

Individual variation in feed intake, growth and behaviour of sole

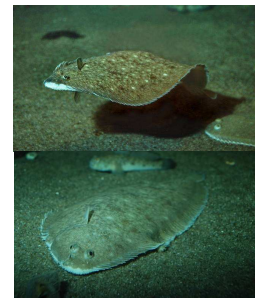
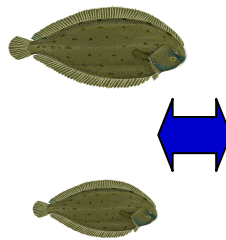
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Introduction

- Dover sole, *Solea solea* has high potential for commercial aquaculture → consumer popularity & high market values.
- Culture of sole is still difficult → slow and variable growth.
- In nature flatfish spend long times buried in the sediment → reduce predation risk.
- Individual variation in risk taking behaviour & activity (e.g., bold vs shy fish) may determine individual variation in feed intake & growth.

This study assessed the relationship between feed intake, growth and (non-) feeding behaviour of 16 individually housed sole.

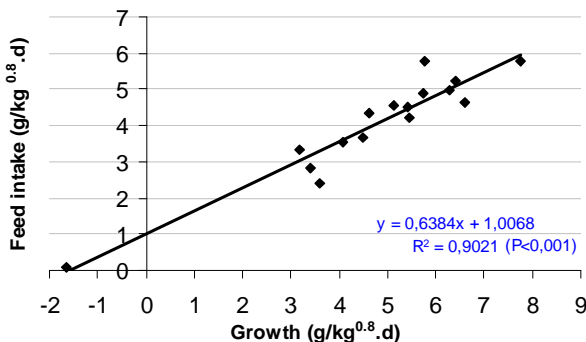
Objectives



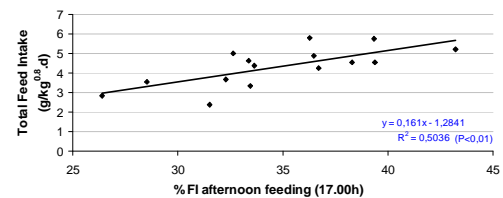
Δ Growth \leftrightarrow Δ Feed Intake \leftrightarrow Δ Activity & Feeding behaviour

Results

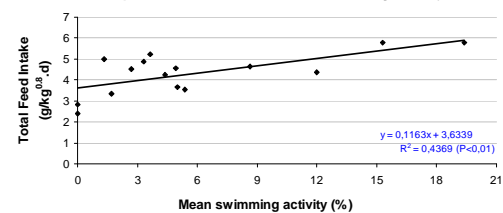
Relationship between Feed intake and Growth



Relationship between Feed intake and Feeding behaviour

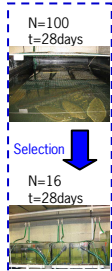


Relationship between Feed intake and Swimming activity



Methodology

- 100 individually tagged sole, group housed for 4 weeks. **16 sole** selected based on their growth performance. Average BW ≈ 70g and high variation in growth performance (80% of Δ Growth)
- **Individually housed** in 30 L aquariums (n=16)
- Light regime was reversed (**12D:12L**) as sole are nocturnal feeders
- Experimental growth-out period of **4 weeks**
- **Hand fed**, 3 times/day during 30 min until satiation (8.00, 12.00 & 17.00h). Uneaten pellets were siphoned to measure feed intake
- **Live behavioural observations** 2 times/day during 3 min on days 8,10,13,15,16,24 in between meals. Swimming (%), burying (#) and escapes attempts (#)



CONCLUSIONS

- **Individual variation in growth is strongly correlated to variation in feed intake**
- **Feed intake is related to:**
 - **Feeding Pattern**
↑ %FI at 17.00h \leftrightarrow ↑ total feed intake & growth
 - **Activity in between feeding**
Active fish \leftrightarrow ↑ feed intake & growth

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