

## Behavioural analyses of intra-cohort cannibalism in young pikeperch (*Sander lucioperca*)

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# Pikeperch (*Sander lucioperca*)



Only freshwater fish in Diversify (WP16)

Percidae

Very high potential for inland aquaculture diversification in Europe (Wang et al., 2008) :

- **Reproductive control** (Kucharczyk et al., 2007)
- **Bio-economic feasibility** (Steenfeldt & Lund, 2008; Steenfeldt et al., 2010)

However



**3 major bottlenecks in early life stages:**

✓ high mortality rate due to **cannibalism**

✓ high **deformity** rate

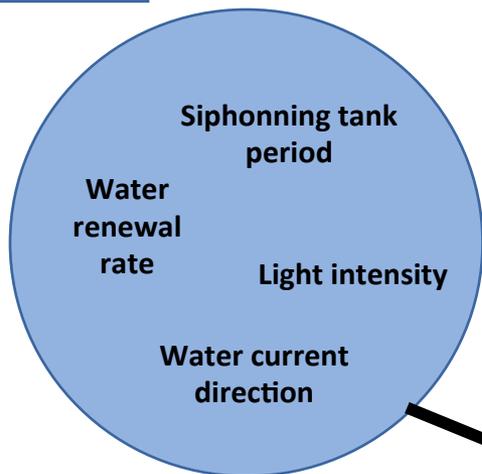
✓ growth **heterogeneity**



# State of Art: cannibalism

## WP16-1 (2015)

Environmental factors



## WP16-2 (2016)



## WP16-3 (2017)

*Cannibalism is the act of killing and consuming the whole, or major part, of an individual belonging to the same species, irrespective of its stage of development.*

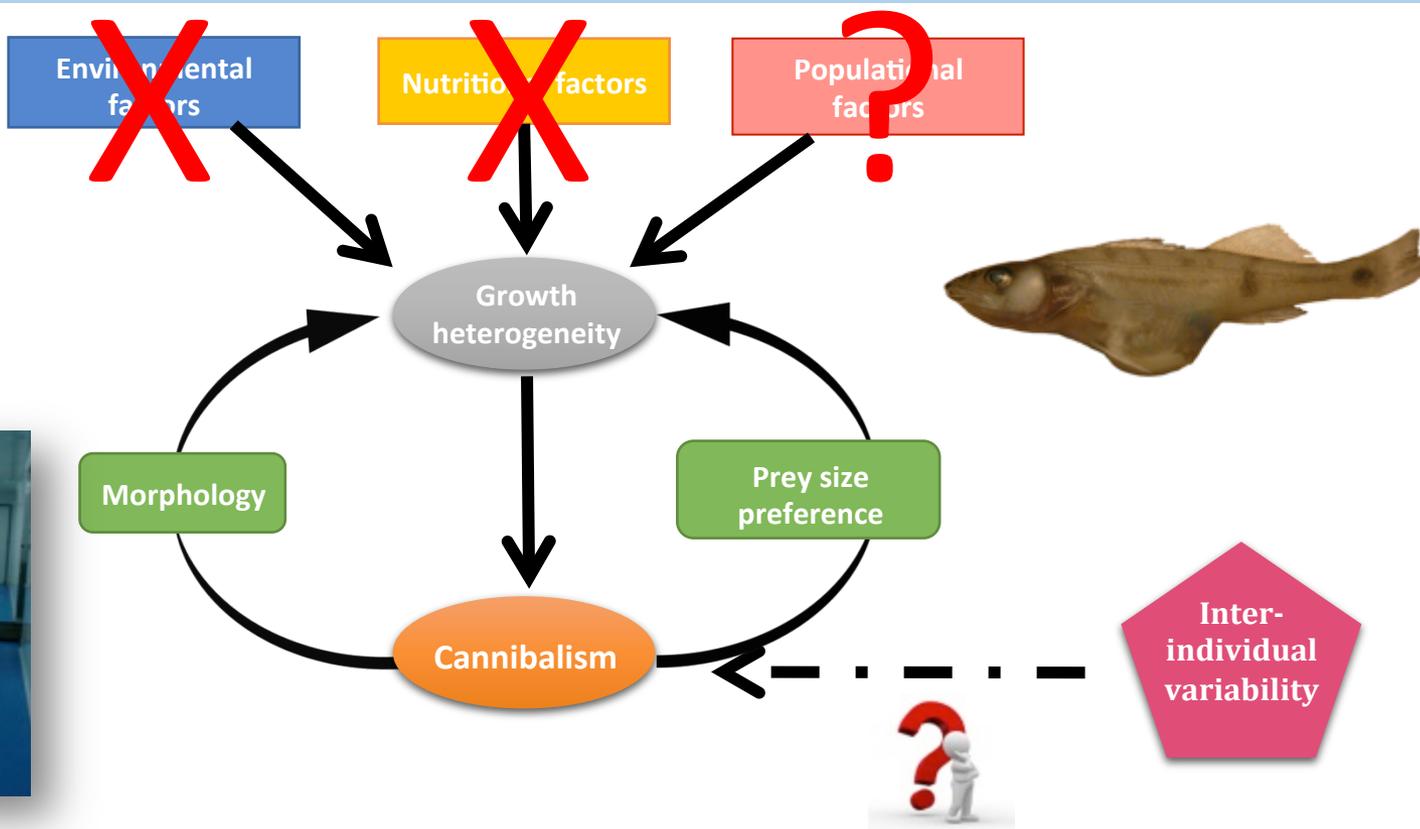
Morphology

preference



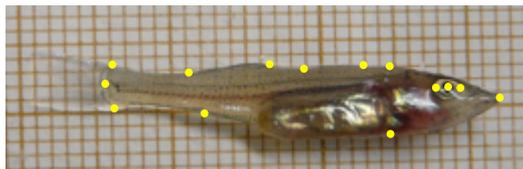
**Cannibalism observations:**  
5min/tank/day

# How to explain cannibalism in rearing conditions?

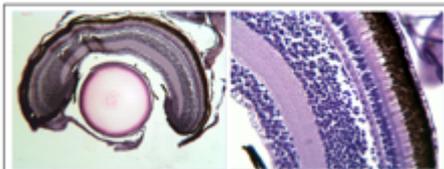


## Inter-individual variability?

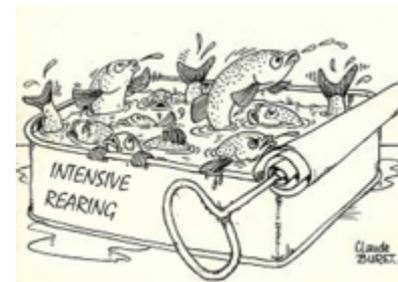
### Morphology



### Physiology



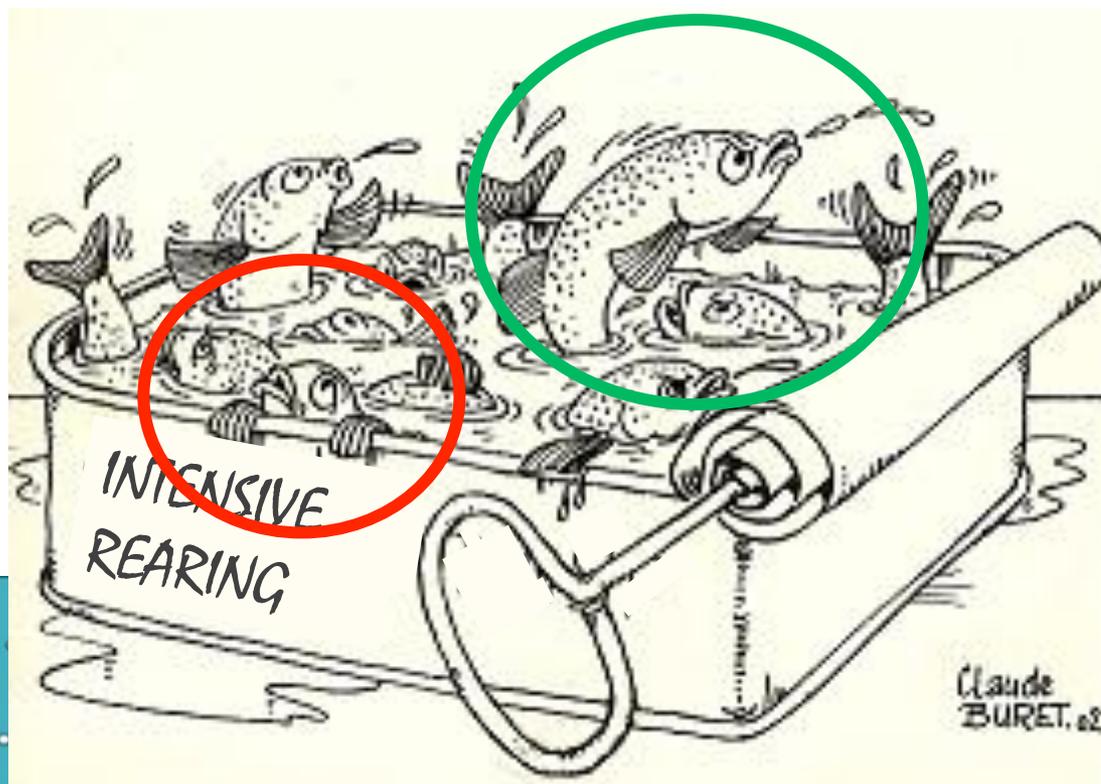
### Behaviour



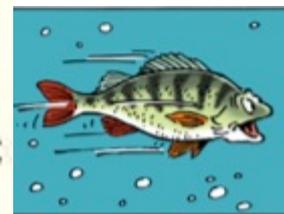
## Inter-individual variability= Personality:

- Describe **behavioural differences** between individuals of a same population (Réale et al., 2007).
- **Repeatable** across situations (Réale et al., 2007).
- Defined by **mesurable behavioural traits** (Sih et al., 2004 ; Réale et al., 2007).

- Boldness 
- Exploration 
- Agressivity 
- Activity 
- Sociability 



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**Reactive**



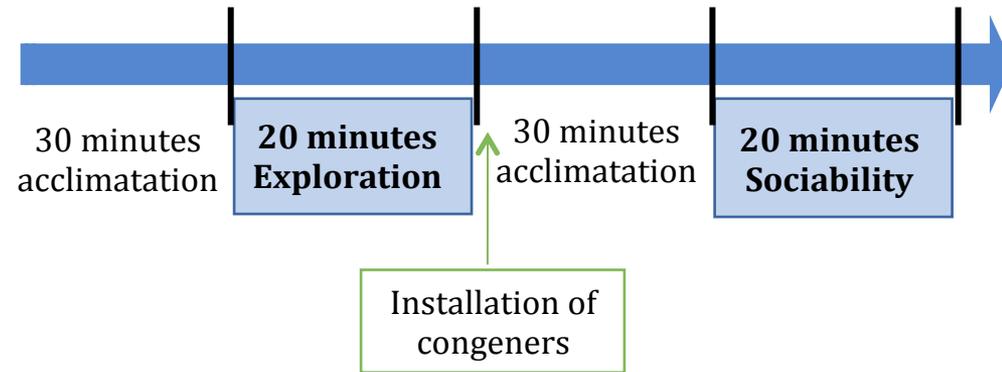
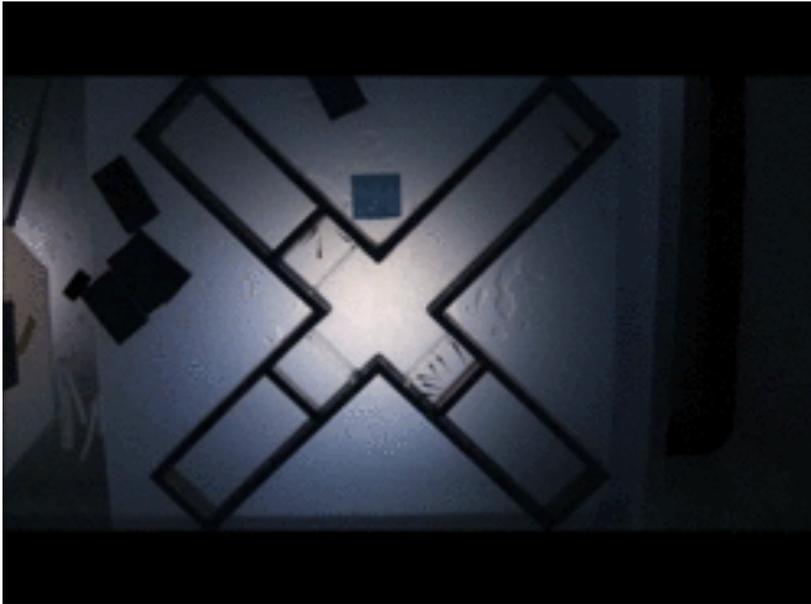
**Proactive**

**Hypothesis: Cannibals and non-cannibals have a different personality**



## Have cannibals and non-cannibals a different personality?

✓ 42 non cannibals vs 25 cannibals (from 32 to 54 dph)



### Measured parameters in exploration test:

- Latency to emerge from startbox (in s)
- Number of visited zones
- Time spent to explore (in s)
- Activity (in s)

### Measured parameters in sociability test:

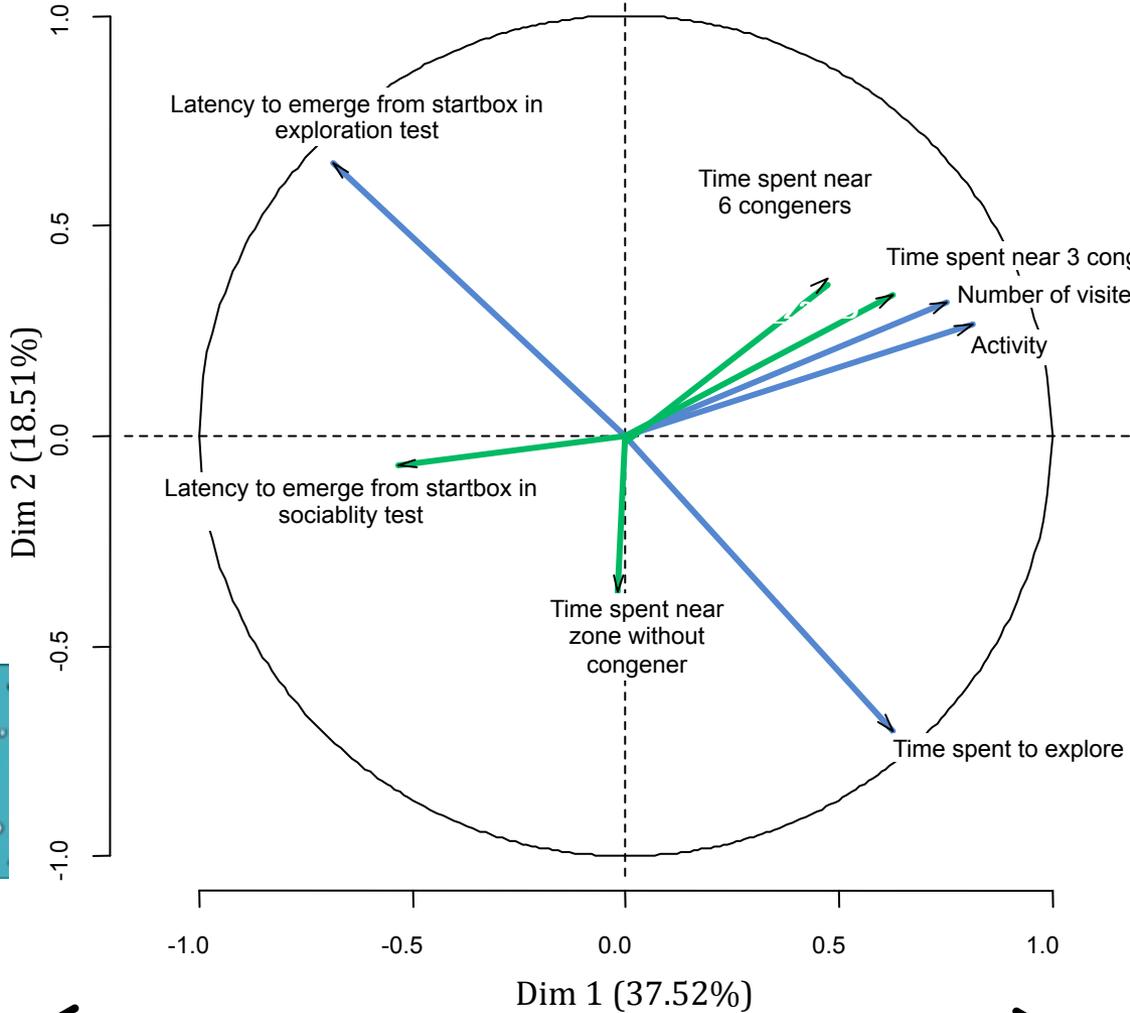
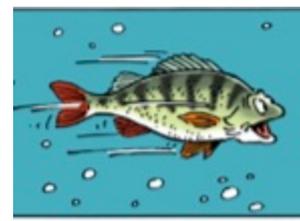
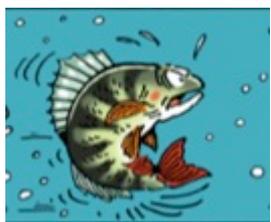
- Latency to emerge from startbox (in s)
- Time spent near 0 congeners (in s)
- Time spent near 3 congeners (in s)
- Time spent near 6 congeners (in s)

## Have cannibals and non-cannibals a different personality?

- Boldness
- Exploration
- Agressivity
- Sociability
- Activity

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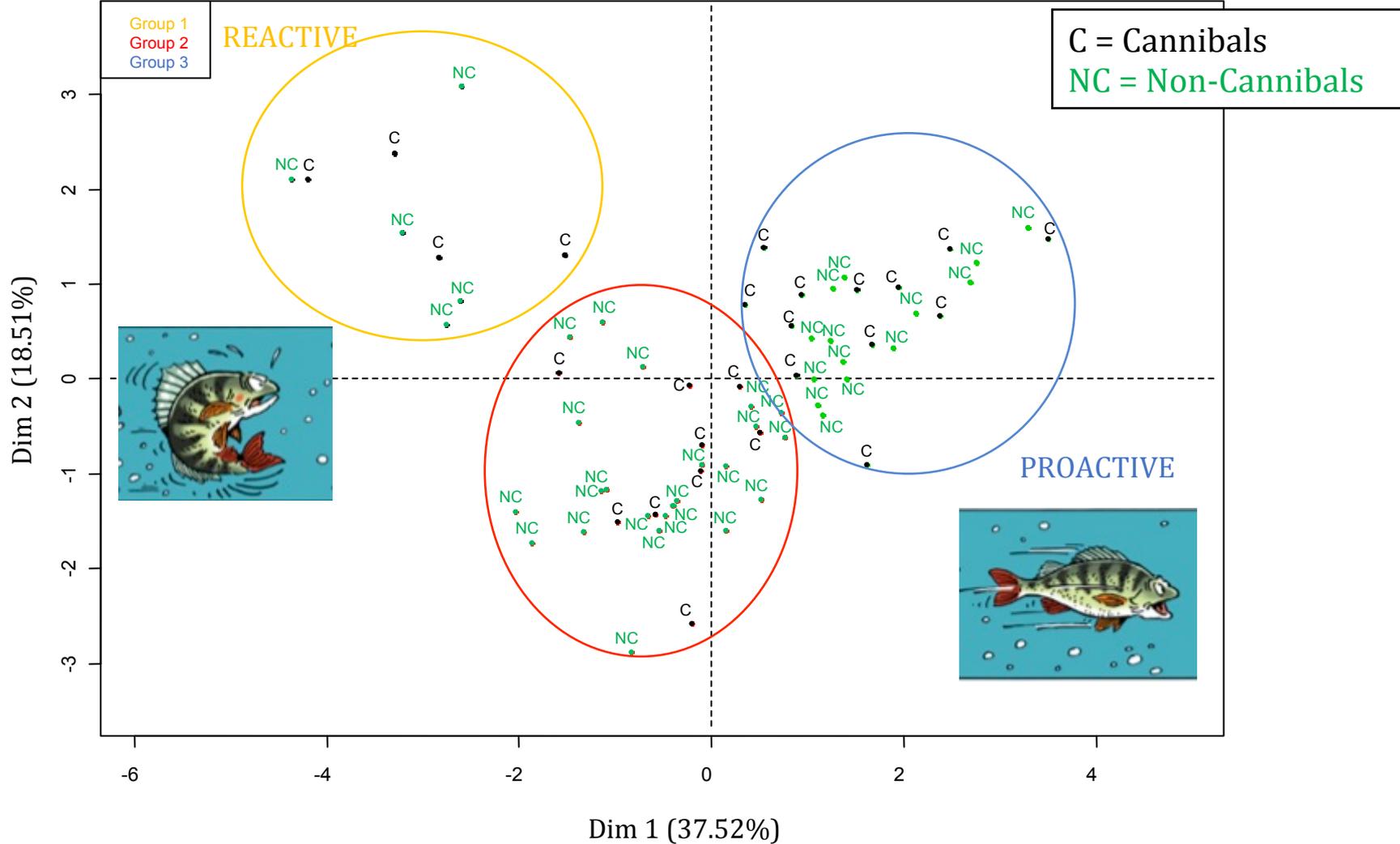
**Reactive**

**Proactive**

➔ In a same population of pikeperch larvae, there are individuals with different personalities



## Have cannibals and non-cannibals a different personality?



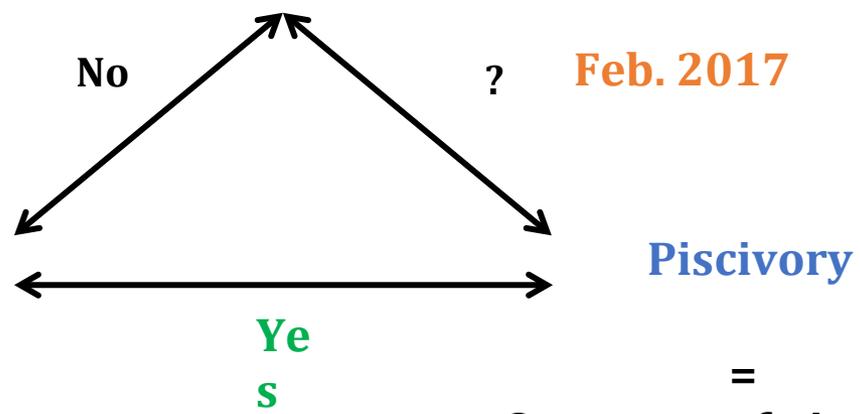
➔ There is no different profiles of personality between cannibals and non-cannibals



## Cannibalism

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### Intra-specific predation

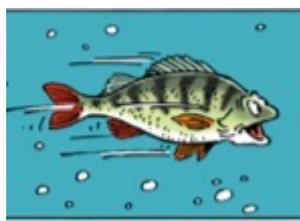
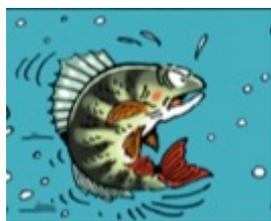


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### Inter-individual variability

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### Ontogeny of piscivory behaviour



THANK YOU FOR YOUR ATTENTION

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