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Effect of kinship on growth in juvenile Atlantic Salmon (*Salmo salar*)

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Juvenile Atlantic salmon has the ability to recognize and discriminate kin from unrelated conspecifics based on their relatedness. The effect of social environment on growth was examined in juvenile Atlantic salmon for 15 months post hatch. Kin groups were created by fertilizing the eggs of a single female with the sperm of a single male. Non-kin groups were created by fertilizing the pooled eggs of four females with the pooled milt of four males. Fertilized eggs were incubated and after yolk absorption the fry were transferred into tanks. Juveniles were fed 1% mean body weight were weighed and measured the length. The weight and standard length measurements were taken at 4, 8, 11 and 15 months post hatch. Both mean weight and mean standard length were greater in the kin groups than in non-kin group but no significant differences were observed during the first eight months. A higher variance in both weight and standard length was observed in the non-kin groups throughout the experiment and the difference was significant from 8 months onwards. However, no significant differences in length and weight variances were observed between kin group 1 and kin group 2. Agonistic interactions are known to decrease in the presence of kin or familiar individuals over a broad range of taxa. If individuals in a kin group cooperate among themselves, sharing resources and displaying less agonistic interaction, it may lower mortality and result in higher and less variable growth. The results of this study are consistent with the Hamilton's prediction in his theory on the evolution of social behaviour, that individuals can increase their inclusive fitness by biasing their behaviour towards related versus unrelated conspecifics. Increased growth increases the potential for overwintering survival.

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