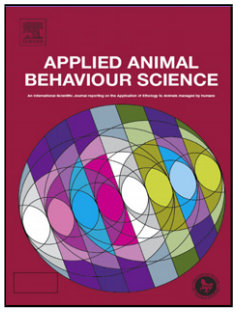

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Effects of size distribution on social interactions and growth of juvenile black rockfish (*Sebastes schlegelii*)

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Highlights:

- The presence of larger black rockfish did not suppress the food intake and growth of smaller individuals.
- The size heterogeneity in all treatments tended to stabilize with time.
- Aggressive interactions mainly occurred between similar-sized individuals.
- Small rockfish were rarely aggressive in the presence of larger individuals.
- Growth and survival are optimized by keeping rearing groups of black rockfish at a medium level of size heterogeneity.

Abstract

Growth heterogeneity in rearing groups may complicate feeding operations and inducing cannibalism in cultured fish. To reduce these problems size grading has become a common rearing practice. To better understand the relationship between size grading and growth variation in cultured juvenile black rockfish (*Sebastes schlegelii*) we studied how size heterogeneity affected their growth performance (body weight, SGR, CV_W), social interactions (feeding position, aggressive behavior) and endocrine responses (cortisol, growth hormone, 5-hydroxytryptamine). A batch of sibling fish (0.29-1.73g) were selected and divided into three groups according to their similarity in size. Three types of size-structured groups were established each type containing two treatments with different fish numbers (n=30 or n=6): Small fish alone, small and medium fish mixed, small and large fish mixed. The experiment lasted for 30 days. In all treatments, regardless of the number of fish in the