



# What can behavioural ecology do for fish conservation? Examples from Ecobiop in AARC

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Cédric Tentelier. What can behavioural ecology do for fish conservation ? Examples from Ecobiop in AARC. AARC Conference, Nov 2012, Limerick, Ireland. 20 diapos. hal-02805156

**HAL Id: hal-02805156**

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Submitted on 6 Jun 2020

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# ***What can behavioural ecology do for fish conservation?***

***Examples from***



***in***



**INRA/University of Pau**

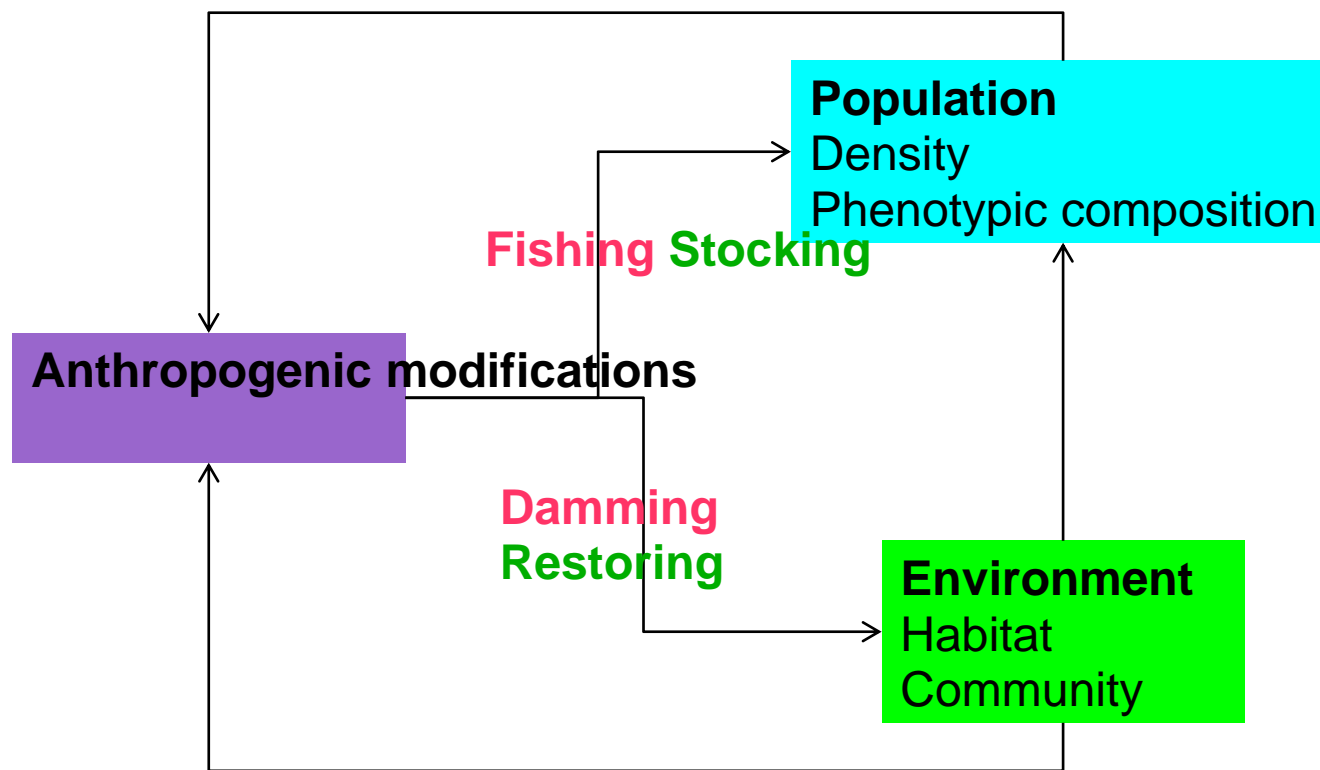


**Fish Behavioural Ecology and Population Biology group**

***Cédric Tentelier – AARC Conference – 28<sup>th</sup> November 2012 – Limerick – Ireland***

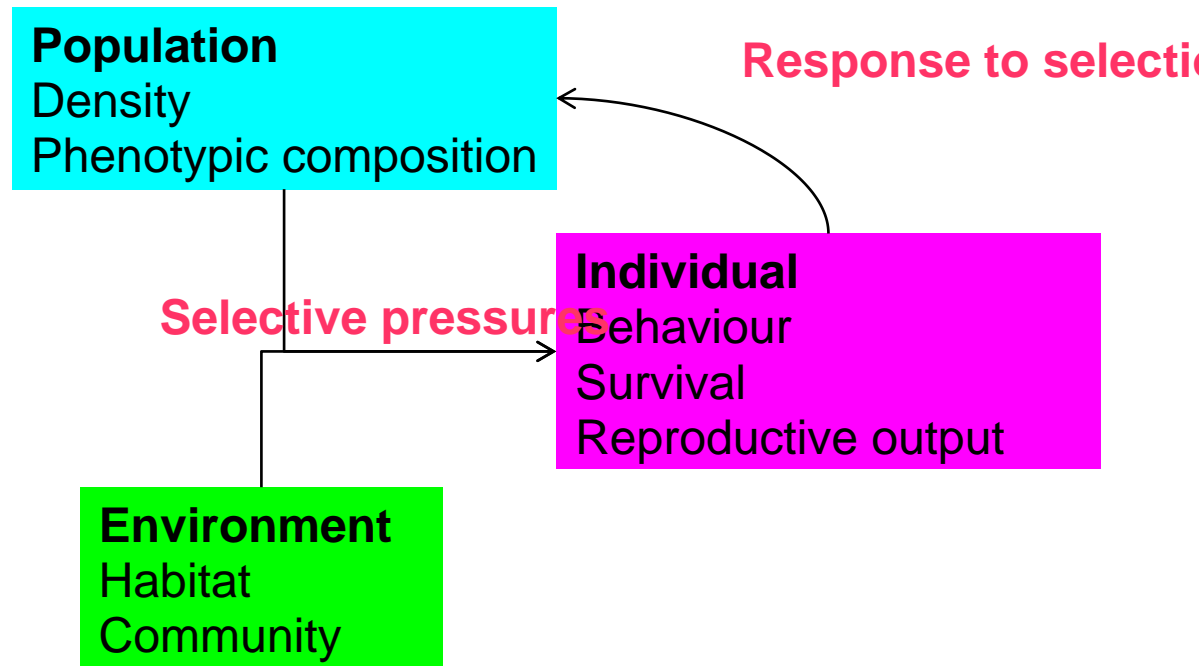
# What worries fish conservationists?

- Understand and solve human-induced problems on natural populations



# What arouses behavioural ecologists?

- Give evolutionary and ecological sense to animal behaviour

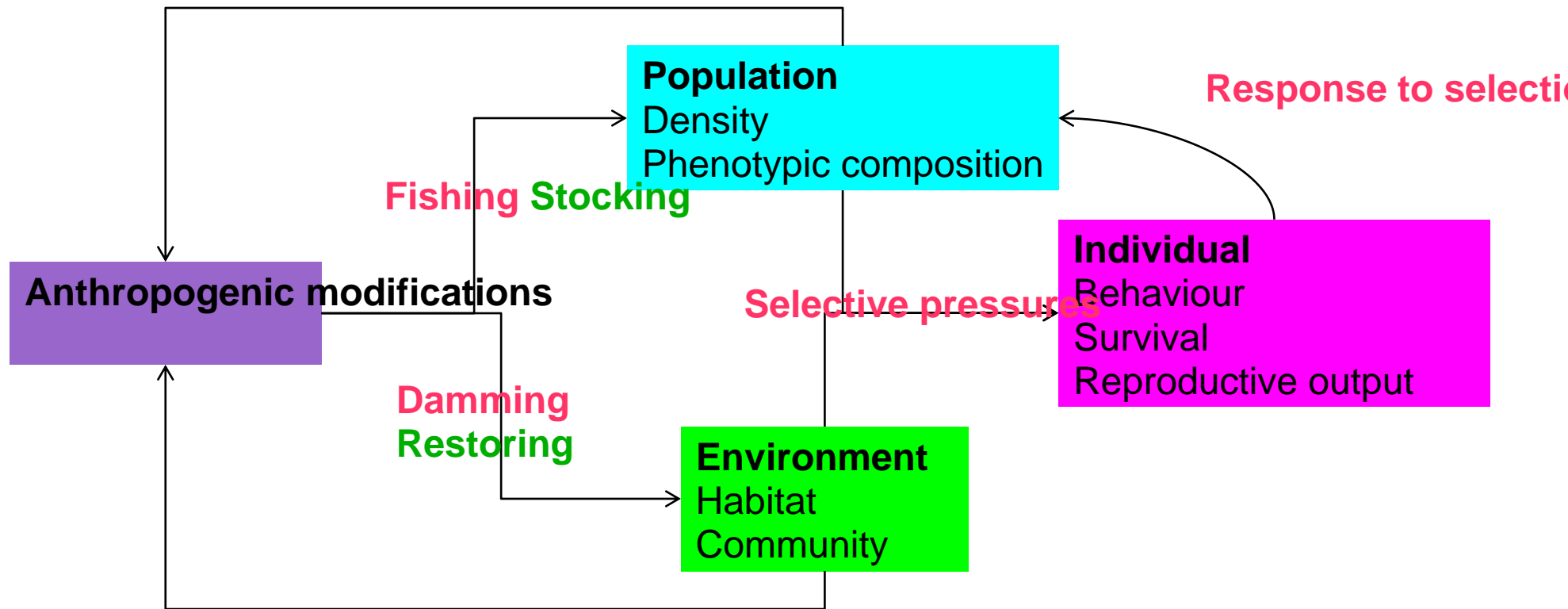


Where can we meet?

# Where can we meet?



# Where can we meet?



*How does anthropogenic change twist natural adaptation to environment?*

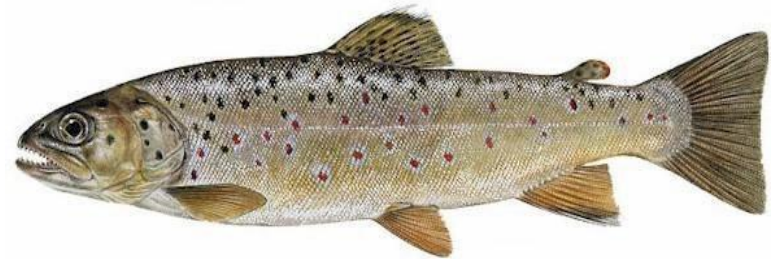
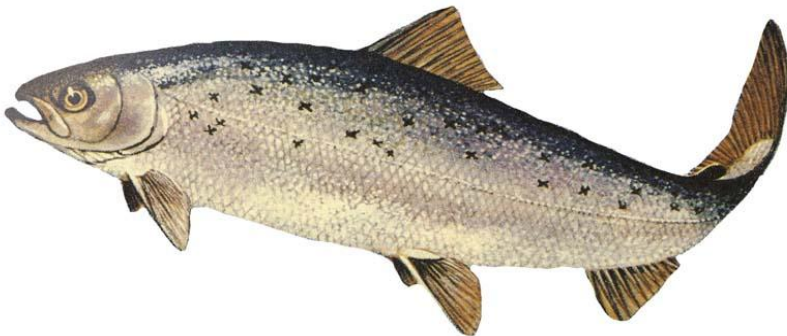
*How do adaptation processes screw conservation actions?*

# Examples of connections with our contribution to AARC

- Growth opportunity and sex determinism in eel



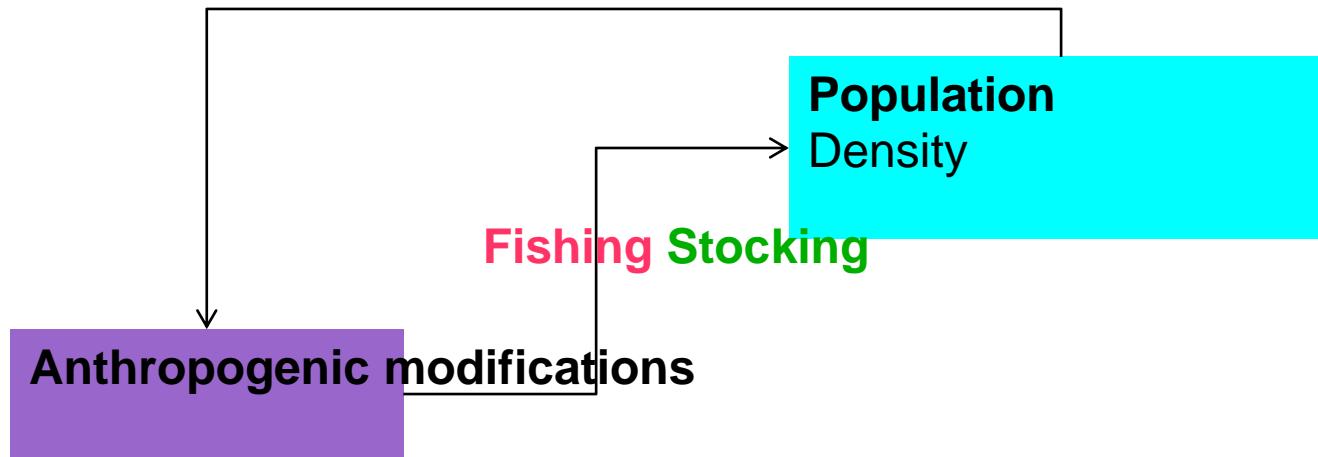
- Salmonid mating system and density dependence





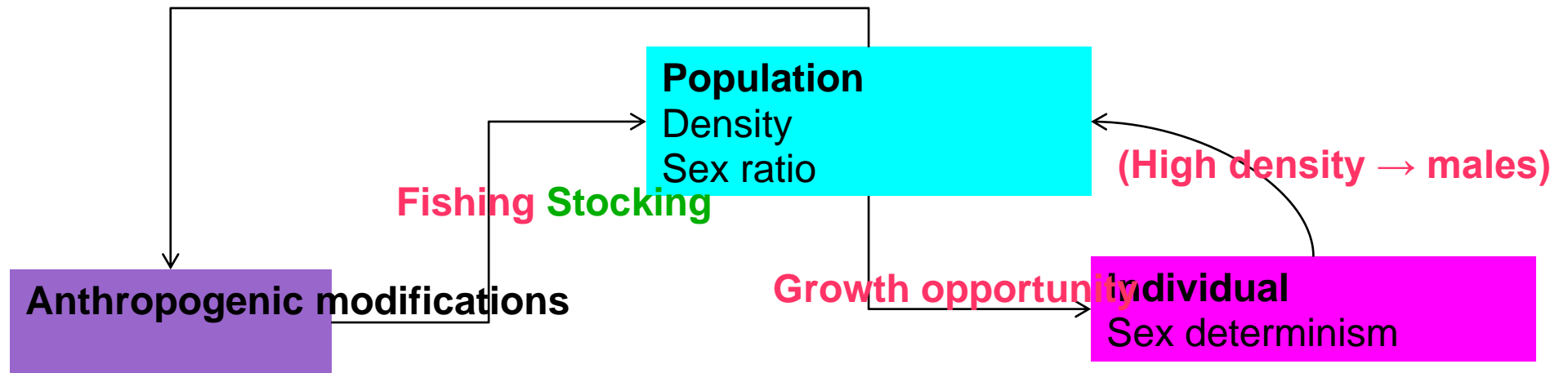


# Growth opportunity and sex determinism in eel

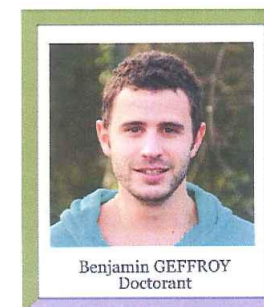




# Growth opportunity and sex determinism in eel



*How does population density affect sex determinism?  
Can we avoid stocking only males?*



**Rear small eels in high-density tanks and low-density tanks**  
**Check sexes after 2 years**

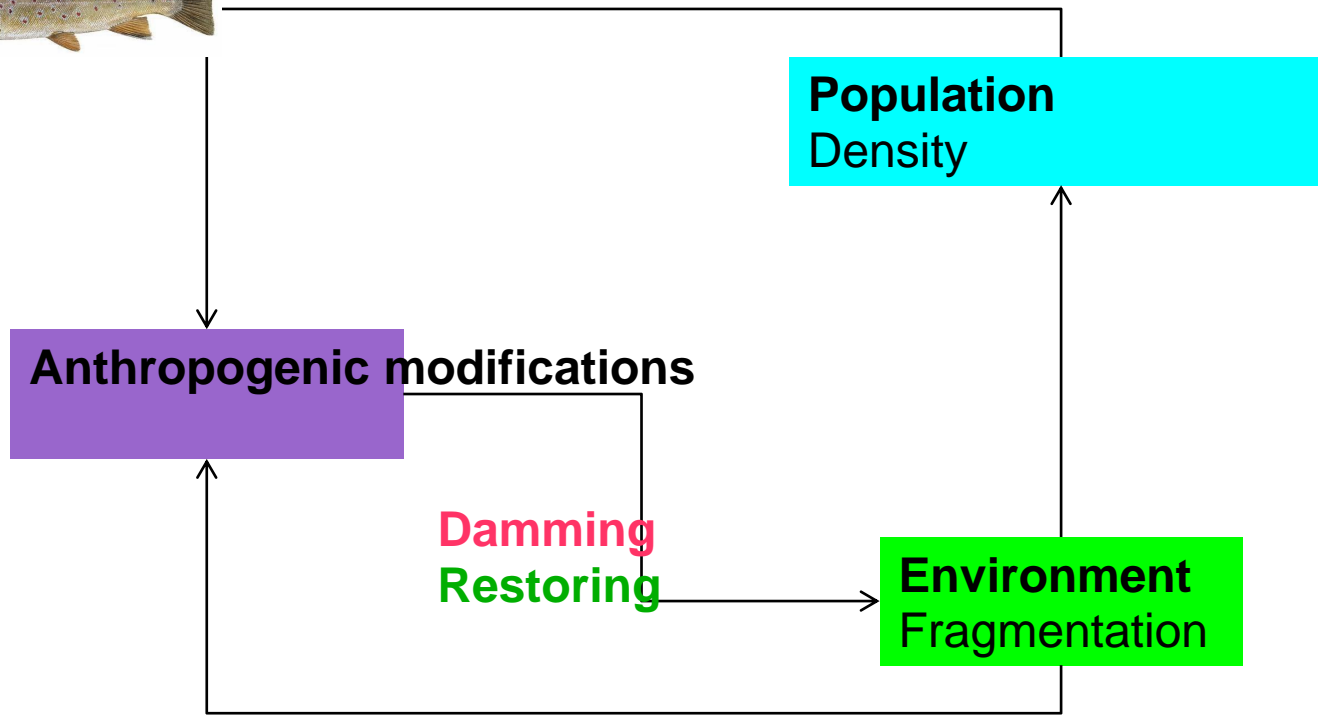
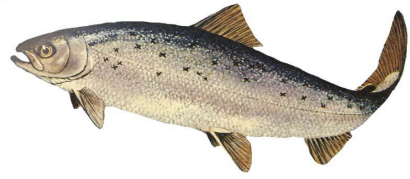
*Sex ratio affected by early drop in density*

*- sex-biased mortality?*

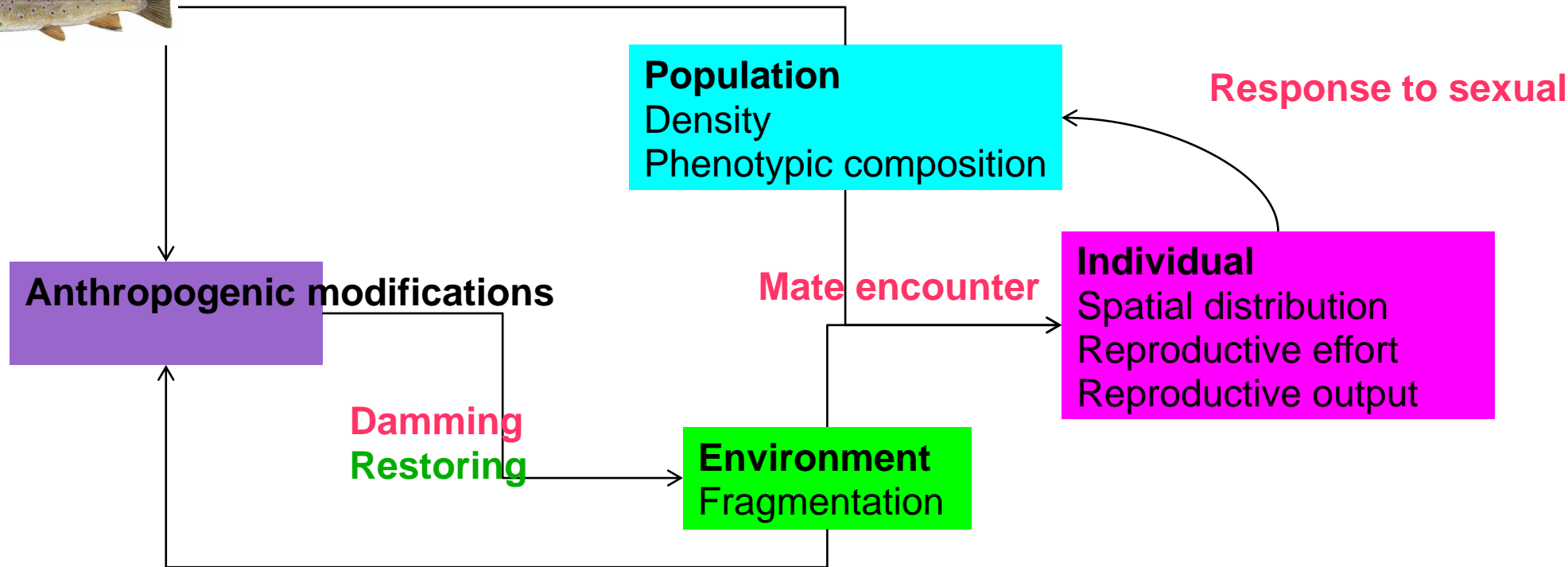
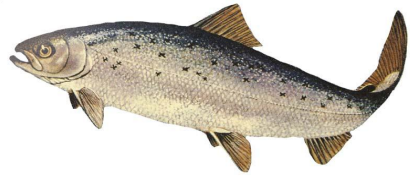
*- dropping rate = information on future growth opportunity?*

*→ paths to optimise rearing for stocking*

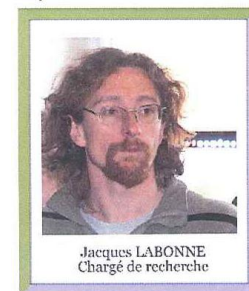
# Salmonid mating system and density-dependence



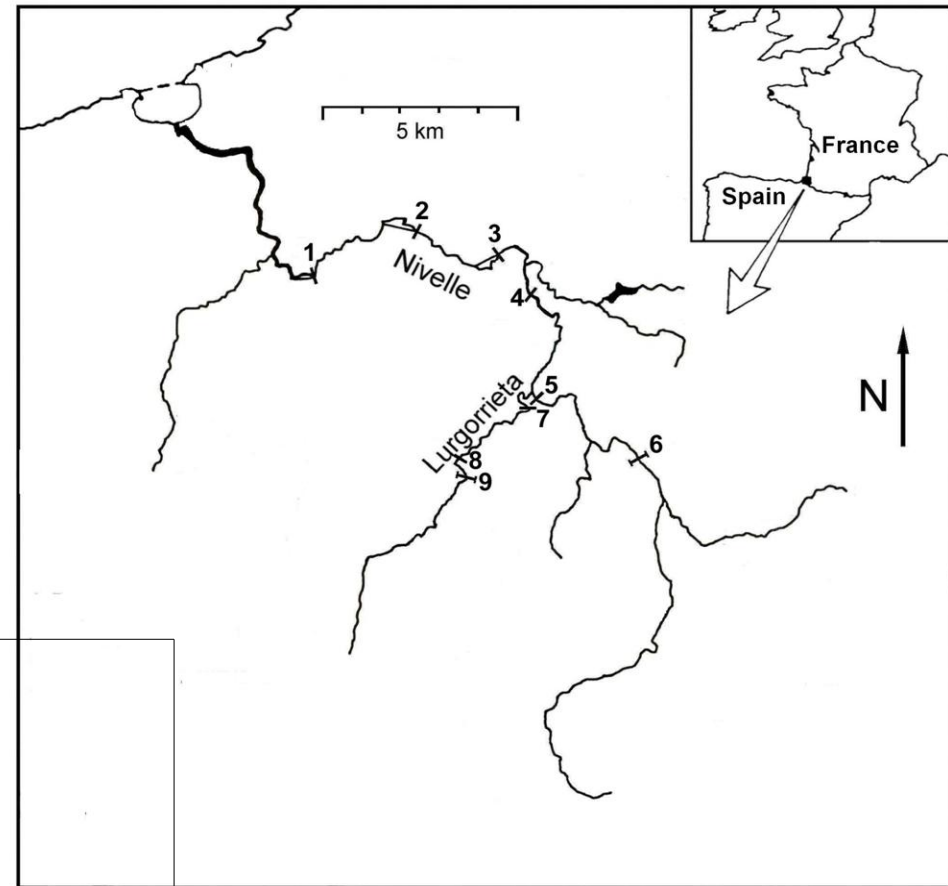
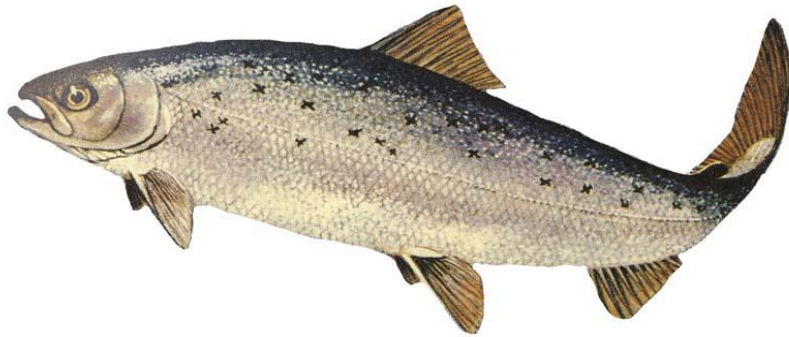
# Salmonid mating system and density-dependence



*How does fragmentation alter mating system?*

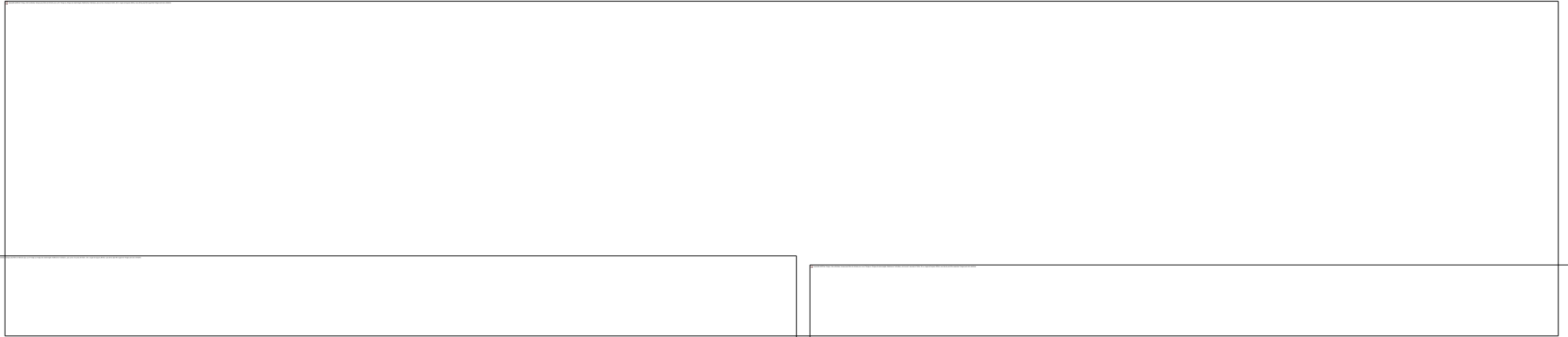


## 1557 salmon redds mapped over 15 years in the Nivelle



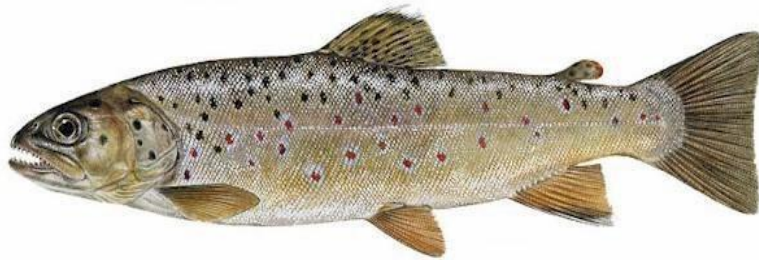
→ Redds aggregate just below weirs

**31 spawners radiotracked each day of spawning season (whole pop'n)**  
**1847 0+ fry electrofished and genetically assigned**



***Aggregation leads to more mate encounters, and stronger sexual selection →***

*90 brown trout spawning events in pyrenean rivers*



**On average 20% of clutches cannibalised (up to 40%)**



# Salmonid mating system and density dependence

→ *High sex ratio promotes egg ca*

*Multiple mating promotes  
paternal cannibalism* ←

n=79

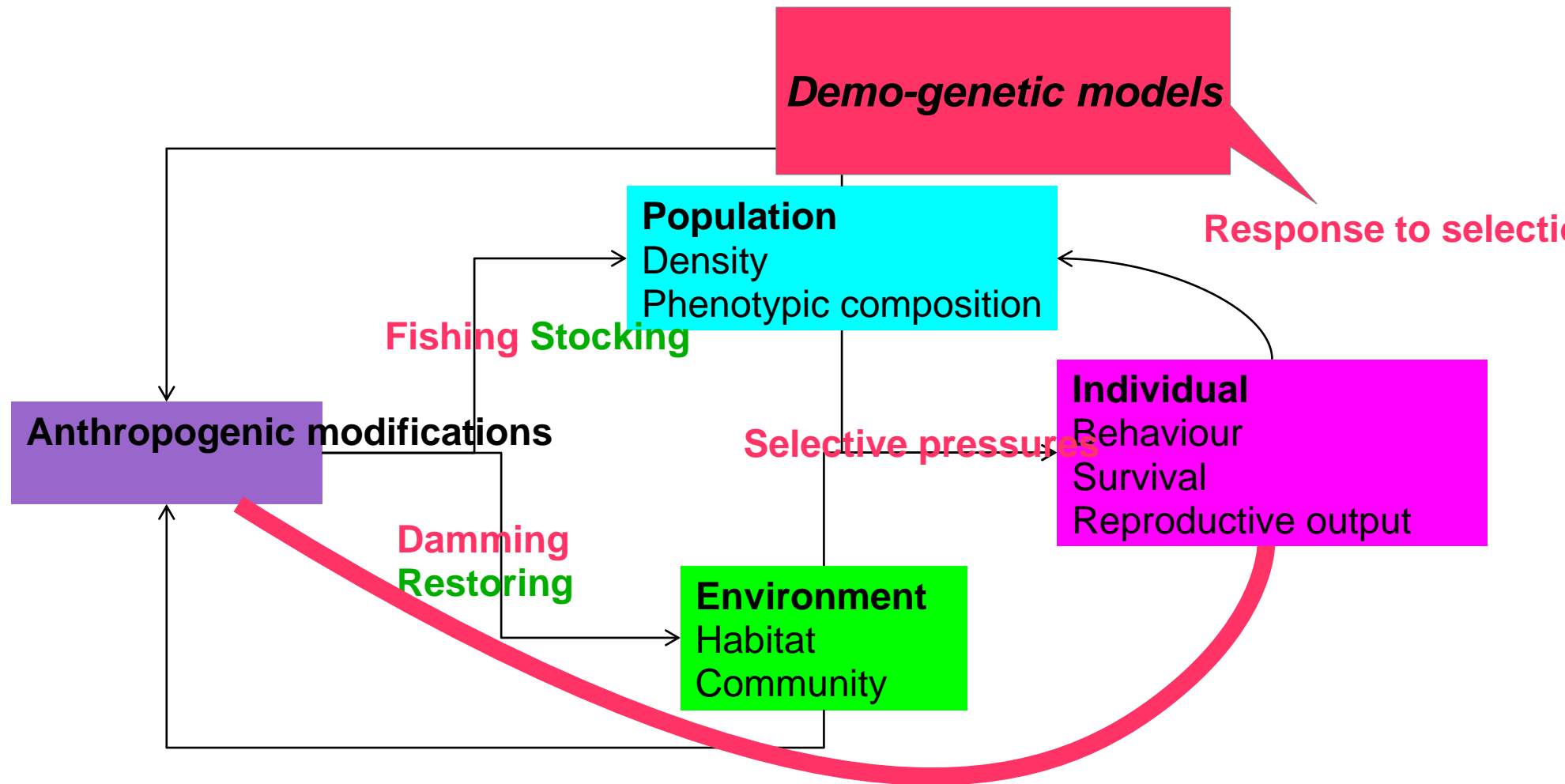
n=11

Where shall we head?

# Where shall we head?



# Where shall we head?



*More comprehensive models : plug genetic processes*

*More operational relationship : target conservation actions on behaviour*

# Thanks



INVESTING IN OUR COMMON FUTURE



MIGRADOUR



CONTRAT 2011-2015



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et des stades juvéniles  
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Axe 2 :  
Démographie et évolution des traits de vie :  
influence des perturbations et conséquences  
en terme de gestion des populations.  
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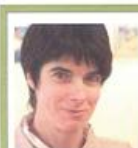
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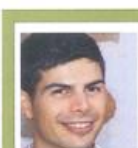
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