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

FCR = feed intake / weight gain

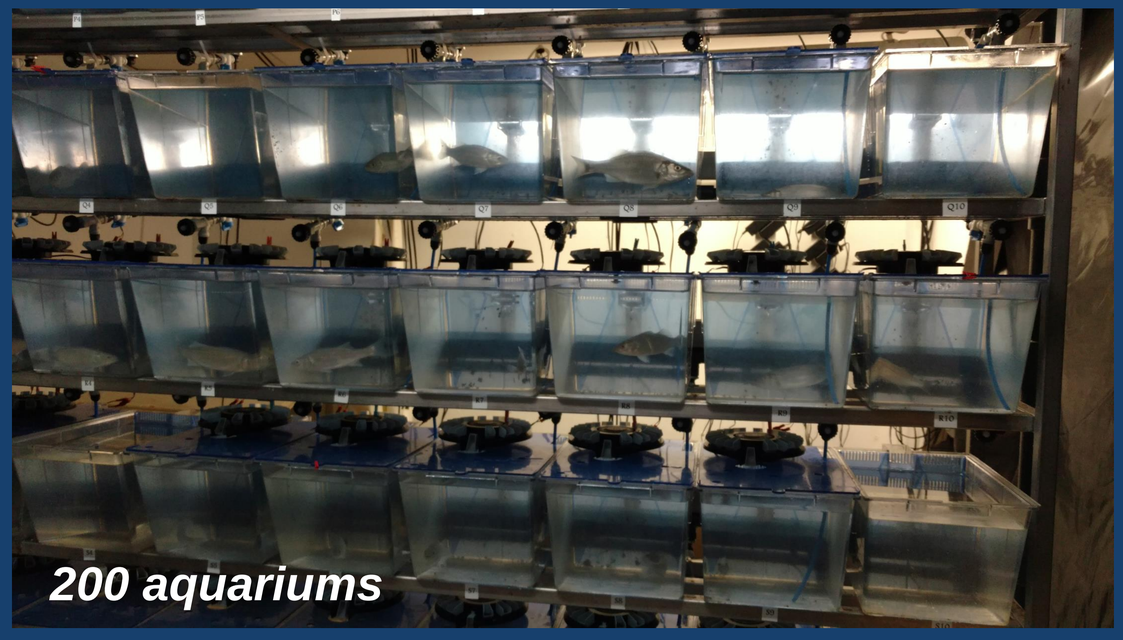
Individual feed intake unknown

Easy to measure

➔ Genetic parameters of FCR are unknown

Our innovation

Phenotyping fish in individual aquariums



Fish kept in aquariums 6 weeks

→ Weight gain

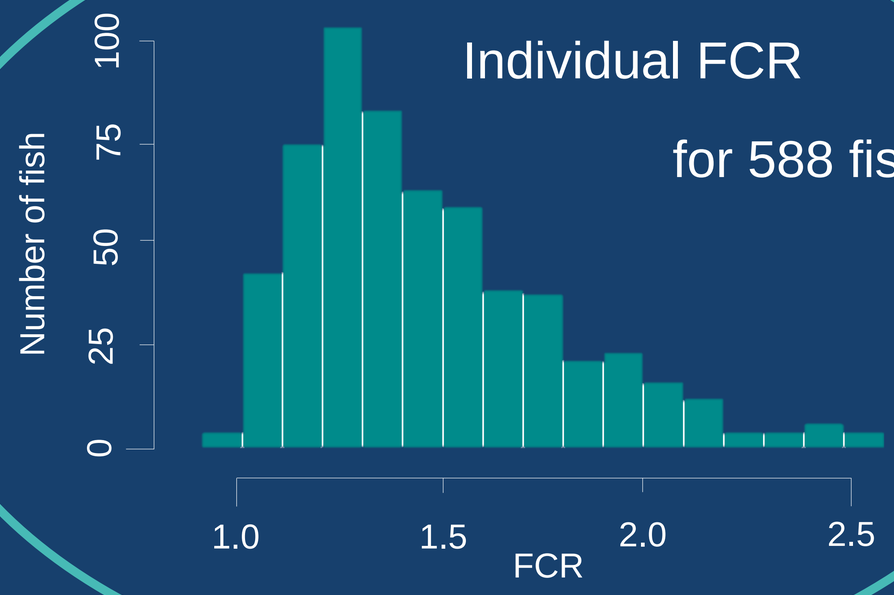
Weight measured every 2 weeks

→ Feed intake

Automatic delivery of restricted ration

Uneaten pellets counted daily

Individual FCR for 588 fish



Extra results

Individual phenotype

\+

Individual genotype (3000 SNPs)

=

$h^2 = 0.26$

Individual FCR can be improved through selective breeding

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