



The SETAC MAPPED workshop: Population modelling to assess the effects of endocrine disruption on freshwater fish

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Background and aims

- MAPPED aims to improve the applicability of 'Models to Assess the PoPulation relevance of effects of Endocrine Disruptors', for fish and amphibians
- Here: presentation of the current status of the fish population model subgroup regarding two main questions:
 - How can we best define focal fish species most appropriate for modelling the effects of ED substances at the population level?
 - In what ways can /should these models be used?

I. Defining focal fish species for population modelling

- A life history and behavioural trait database for freshwater fish relevant for the EU was established using information from the AddmyPet and FishBase.org databases (Fig. 1)
- Cluster analysis or ordination should identify groups with similar trait combinations. The aim is to identify 5 – 10 groups
- In addition to the traits, geographical distribution, availability of developed population models or data sets for model development and testing will be considered for focal species selection
- From each group one focal species for population modelling should be selected representing the group

II. Considerations for using population models in ED assessment

The following topics will be discussed:

- Processes to be considered in the population models (Fig. 2)
- Definition of environmental scenarios (Tab. 1)
- Use of the normal operating range (Fig. 3)
- Model validation
- Relevance of population level effects

Next steps

The second MAPPED meeting will be held in June 2025.

We intend to publish the findings from this work in a SETAC journal.

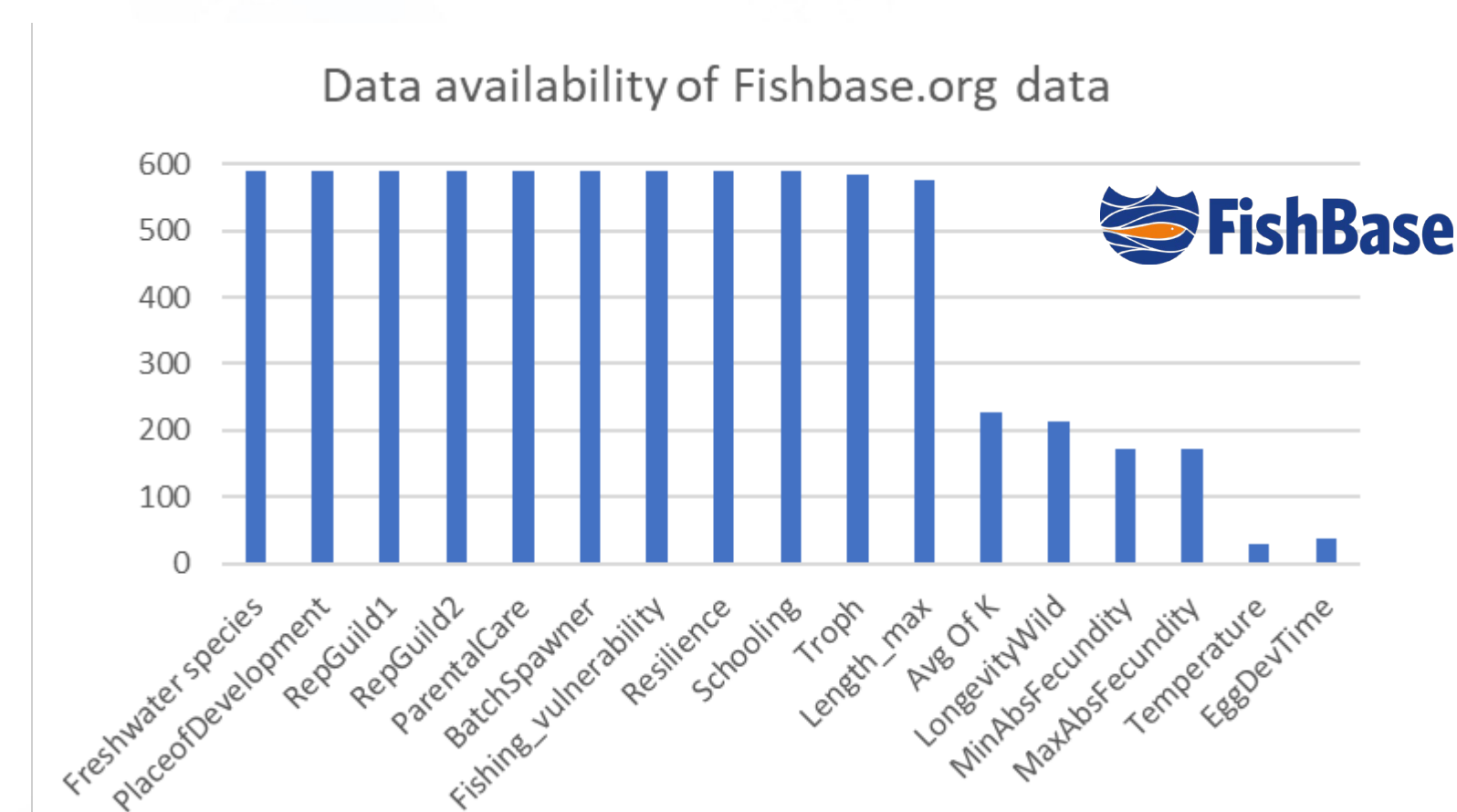


Fig. 1: Number of European species for which trait information is available from FishBase

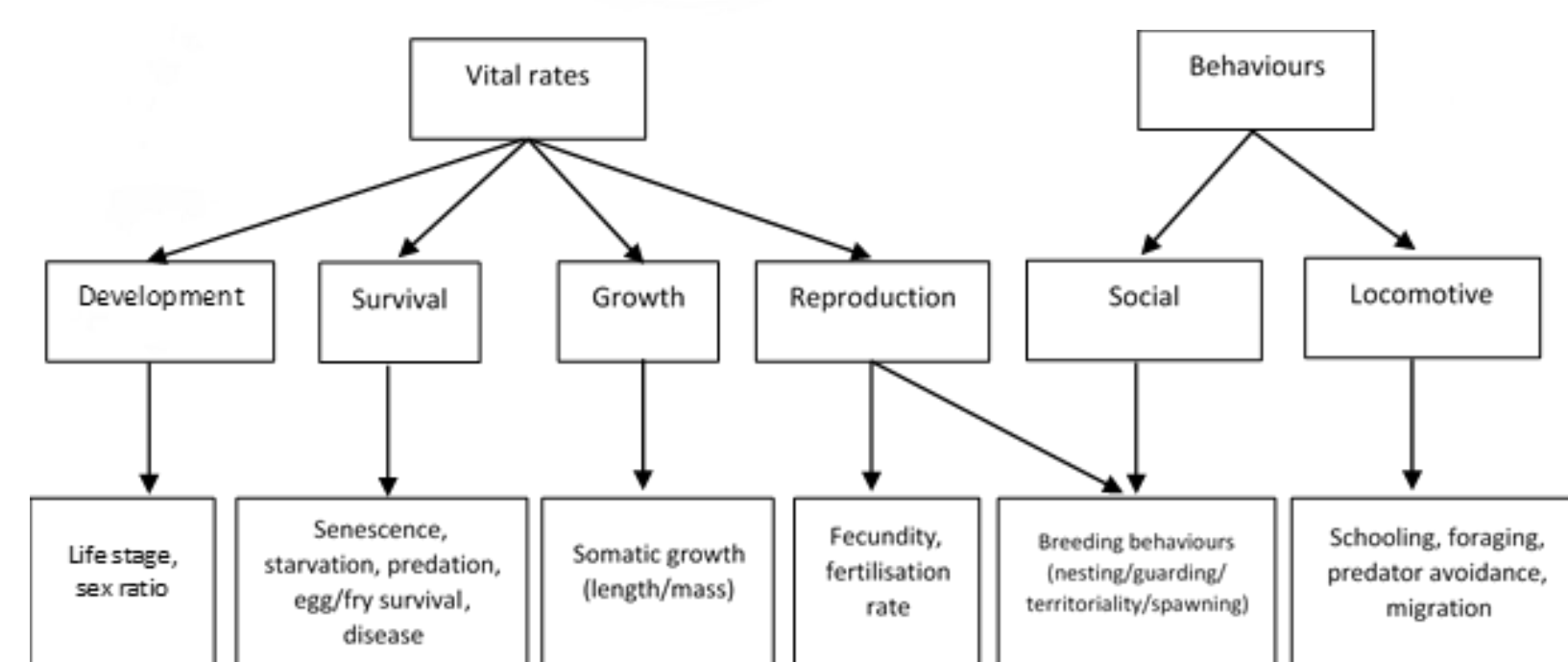


Fig. 2: Proposal of processes to be considered in the fish population models

Tab. 1: Properties of the environmental scenarios relevant for hazard assessment

Type	Factor	Comments
Abiotic	Temperature	Needs to be suitable for fish species, but not too favourable.
	Photoperiod	Could be important for seasonal breeders.
	Nesting / spawning sites	Need to consider for some species.
	Water body type	Fast flowing, static etc – dependent on fish species being modelled.
Biotic	Food availability / quality	Needs to be suitable for fish species, but not too favourable.
	Predation	Dependent of ED effect being considered.
To be continued...		

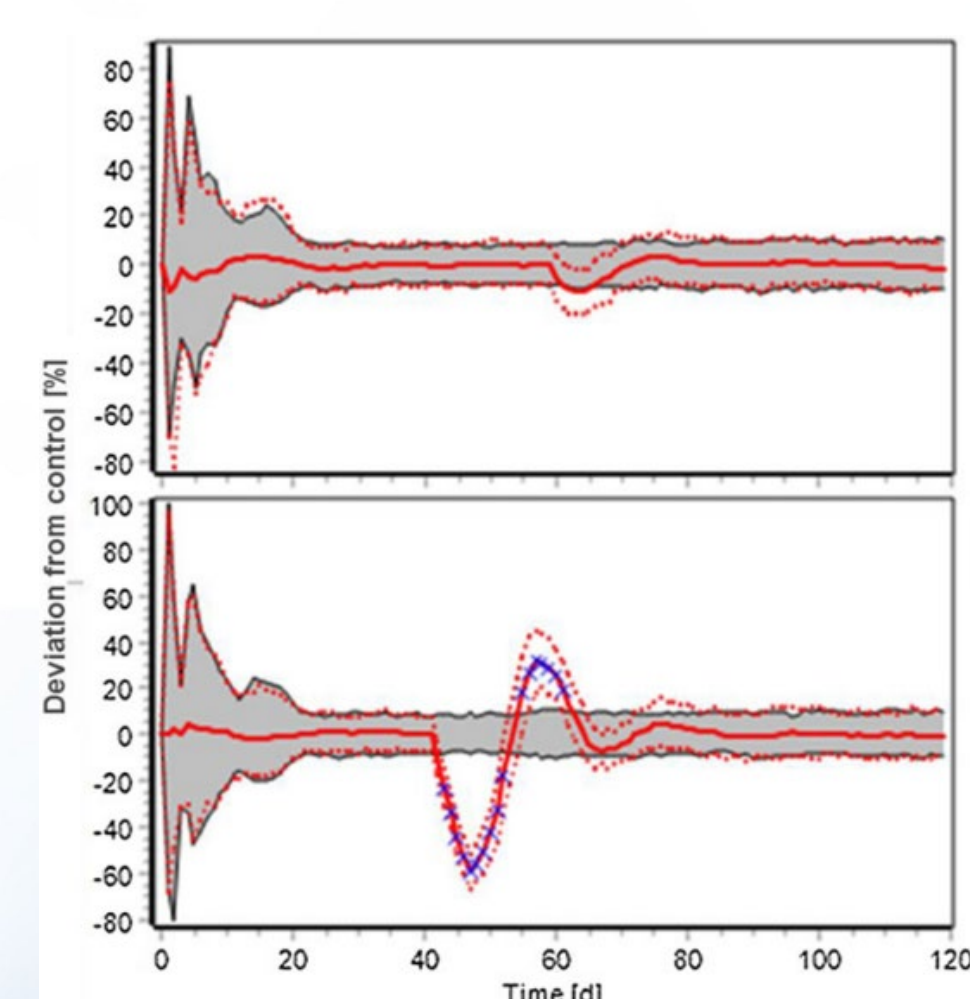


Fig. 3: Example illustration of the Normal Operation Range concept

