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

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What can behavioural ecology do for fish conservation?

Examples from



in



INRA/University of Pau

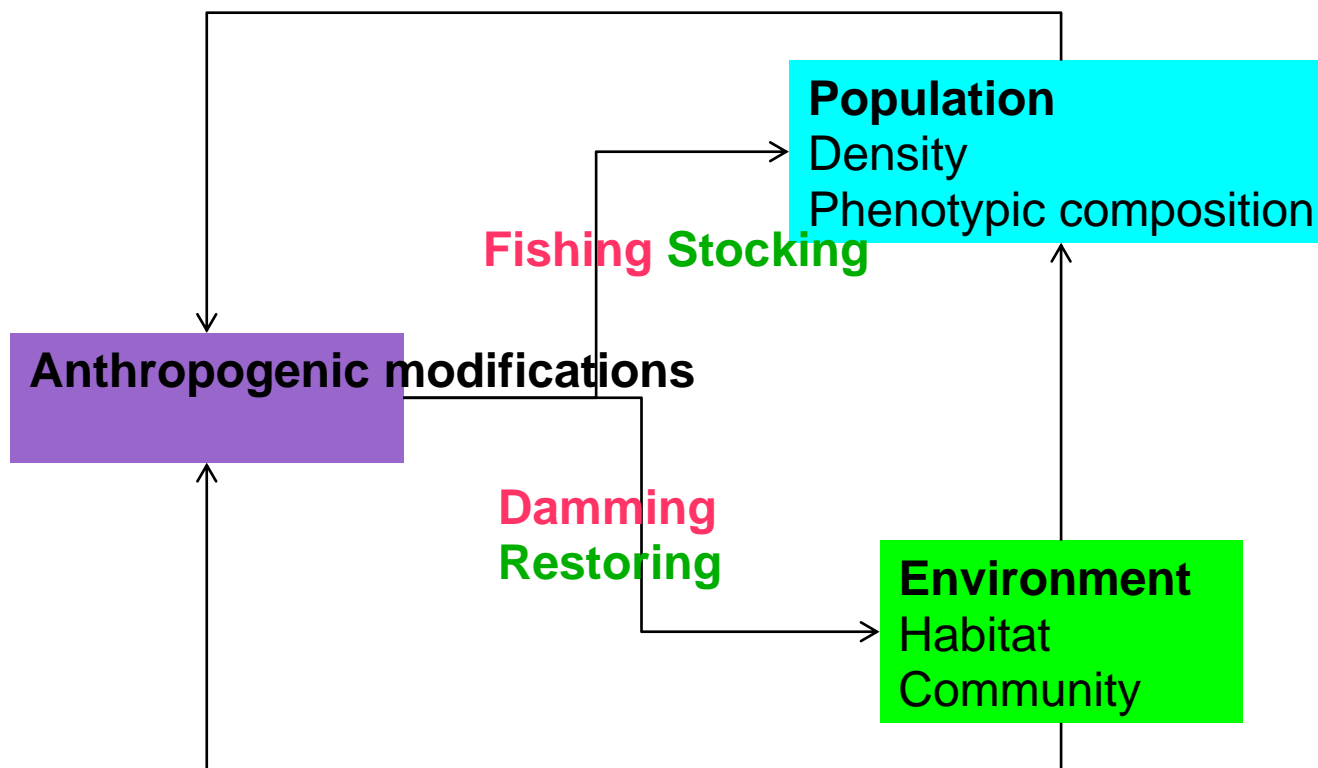


Fish Behavioural Ecology and Population Biology group

Cédric Tentelier – AARC Conference – 28th November 2012 – Limerick – Ireland

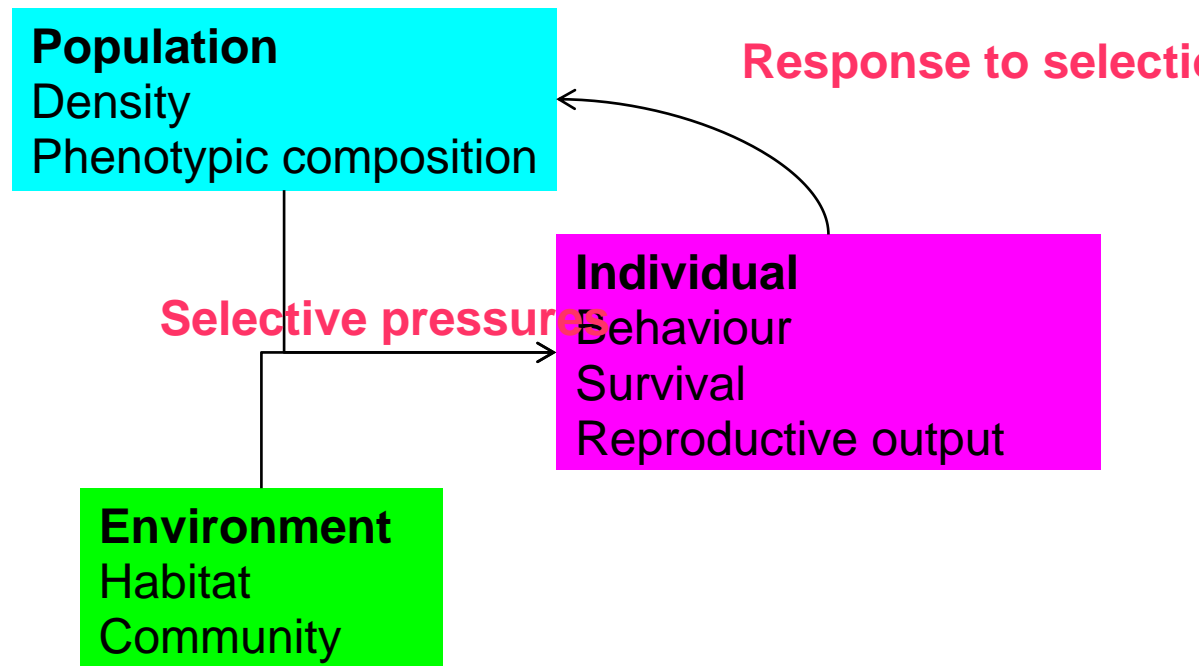
What worries fish conservationists?

- Understand and solve human-induced problems on natural populations



What arouses behavioural ecologists?

- Give evolutionary and ecological sense to animal behaviour

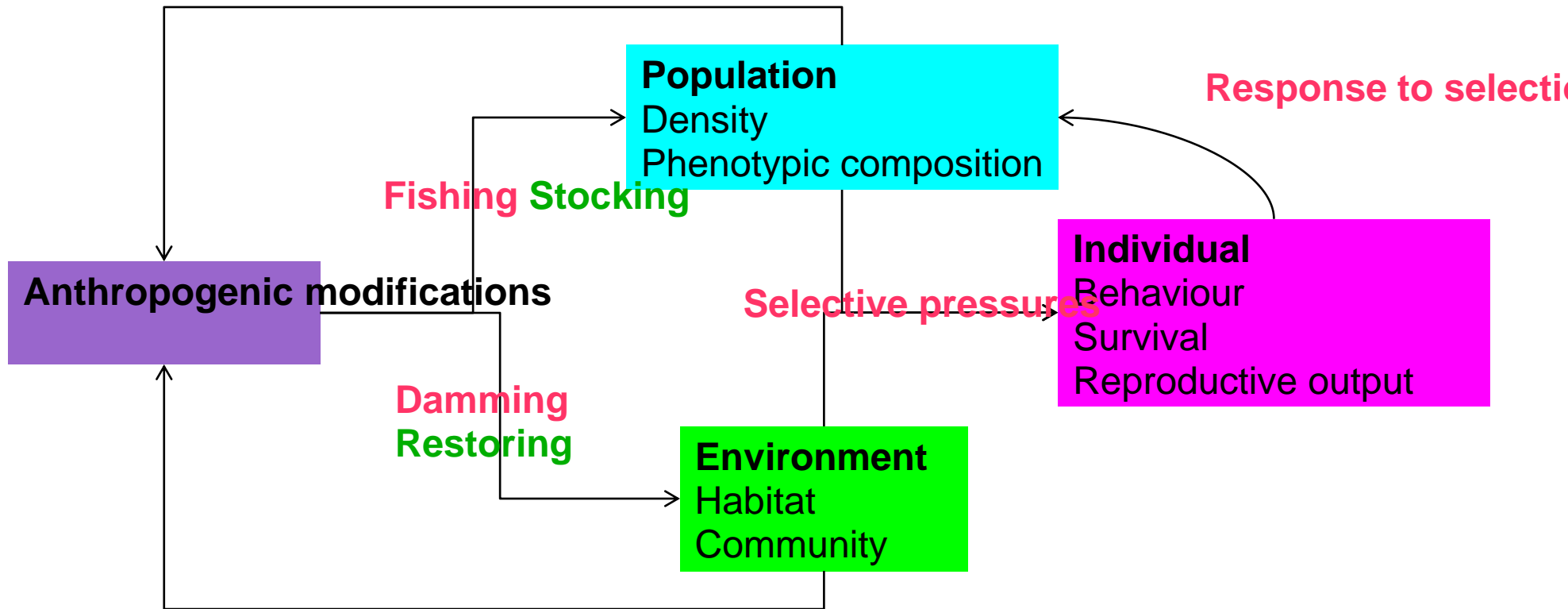


Where can we meet?

Where can we meet?



Where can we meet?



How does anthropogenic change twist natural adaptation to environment?

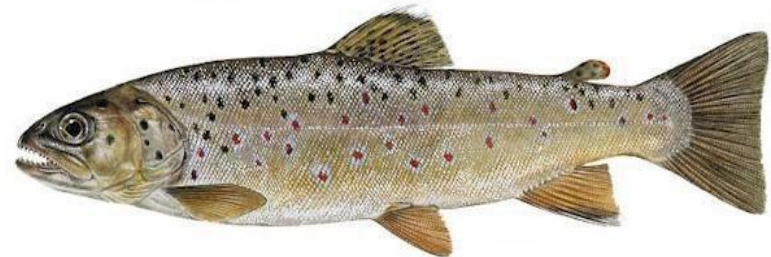
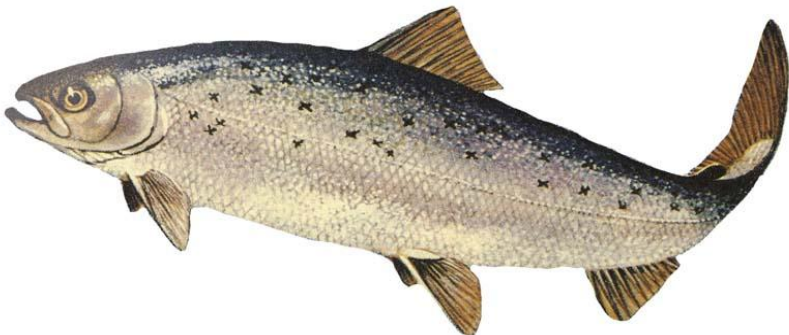
How do adaptation processes screw conservation actions?

Examples of connections with our contribution to AARC

- Growth opportunity and sex determinism in eel

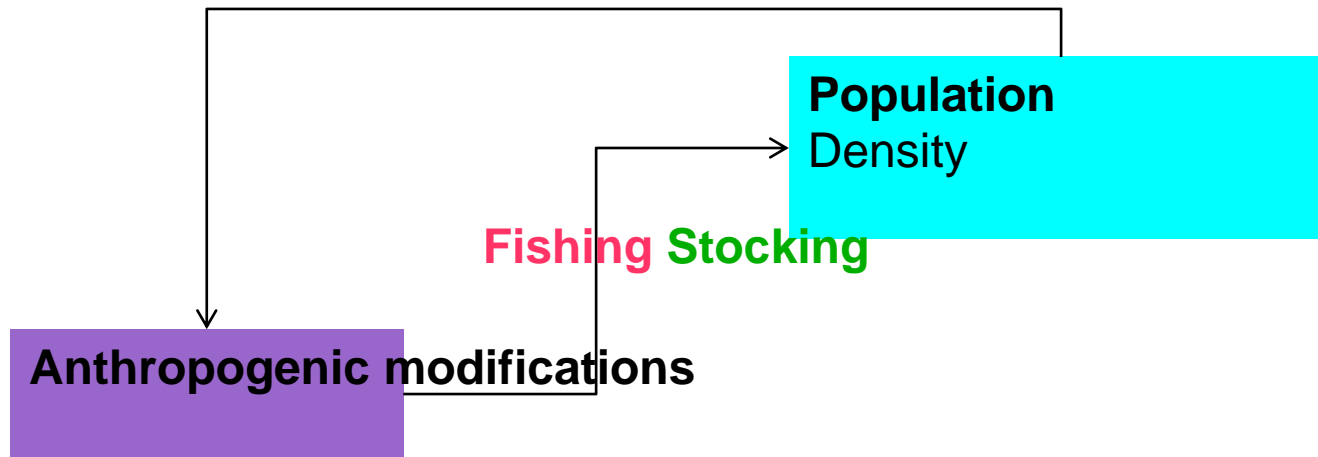


- Salmonid mating system and density dependence



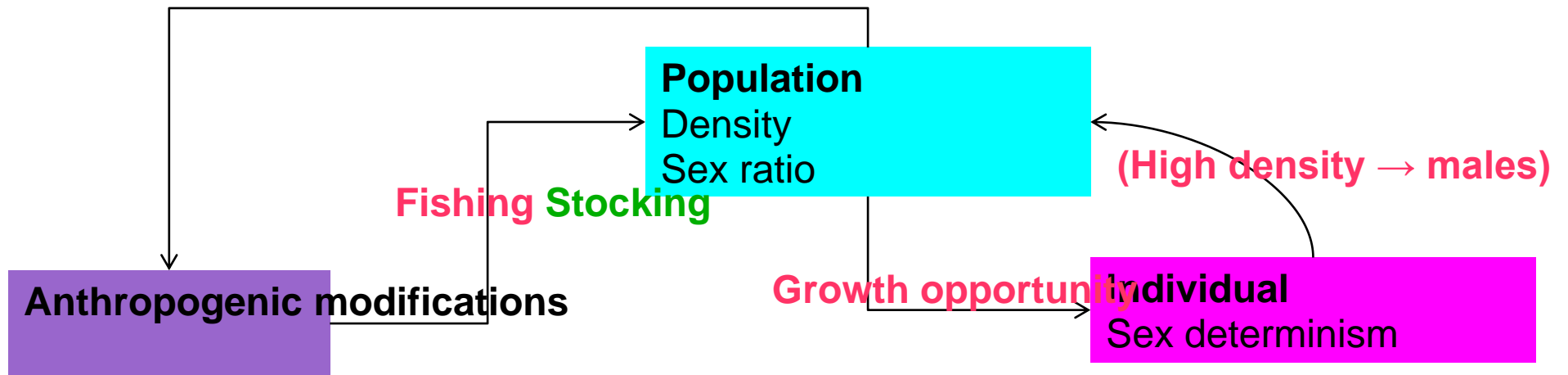


Growth opportunity and sex determinism in eel





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

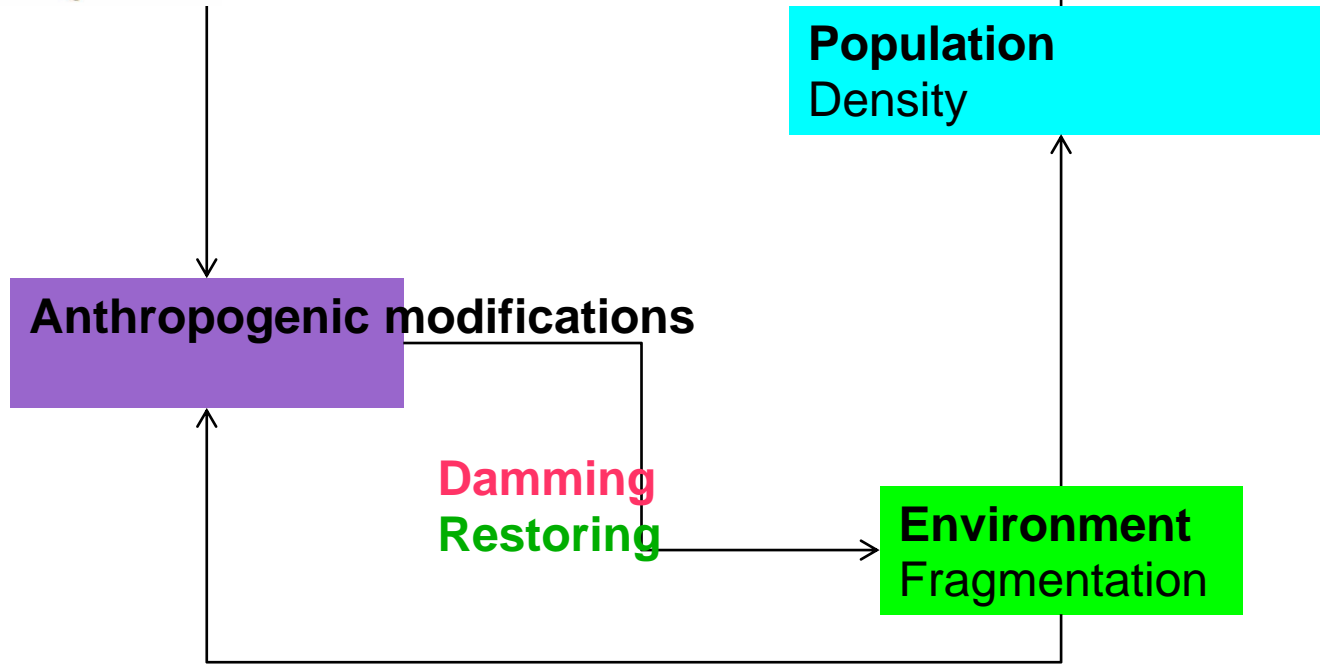
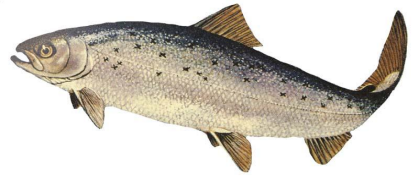
Sex ratio affected by early drop in density

- sex-biased mortality?

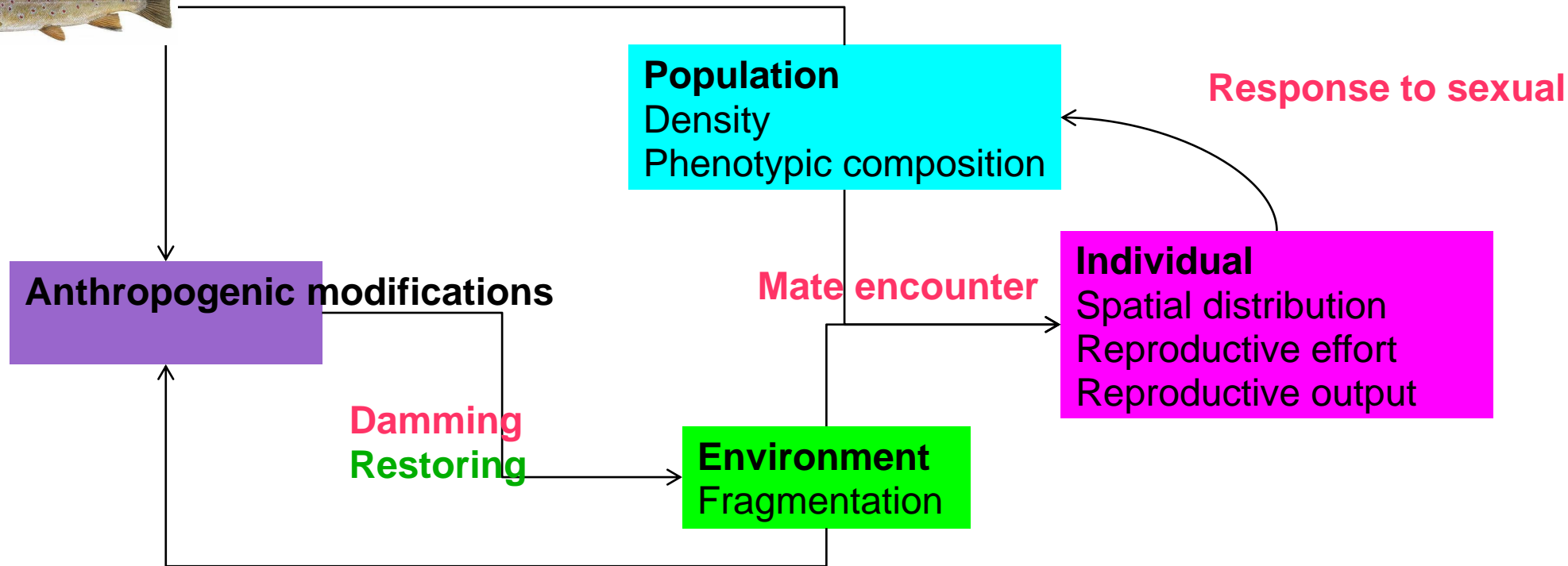
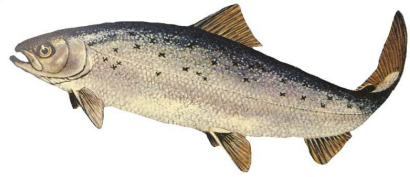
- dropping rate = information on future growth opportunity?

→ paths to optimise rearing for stocking

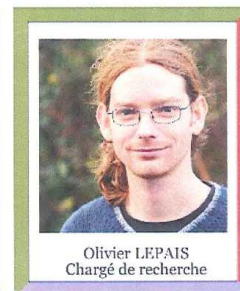
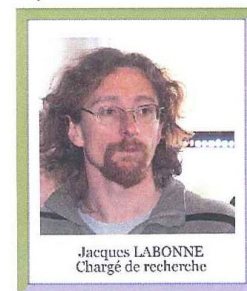
Salmonid mating system and density-dependence



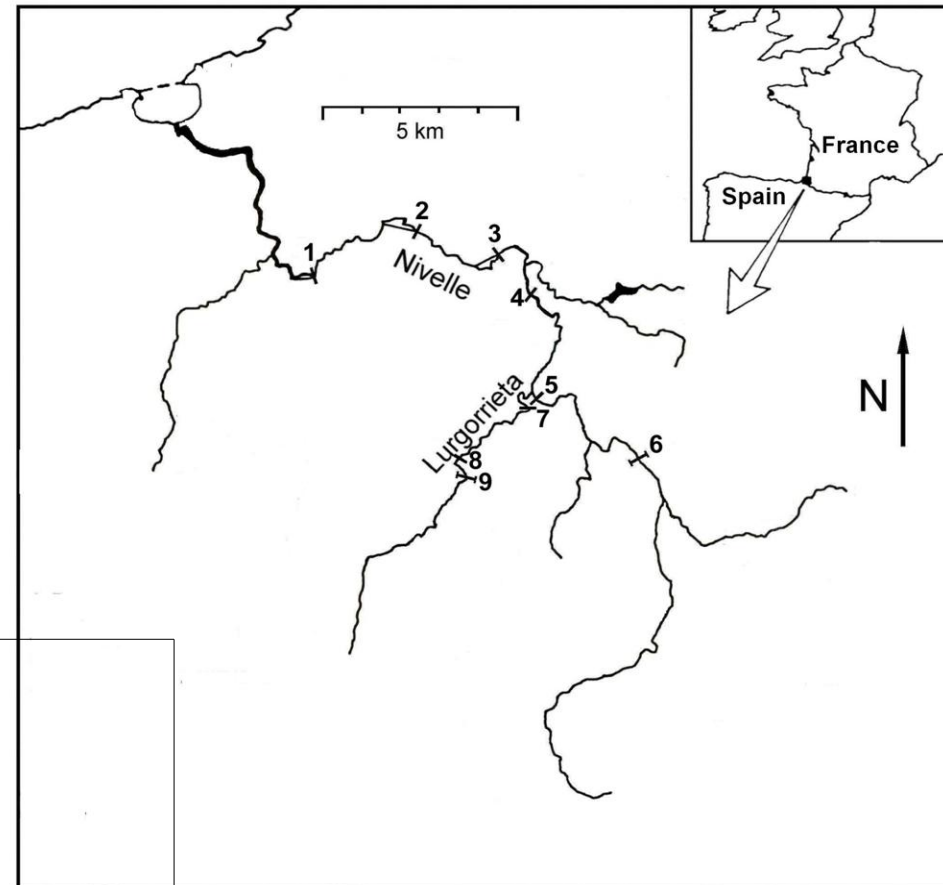
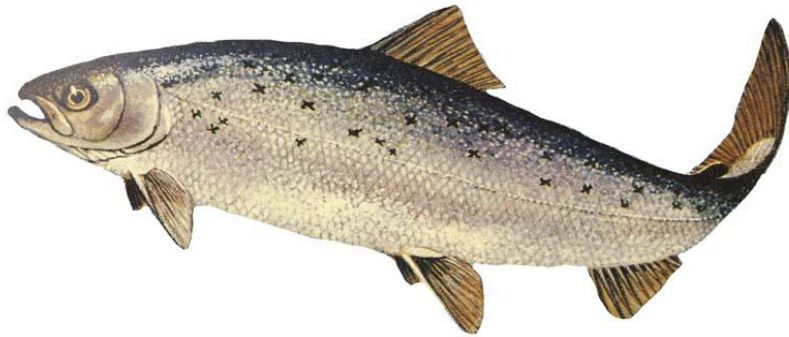
Salmonid mating system and density-dependence



How does fragmentation alter mating system?



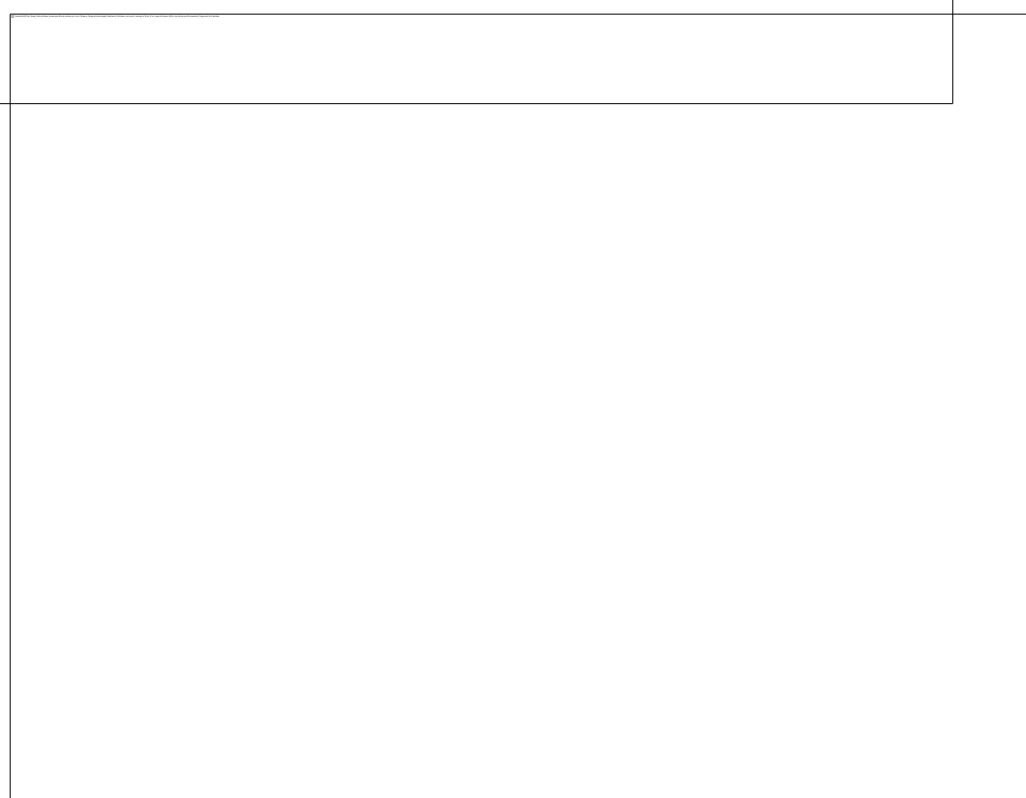
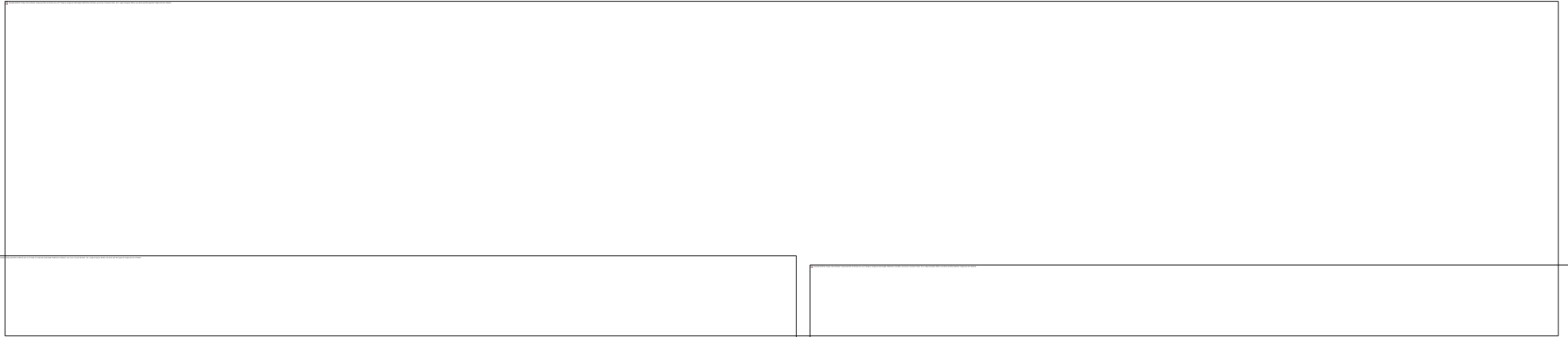
1557 salmon redds mapped over 15 years in the Nivelle



→ Redds aggregate just below weirs

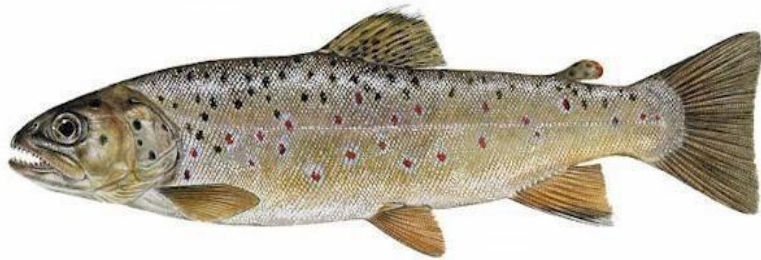
31 spawners radiotracked each day of spawning season (whole pop'n)

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

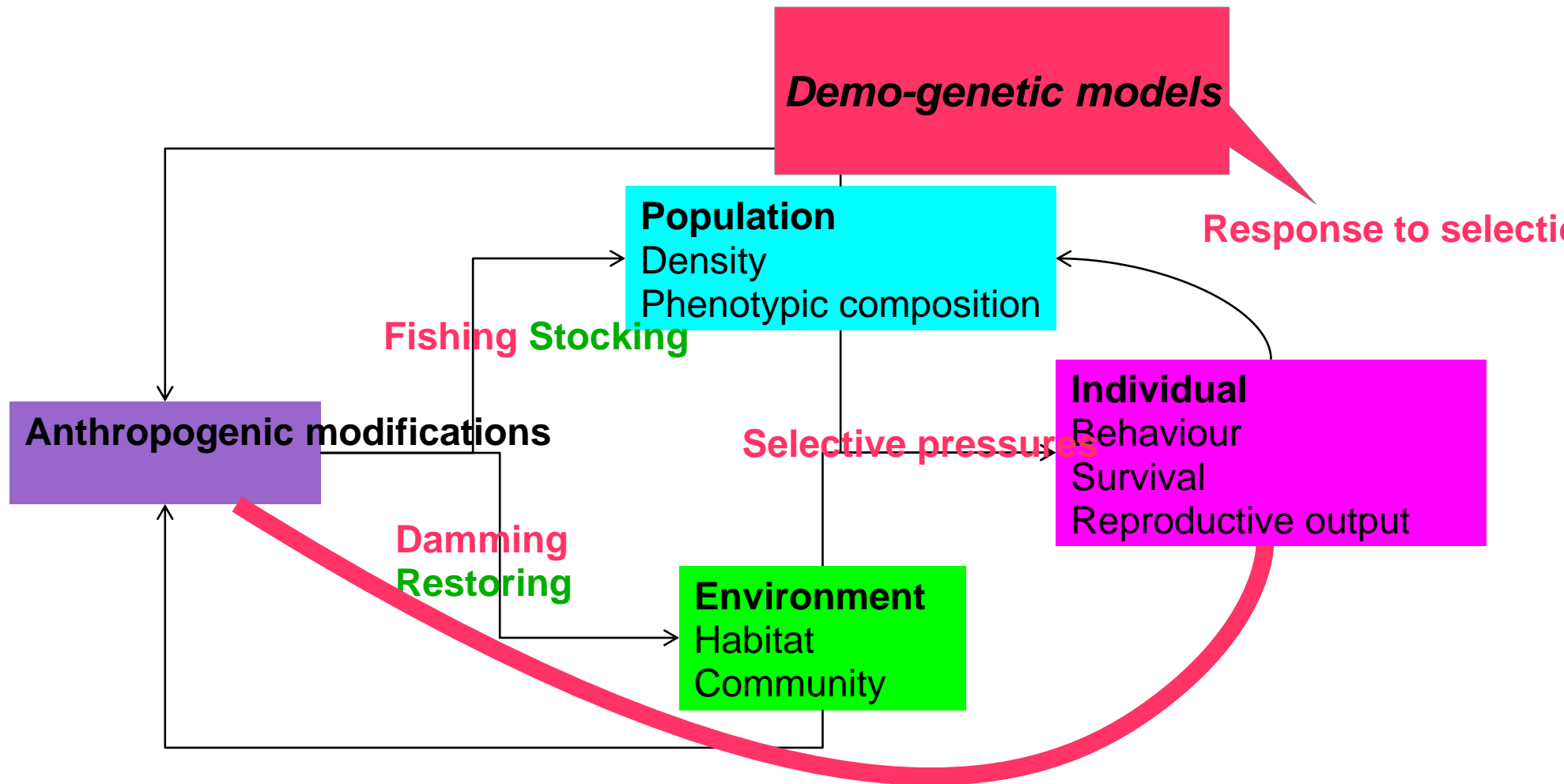
n=11

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

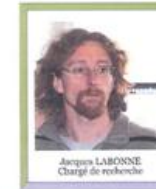
Thanks



CONTRAT 2011-2015



Axe 1 :
Ecologie comportementale
des stratégies de reproduction
et des stades juvéniles
Animateur : J. Laborne



Axe 2 :
Démographie et évolution des traits de vie:
influence des perturbations et conséquences
en terme de gestion des populations.
Animateur: E. Privost

