compared with previously sampled data from the lakes. Lake Ellidavatn and Lake Vifilstadavatn are shallow spring-fed lakes. The maximum depth of the lakes are 0,5 m, 2 m and 28 m for Lake Vifilstadavatn, Lake Ellidavatn and Lake Hafravatn. The average depth for Lake Hafravatn is 8 m.
Previously sampled data showed that the Artic charr has reduced significantly in numbers in Lake Ellidavatn which is in line with this research. The catch in one gillnet serie, of 11 nets with different mesh sizes from 12-60mm, showed that the catch of Artic charr had reduced 8,6 fold in number over the past 7 years. The catch of brown trout has, on the other hand, been stable during the period. Lake Hafravatn showed a 5,6 fold increase in brown trout catch, compared to 1998, but the Artic charr was caught in similar numbers. Lake Vifilstadavatn showed a 3,1 fold decrease in Artic charr whereas the brown trout has been stable. The number of invertebrates varied between the lakes, both on bottom and in the water column. Lake Hafravatn and Lake Vifilstadavatn had high abundance of invertebrates on the bottom but there were lower abundance in Lake Ellidavatn. The density of zooplankton was highest in Lake Hafravatn, much higher than in Lake Vifilstadavatn and Lake Ellidavatn that had the lowest density of zooplankton.
The variation in number of invertebrates between the lakes is likely to be related to different morphology of these lakes. Preliminary results suggests that the life strategy of Artic charr and brown trout are influenced by their environment and that changes have occured since 1998.