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INTRODUCTION

Different trade-offs at the egg and larval stages ensure that larvae are starting to feed when environmental conditions are optimal for them

Goals => based on the analysis of 12 egg and larval variables, temperature and spawning season for 65 freshwater fish species* :

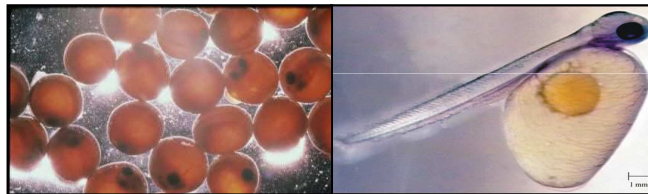
1. reassess previous conclusions on the possible relationships between egg size, larval size, temperature and time
2. explore further the different trade-offs during early-life stages ensuring that larvae start feeding at the right time

*All data are issued from a specific database, called **STOREFISH** (3).

MATERIALS AND METHODS

Egg traits

- Oocyte diameter : ϕ , in mm
- Egg diameter : same, double or triple
- Egg buoyancy : demersal or pelagic
- Egg adhesiveness : sticky or not



Larval traits

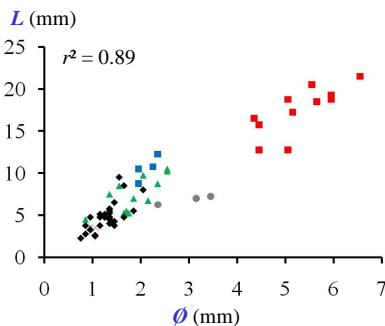
- Size upon hatching: L , in mm
- Larval behavior : demersal or pelagic

Variables studied for I and EF

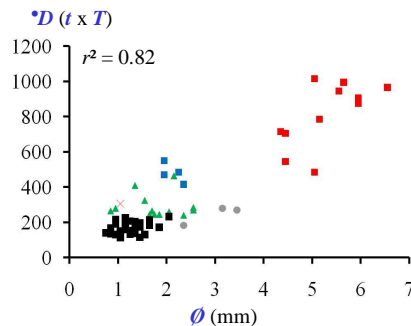
- ✓ Time: t , in days
- ✓ Temperature: T , in °C
- ✓ Degree-days: $^{\circ}D$ [$t \times T$]



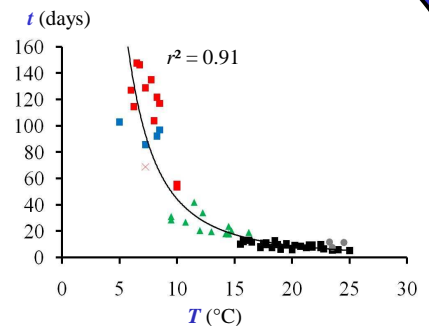
RESULTS AND DISCUSSION



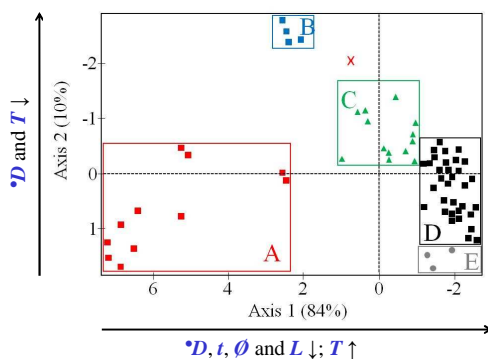
When excluding $\phi > 4.5$ mm : $r^2 = 0.52$
Egg size sets a limit on the larvae that can hatch from it
Relationship \neq from marine fishes (2)



When excluding $\phi > 4.5$ mm : $r^2 = 0.21$
Egg size not correlated with the amount of reserves
 $^{\circ}D$ for incubation also not correlated with ϕ (4)

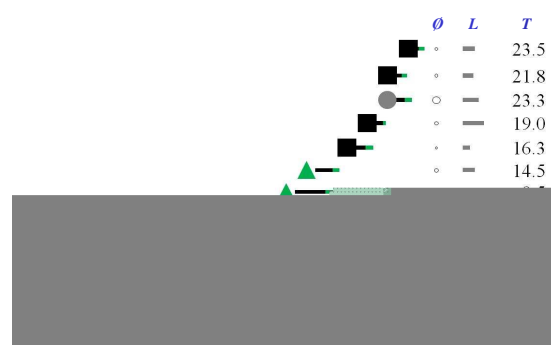


$T \Rightarrow$ the most important environmental factor affecting t . $T \uparrow$ tissue differentiation rate, activity of hatching glands and embryo motility (1)



ACP on all traits
 \Rightarrow 5 groups (5)

- A and B : salmonids
- C: percids, esocids, cyprinids
- D: cyprinids, moronids, clupeids
- E: ictularids



- Developmental stages at hatching and at the onset of exogenous feeding are not fixed in ontogeny \Rightarrow species-specific (1)
- Whatever the spawning season \Rightarrow larvae are first-feeding during spring, when food size and abundance are the most appropriate (6)

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