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

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.

WP16-1 (2015)
- Environmental factors
  - Siphonning tank period
  - Water renewal rate
  - Light intensity
  - Water current direction

WP16-2 (2016)
- Morphology
- Preference

WP16-3 (2017)

Cannibalism observations:
5min/tank/day

Cannibalism observations:
Prey size preference

Smith and Reay, 1991; Hecht & Pienaar, 1993; Baras, 2012

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How to explain cannibalism in rearing conditions?

- Environmental factors
- Nutritional factors
- Populational factors

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

Hypothesis: Cannibals and non-cannibals have a different personality
Personality = protocol

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

Personality

Have cannibals and non-cannibals a different personality?

Boldness
Exploration
Agressivity
Sociability
Activity
There is no different profiles of personality between cannibals and non-cannibals
Conclusion

Cannibalism

= Intra-specific predation

No

?  Feb. 2017

Personality

= Inter-individual variability

Yes

Piscivory

= Ontogeny of piscivory behaviour
THANK YOU FOR YOUR ATTENTION

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