

## Poster abstracts

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### **Influence of sexual maturation on feeding motivation of salmon, *Salmo salar* L., in net pens**

Individual feeding behaviour was recorded for 20 salmon in each of four net pens from 10–15 May. The salmon were fed until satiation once a day, and the individuals taking the food pellets were identified on 73% of the occasions when a pellet was taken. Maturing salmon were found to have higher feeding motivation than non-maturing fish. Competition was scramble-like, antagonism being seldom observed. On average, the maturing salmon fasted on 25% of the days, and non-maturing salmon on 41%. Maturing salmon on average took more food pellets than non-maturing (fasting fish excluded). The difference in appetite between maturing and non-maturing salmon was largest during the first 10% of the feeding sequence.

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### **Historical changes in some Spanish rod and line salmon, *Salmo salar* L. fisheries: why are large multi-seawinter fish becoming scarcer?**

Since 1949, legal exploitation of Atlantic salmon in Spain has been by rod and line over a short, fixed, fishing season, beginning in March and ending in July. Salmon catches, catch per unit effort, and angling success have decreased significantly over the years, and the fish themselves have also become smaller; since 1950–1960 the average weight of angled fish has decreased at a rate of 8–48 g per year in the six rivers studied. Most fish in former times were caught in March and April, whereas nowadays most are caught in May and June. Grilse were virtually absent from the catch in the early 1980s, but by 1990 they already accounted for 36–42% of the rod and line catch in some rivers.

Approximate exploitation rates on the total population have ranged from 15 to 62% in the R. Ason (mean = 43%), and from 18 to 53% in the R. Nansa (mean = 26%). However, the rod and line fisheries are very selective and, whereas exploitation rates for large, early-running fish can be in excess of 80%, exploitation of small, late-running grilse may only reach 10%. Fish caught early in the season are mostly females and are larger, older and heavier than fish entering late in the season. Fish on the spawning grounds are dominated by small, young grilse, which are mostly males. We suggest that sustained high levels of exploitation on early-running fish, coupled with habitat alteration, may be major factors responsible for the reduction in the productivity of the populations and the observed shift towards smaller, younger fish returning later in the season.

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### **Modelling developmental conflict and intraspecific variation in Atlantic salmon, *Salmo salar* L.**

We describe and analyse dynamic, state-variable models for the life history of Atlantic salmon. The models focus on the state and time dependence of crucial development aspects