

Divergent growth of individually and group housed sole (*Solea solea*) and its relationship with behavioural responses to novelty

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Introduction

- Bottleneck sole culture: low & variable growth
 - ➔ More information on growth potential is needed
- Sole innate solitary behaviour contrasts with high densities in farming conditions
 - ➔ Suboptimal rearing conditions may lead to stress influencing feeding and growth
- Individual differences in coping strategies (e.g reaction to stress/novel situations) may determine individual variation in growth

Research Objectives

- Is growth different between individually and group housed sole?
- Is the relationship between behaviour in a novel environment and growth context dependent (individual vs group housed)?

CONCLUSIONS

- **Group housing causes lower growth rates and higher variation in growth**
 - ➔ Social interactions may lead to high variation in feed intake
 - ➔ Contrary to other fish species, isolation promotes growth in sole
- **More active sole in a novel environment have lower growth rates under group housing conditions independently of their individual growth potential**

Methodology

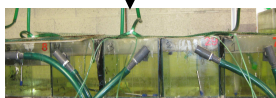
- Fish individually tagged
- Group housed (N=100) for 4 weeks fed *ad libitum* with automatic belt feeder
- Selected 16 fish based on realized growth when group housed → individually housed for another 4 weeks. Hand fed 3 times/day until apparent satiation
- Twice "Novel environment test": Mean activity (%) of sole introduced 15min in 120L test-tank

Group housing
Weight day 0-28
N=100
Tank 400L



Novel Environment test

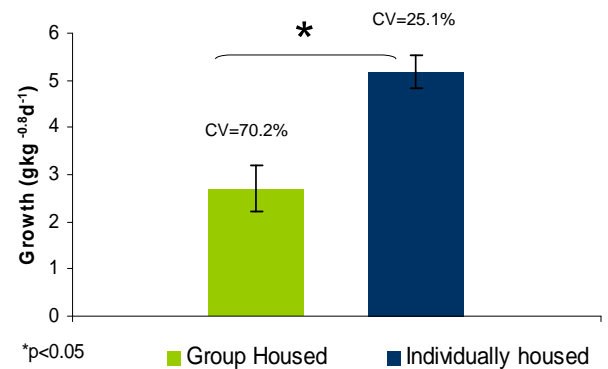
Individual housing
Weight day 36-64
N=16
Tank 30L



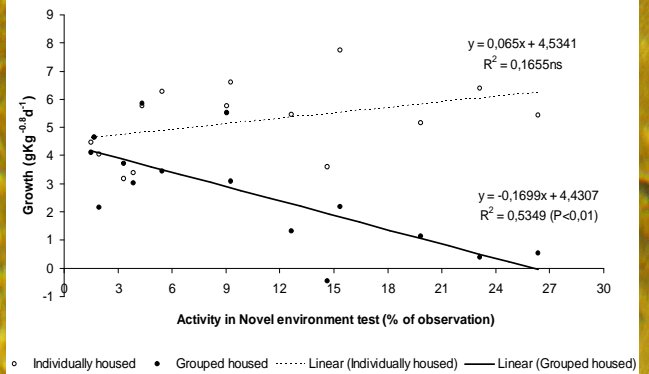
Novel Environment test

Results

Effect of group housing on Growth rate



Relationship between Activity in a Novel environment & Growth



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