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Invited Oral SCL (Experimental Lakes Area Research)

VIABILITY ANALYSIS OF THE NATURAL POPULATION OF SALMO SALAR L. IN THE ALLIER CATCHMENT: IMPACT OF 35 YEARS OF STOCKING

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Due to its conservation value, the Allier's salmon population has been monitored and several datasets such as fisheries catches, spawning nest counts, juvenile index of abundance and the number and life-stage of salmon stocked every year have been collected from 1975 to present. Synthesizing the information brought by these heterogeneous data sources in a formal statistical modelling framework is a difficult task. In order to reflect the natural process governing the population renewal it is also important to account for regulation mechanism such as density dependence as well as variability in the different transition parameters such as survival. Hierarchical Bayesian modelling (HBM) offers an efficient way to deal with such constraints while accounting for various forms of uncertainty. The model built during this study and presented here brings together 35 years of heterogeneous data in a coherent framework while accounting for uncertainty. The results show a retrospective estimation of the past abundance of Atlantic salmon in three different spatial areas of the Allier River as well as the intergenerational renewal rate of the population. One of the main challenges of this modelling exercise was to incorporate the annual stocking data. The model provides estimates of the contribution of the different categories of salmon life-stage stocked (egg, fry and smolt) over the time series considered. These results provide useful information to the managers to apprehend the impact of the different restoration program over the last decades in the Allier River and make decision about the future programs.

Oral CCFR (Disturbed Ecosystems, Threatened Species and Restoration)

RECOVERY STRATEGY FOR A STRADDLING STOCK: 3LNO AMERICAN PLAICE

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