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A MEDIUM-THROUGHPUT METHOD TO PHENOTYPE FISH FOR INDIVIDUAL FEED EFFICIENCY

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Background

Feed conversion ratio (FCR) = ability of fish to convert feed into biomass

$$\text{FCR} = \frac{\text{feed intake}}{\text{weight gain}}$$

Easy to measure

Individual feed intake unknown $\Rightarrow$ Genetic parameters of FCR are unknown

Our innovation

Phenotyping fish in individual aquariums

Fish kept in aquariums 6 weeks

$\Rightarrow$ Weight gain

Weight measured every 2 weeks

$\Rightarrow$ Feed intake

Automatic delivery of restricted ration

Uneaten pellets counted daily

Extra results

Individual phenotype + Individual genotype (3000 SNPs) = Individual FCR can be improved through selective breeding

$h^2 = 0.26$

200 aquariums

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