FOOD COMPETITION IN SMALL GROUPS OF JUVENILE GILTHEAD SEA BREAM (SPARUS AURATA)

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(Received 29.1.03, Accepted 14.4.03)

Key words: agonistic behavior, food competition, social control of growth, Sparus aurata

Abstract
Four groups of single-size and four groups of mixed-size gilthead sea bream (Sparus aurata) were raised in small observation cells for 16 days. Each group consisted of four individually marked juveniles. Agonistic behavior, motor activity and feeding behavior were monitored on days 1, 4, 10 and 16. At the end of the study, the weight gain was measured. Aggressive interactions occurred almost exclusively during feeding. A linear dominance hierarchy stabilized sooner in the mixed groups than in the single-size groups. Rank in the hierarchy had a profound effect on the behavior and growth of all group members. The dominant fish in each group carried out more aggressive acts and bit at food particles more often than the other group members. The dominant fish also had the highest relative specific growth rate. Direct competition for food is probably the major social mechanism regulating growth in small groups of juveniles of this species when food is limited and defendable. The relevance of these findings for the commercial culture of this species is discussed.

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