

## Participant 14 DCF-Unive

### Model Description

Model name	Breamod
State variables	Seabream fresh weight
Site at which tested	Bisceglie
n, number of independent observation used in the test	48

### Model Performance

$r^2$ , % of variance	0.64	p, on null hypothesis	$< 10^{-5}$ (F=85.6)
$\hat{\beta}_0$ , regression intercept	104.9	$se_{\hat{\beta}_0}$	28.6
$t = (\hat{\beta}_0 - 0) / se_{\hat{\beta}_0}$	3.66	p	$6.23 \cdot 10^{-4}$
$\hat{\beta}_1$ , regression slope	0.77	$se_{\hat{\beta}_1}$	$8.3 \cdot 10^{-2}$
$t = (\hat{\beta}_1 - 1) / se_{\hat{\beta}_1}$	-2.8	p	$7.38 \cdot 10^{-3}$

### Model Conclusion

Model explain a significant part of variance in observations	YES (F=85.6, $p < 10^{-5}$ )
Model reliability class	3. Fair: the slope is significantly different from one; the intercept is significantly different from zero; $r_2$ is significantly greater than zero.

## Comments

The model was calibrated using a growth curve recorded in Porto Ercole, Italy. Seabram weights, amount of feed used, water temperature and specimen numbers were recorded approximately every month. Data about feed composition were provided. Calibration results are displayed in Fig. 1.

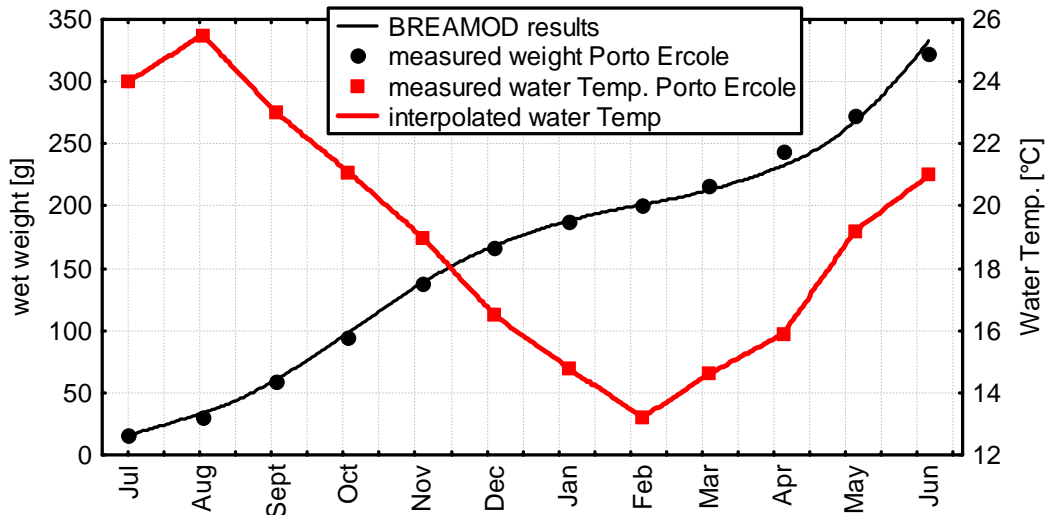


Fig. 1. Model calibration: observed (dots) and predicted (continuous line) seabream weight, left axis, and water temperature, right axis for one of the cages at Porto Ercole.

The model was validated against data collected at Bisceglie, Italy. In this case, the growth was not monitored as regularly as in Porto Ercole: in fact, only initial weights and weights at the end of the rearing cycle were recorded. Data concerning seven cages were made available. Monthly values of water temperature were provided and feed composition was known. However, the amount of feed used during the rearing cycle was not available. An example of typical data set used for validation is shown in Fig. 2, in which the predicted growth curve is also displayed.

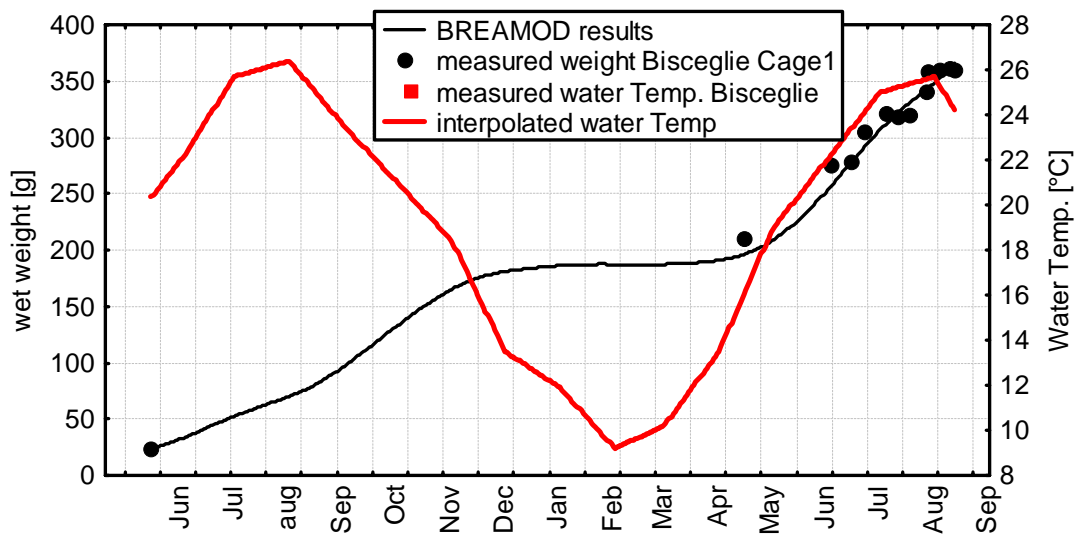


Fig. 2. Model validation: observed (dots) and predicted (continuous line) seabream weight, left axis, and water temperature, right axis for one of the cages at Bisceglie.

Data concerning the seven cages were pooled, in order to compute more robust model performance statistics. Given the lack of data, we assumed that the husbandry practices where the

same as in Porto Ercole, in order to apply the model formulation which takes into account feed composition.

The fact that the validation set did not include intermediate weight observations may be the main source of model bias. To this regard, we would be interested in testing the model against other, more comprehensive, data sets, if made available by other ECASA partners.