

Accepted Manuscript

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

Authors: Haoyu Guo, Xiumei Zhang, Jörgen I. Johnsson

PII: S0168-1591(17)30146-6

DOI: <http://dx.doi.org/doi:10.1016/j.applanim.2017.05.004>

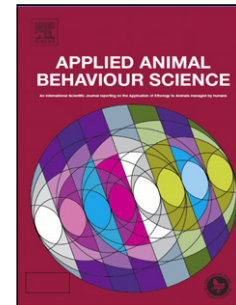
Reference: APPLAN 4451

To appear in: *APPLAN*

Received date: 5-1-2017

Revised date: 5-4-2017

Accepted date: 8-5-2017



Please cite this article as: Guo, Haoyu, Zhang, Xiumei, Johnsson, Jörgen I., Effects of size distribution on social interactions and growth of juvenile black rockfish (*Sebastes schlegelii*). *Applied Animal Behaviour Science* <http://dx.doi.org/10.1016/j.applanim.2017.05.004>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

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

Haoyu Guo^{a,b}, Xiumei Zhang^{a,c,*}, Jörgen I. Johnsson^b

^a*The Key Laboratory of Mariculture, Ministry of Education, Ocean University of China, Qingdao 266003, China*

^b*Department of Biological and Environmental Sciences, University of Gothenburg, Box 463, 405 30 Göteborg, Sweden*

^c*Laboratory for Marine Fisheries Science and Food Production Processes, Qingdao National Laboratory for Marine Science and Technology, Qingdao 266072, China.*

*Corresponding author, E-mail addresses: xiumei1227@163.com, Tel/Fax: +86-532-82032076, Address: The Key Laboratory of Mariculture, Ministry of Education, Ocean University of China, Qingdao 266003, China

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

Download English Version:

<https://daneshyari.com/en/article/5763278>

Download Persian Version:

<https://daneshyari.com/article/5763278>

[Daneshyari.com](https://daneshyari.com)