Figure 1: overview of the data generation process

File name: st_1_experimental_details.csv

Content: Experimental details collected from the publications. Unique values are reported for each experiment-treatment.

Header description:

- *doi*: publication digital object identifier*;*
- *first_author:* surname of the first author of the publication*;*
- *year:* year of the publication*;*
- *facility:* name and country of the aquaculture facility*;*
- *experiment:* unique identifier for experiment within publication;
- *treatment:* unique identifier for treatment within publication;
- *exp_id:* unique index of the pairs experiment-treatments for the use in the model;
- *included:* binary field, *n* indicates entry has been excluded for model fit*;*
- *reason_for_exclusion:* textual description on the rationale for excluding entry form model fit*;*
- *t_initial:* age at the beginning of the experiment (DAH)*;*
- *t_final:* age at the end of the experiment (DAH)*;*
- *Temperature*: mean of the water temperature during experiment (C°);
- *weaning_prey*: prey used during weaning (categorical)*;*
- *weaning_duration:* duration of the weaning (days)*;*
- *main_prey:* prey category used during the treatment (categorical);
- *prey_status:* status of the prey (live or frozen)*;*
- *ration_bw_perc:* food ration (% body weight day^{-1});
- *egg type:* description of the egg and broodstock origin (categorical)*;*
- *photoperiod:* photoperiod used in the experiment (light hours:dark hours)*;*
- *volume_l:* (volume of water in the experimental tank)*;*
- *animal_per_tank:* (number of animals per experimental tank)*;*
- *density_animals_liter*: number of animals per liter of water in the experimental tank*;*
- *notes:* additional annotations.

File name: st2_sample_info.csv

Content: samples information collected from the publications. Data are associated to each experiment-treatment and time of the observation.

Header description:

- *publication_id*: unique identifier for publication;
- *experiment_id*: unique identifier for experiment within publication;
- *treatment_id*: unique identifier for treatment within publication;
- *nsamp*: sample size (numbers);
- *t1*: age of the observation for w1 (DAH);
- *t2*: age of the observation for w2 (DAH);
- *w1*: mean weight at t1 (grams);
- *w2*: mean weight at t2 (grams);
- *errorw1*: weight standard deviation at t1 (grams);
- *errorw2*: weight standard deviation at t2 (grams);
- *igr.mu*: mean instantaneous growth rate ($\mu_{IGR_{t_{i,j}}}$; % weight increase day^{-1});
- *igr.sd*: instantaneous growth rate standard deviation ($\sigma_{IGR_{t_{i,j}}}$; % weight increase day^{-1});
- *fr.mu*: mean feeding rate (% body weight day^{-1});
- *fr.sd*: feeding rate standard deviation (% body weight day^{-1});
- *prey_type*: unformatted name of the prey used during the treatment (categorical);
- *exp_id*: unique index of the pairs experiment-treatments for the use in the model;
- *experiment*: unique index of the experiments for the use in the model;
- *t*: mean age (DAH);

File name: diet_info.csv

Content: information on diet and proxy for food ration associated to each experimental treatment

Header description:

- *exp_id*: unique index of the pairs experiment-treatments for the use in the model;
- *main_prey:* prey category used during the treatment (categorical);
- *Rcomma:* proxy of food ration (relative);
- *Temperature*: mean of the water temperature during experiment (C°);

File name: input_data.csv

Content: data combining other datasets, for replicate *i* of experiment *j*

Header description:

- *publication_id*: unique identifier for publication;
- *experiment_id*: unique identifier for experiment within publication;
- *treatment_id*: unique identifier for treatment within publication;
- *nsamp*: sample size (numbers);
- *t1*: age of the observation for w1 (DAH);
- *t2*: age of the observation for w2 (DAH);
- *w1*: mean weight at t1 (grams);
- *w2*: mean weight at t2 (grams);
- *errorw1*: weight standard deviation at t1 (grams);
- *errorw2*: weight standard deviation at t2 (grams);
- *igr.mu*: mean instantaneous growth rate ($\mu_{IGR_{t_{i,j}}}$; % weight increase day^{-1});
- *igr.sd*: instantaneous growth rate standard deviation ($\sigma_{IGR_{t_{i,j}}}$; % weight increase day^{-1});
- *fr.mu*: mean feeding rate (% body weight day^{-1});
- *fr.sd*: feeding rate standard deviation (% body weight day^{-1});
- *prey_type*: unformatted name of the prey used during the treatment (categorical);
- *exp_id*: unique index of the pairs experiment-treatments for the use in the model;
- *experiment*: unique index of the experiments for the use in the model;
- *t*: mean age (DAH);
- *main_prey:* prey category used during the treatment (categorical);
- *Rcomma:* proxy of food ration (relative);
- *Temperature*: mean of the water temperature during experiment (C°);
- *case:* treatment of partial missing information as described in Table 1.

File name: M1_model_data.csv

Content: subsample of input_data.csv used to fit M1 model variants.

Header description:

- *… variables not described are identical to the file input_data.csv;*
- *z1*: z-scored Rcomma (z-score applied to all the values included in input_data.csv);
- *z2:* z-scored Temperature (z-score applied to all the values included in input_data.csv);
- *Index.t:* unique progressive index associated with treatmens;
- *Index.e:* unique progressive index associated with experiments;
- *Index.no:* single value to fit models with no random effects;
- *Index.food:* unique progressive index associated with prey category;

File name: M2_model_data.csv

Content: subsample of input_data.csv used to fit M2 model variants.

Header description:

- *… variables not described are identical to the file input_data.csv;*
- *z1*: z-scored Rcomma (z-score applied to all the values included in input_data.csv);
- *z2:* z-scored Temperature (z-score applied to all the values included in input_data.csv);
- *Index.t:* unique progressive index associated with treatmens;
- *Index.e:* unique progressive index associated with experiments;
- *Index.no:* single value to fit models with no random effects;
- *Index.food:* unique progressive index associated with prey category;