

# Rearing system and quality in Eurasian Perch *Perca fluviatilis* (L.)

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# Introduction

*Perca fluviatilis*



Species with a high biological plasticity

(Craig, 2000)

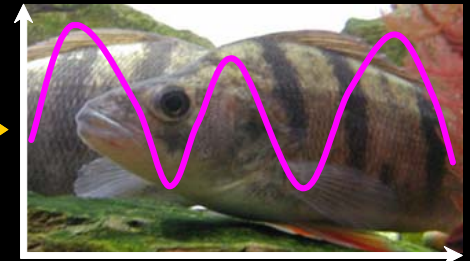
Widespread  
distribution



Diversity of the  
diet composition

Large variety of  
rearing systems

Multiple environmental conditions



# Objectives

To describe the quality of *Perca fluviatilis* from

Wild populations



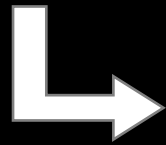
Different rearing systems



To determine the environmental factors which operate  
on the quality building

# Quality attributes in wild and farmed Eurasian perch

## Wild perch



2 sites



Rhine  
River

&

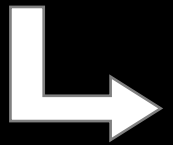
Lake  
Geneva

4 periods

With different typological and physico-chemical characteristics



## Farmed perch



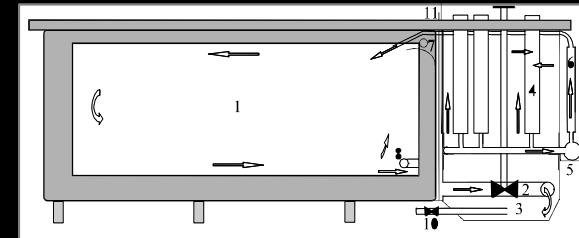
3 rearing systems



Extensive system

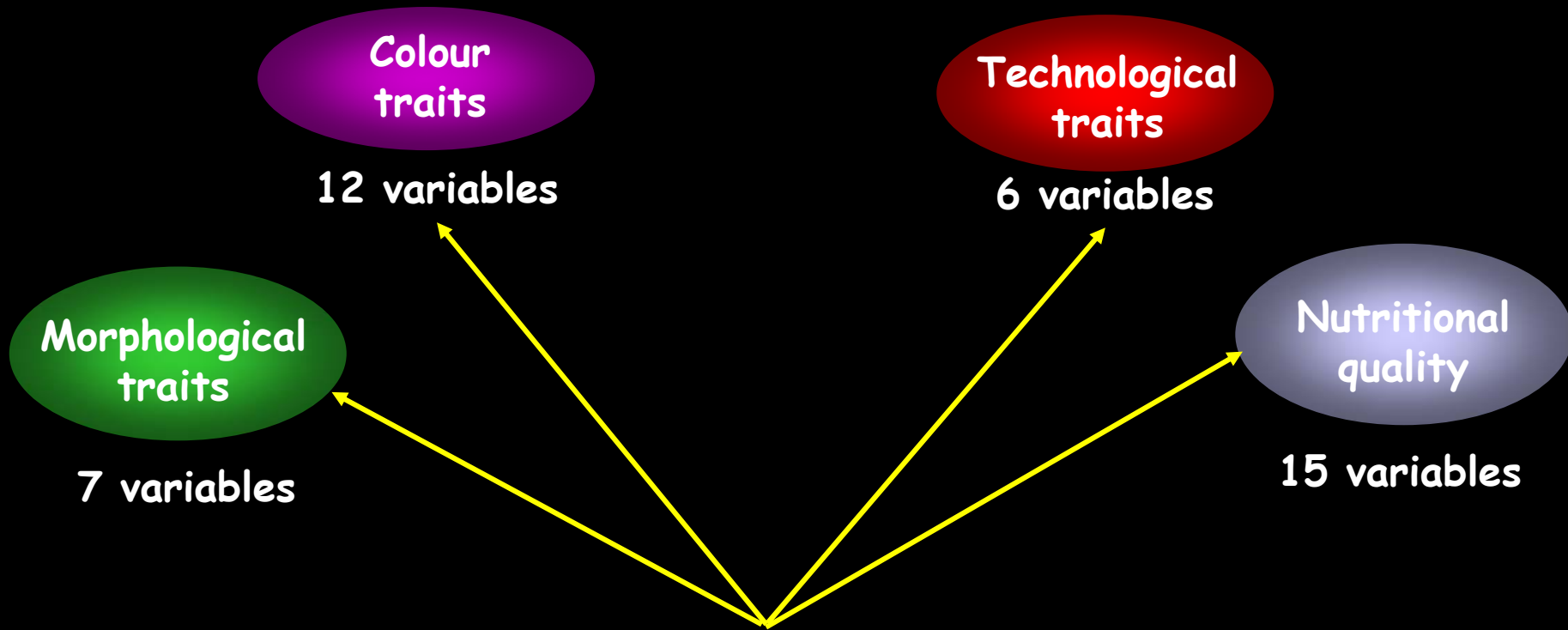


Semi-extensive system



Intensive unit

# Quality attributes in wild and farmed Eurasian perch



Standardization

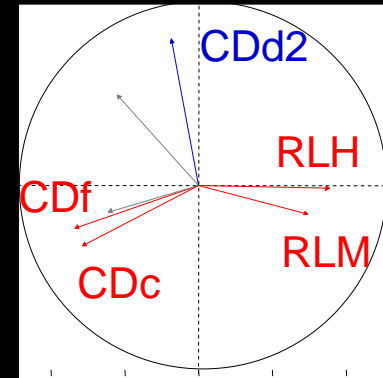
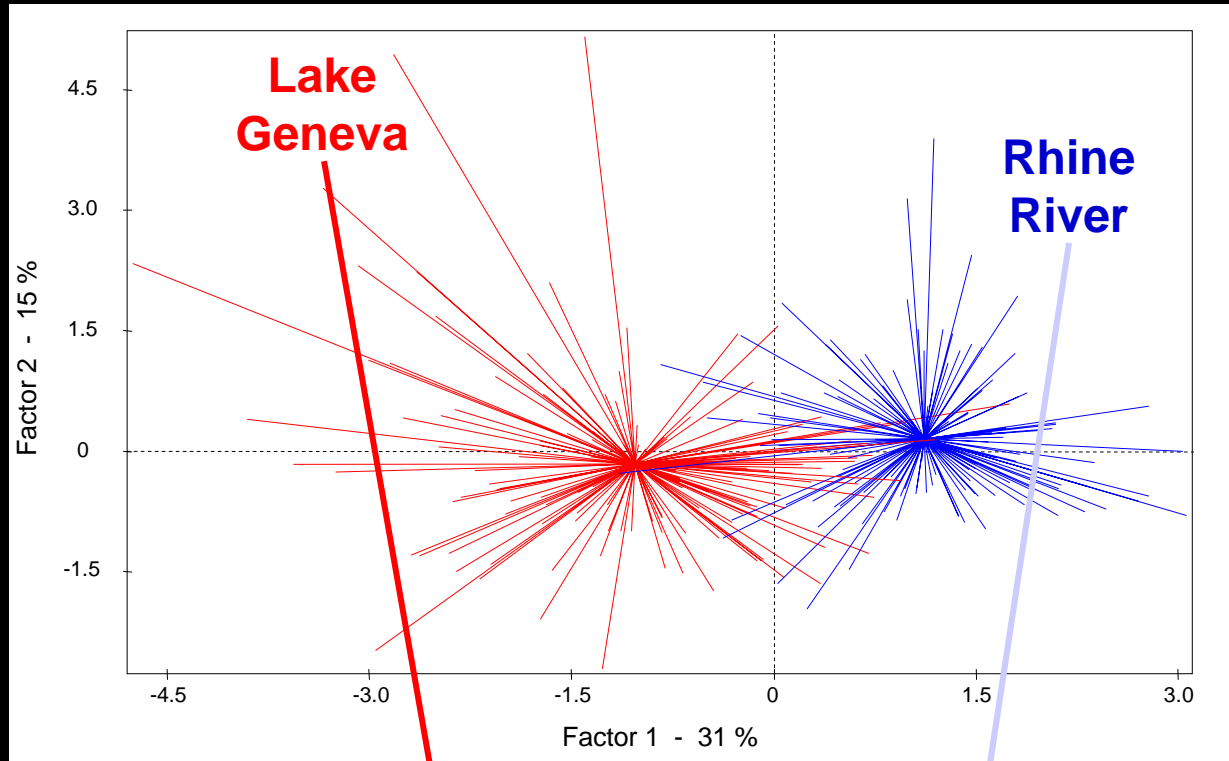
→ Adjustment according to the fish size

**Principal Component Analysis**

(Farmed fish: illustrative individuals)

# Quality attributes in wild and farmed Eurasian perch

Morphological traits



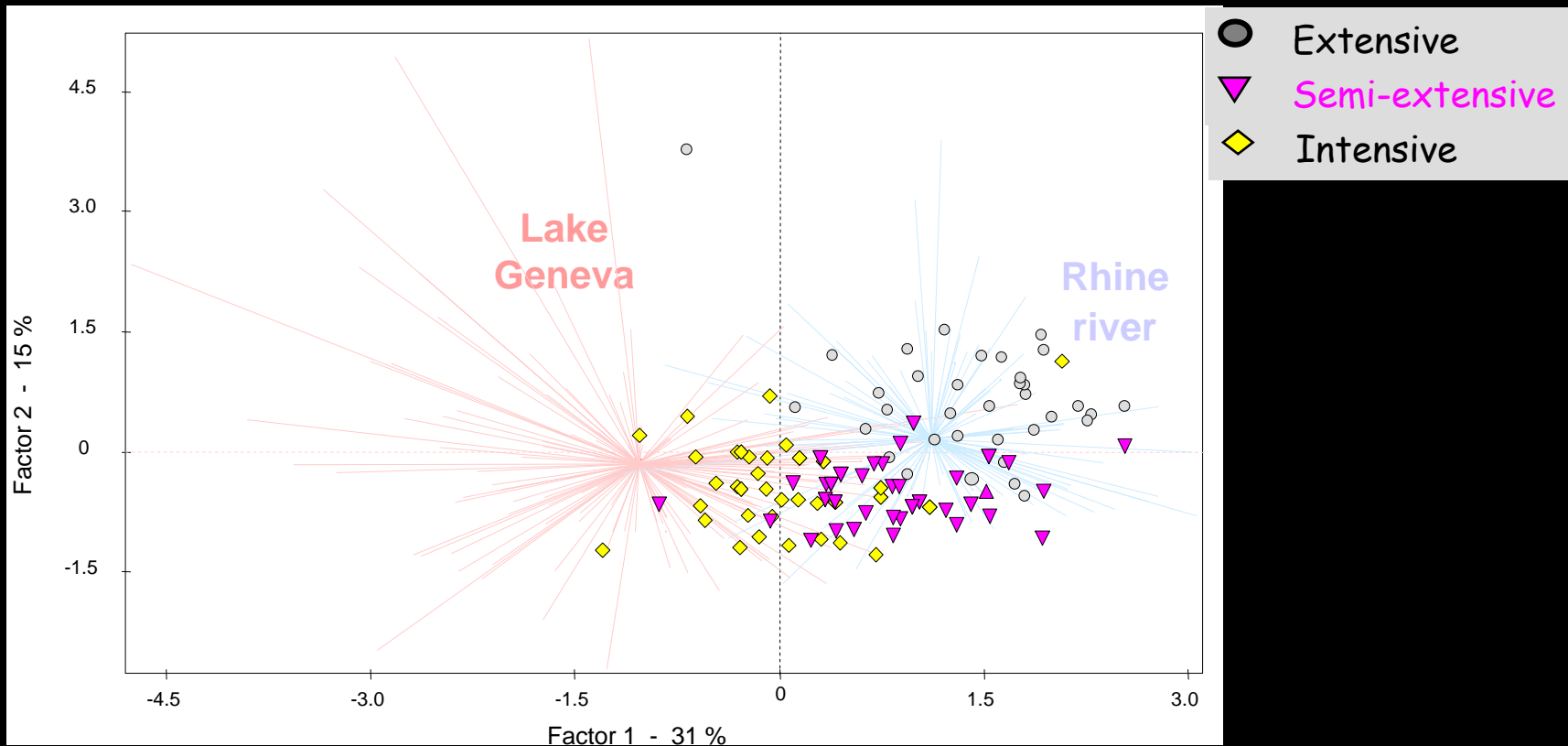
Axis 1  
*Appearance of fish*



# Quality attributes in wild and farmed Eurasian perch

Morphological traits

Where are situated the farmed fish in comparison with the wild fish ?



The farmed perch are similar to the wild counterparts

# Quality attributes in wild and farmed Eurasian perch

## Colour traits

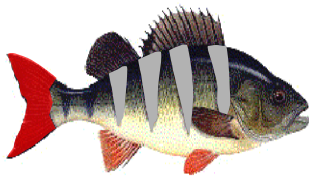
### For the fillet:



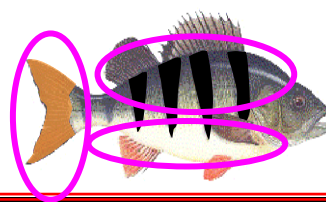
No difference

### For the whole fish:

Rhine River



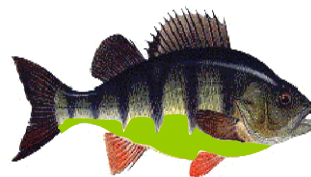
Lake Geneva



Wild



Farmed (Int.)



## Differences

According to the geographic origin

Between wild and farmed fish

# Quality attributes in wild and farmed Eurasian perch

## Technological traits

### Discrimination between wild fish

Lake Geneva

Rhine river

Condition factor  $K_2$  ↗

$K_2 = 1.9$

$K_2 = 2.3$

$$K_2(\%) = (W_T - W_G) / L_S^3$$

$W_T$ : Total body weight (g)

$W_G$ : Weight of the gonads (g)

$L_S$ : Standard length (cm)

### Difference Farmed / Wild

Wild

Farmed (ext. → int.)

Perivisceral fat indexes  $I_{PF}$  ↗

$I_{PF} = 0.4 - 0.6\%$

$I_{PF} = 1.9\% \rightarrow 5.2\%$

$$I_{PF}(\%) = W_{PF} / W_T$$

$W_{PF}$ : Weight of the peri-visceral fat (g)

### Difference between farmed fish

Semi-extensive

Intensive

Extensive

Fillet yield  $Y_F$  ↗

$Y_F = 33.2\%$

$Y_F = 39.8\%$

$Y_F = 42.3\%$

$$Y_F(\%) = W_F / W_T$$

$W_F$ : Weight of the 2 fillets without skin (g)

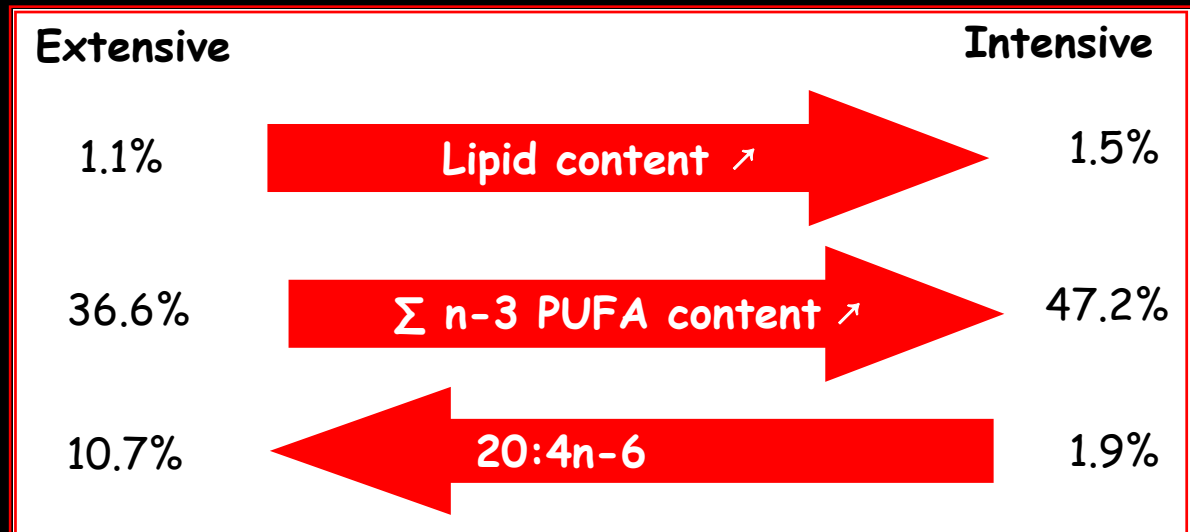
# Quality attributes in wild and farmed Eurasian perch

## Nutritional quality

Difference  
Farmed / Wild



Difference between  
farmed fish




# *Ante mortem determinim of the quality*



To understand this variability ...



... for a best control  Definition of the optimal rearing conditions



## ***Ante mortem determinism of the quality***

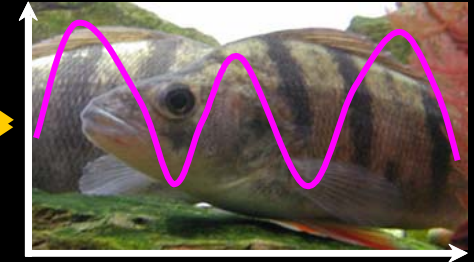
1. To precise the effect of the geographic origin
2. To evaluate the effect of the domestication

# *Ante mortem determinim of the quality*

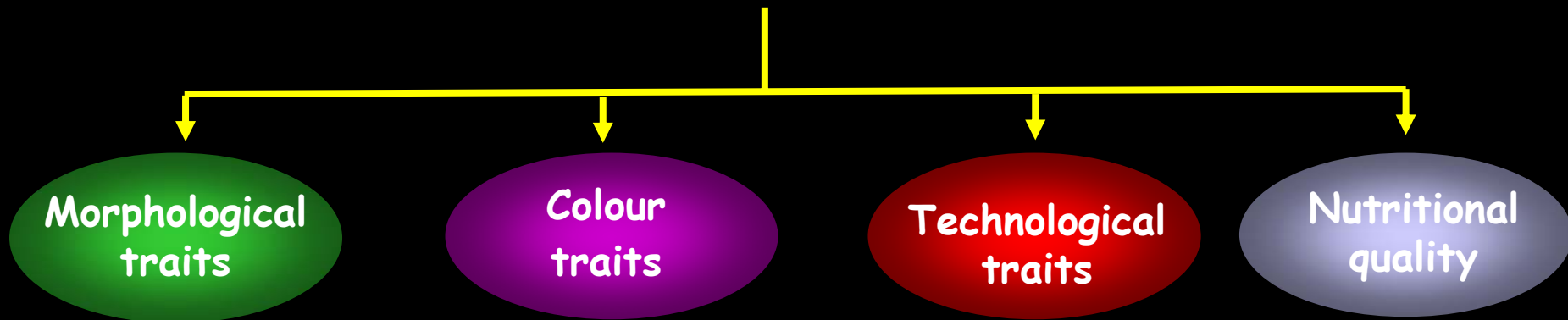
2 geographic origins



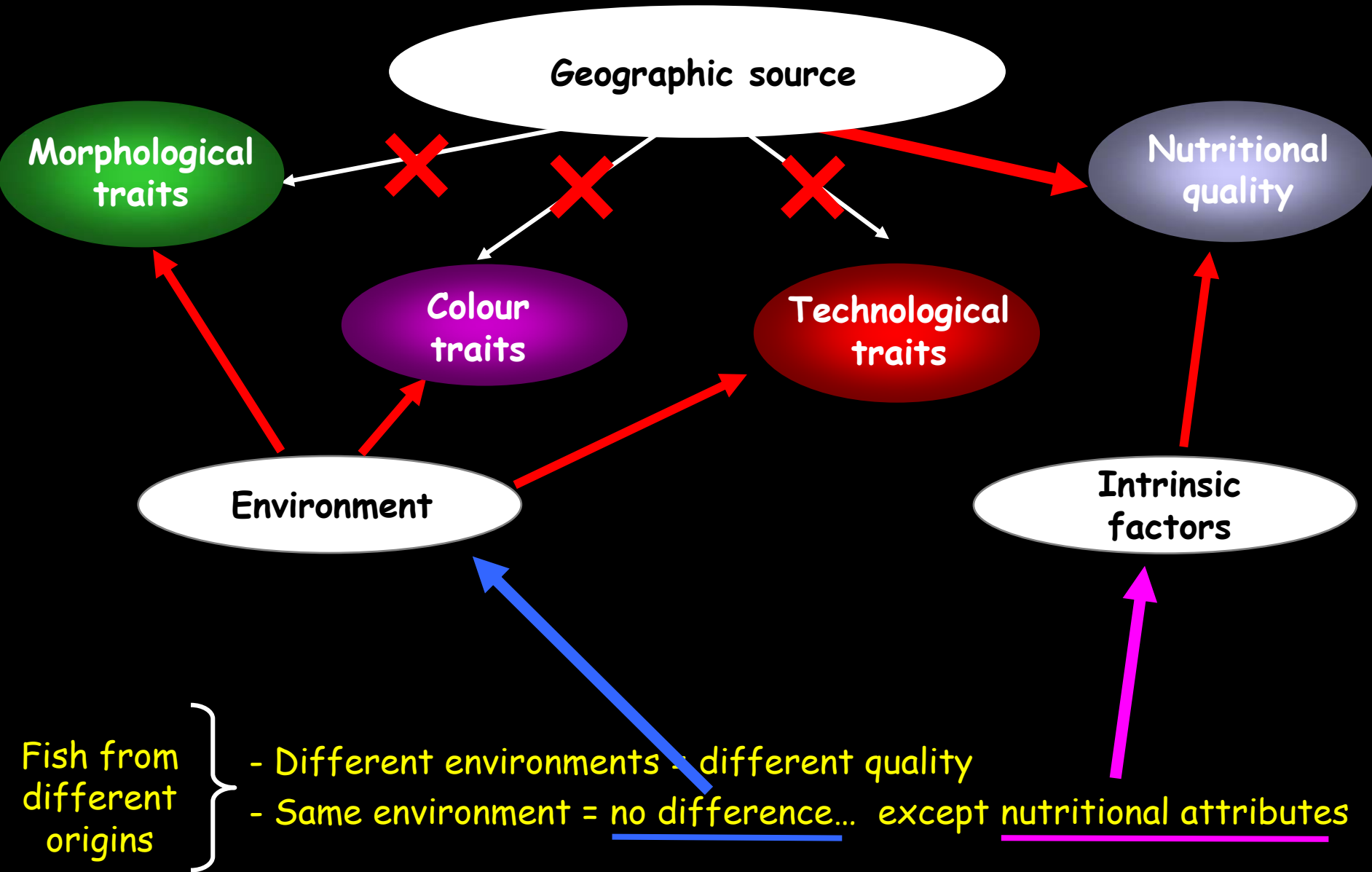
Geneva Lake  
Pond in Lorraine



Rearing in the same trophic and physico-chemical conditions

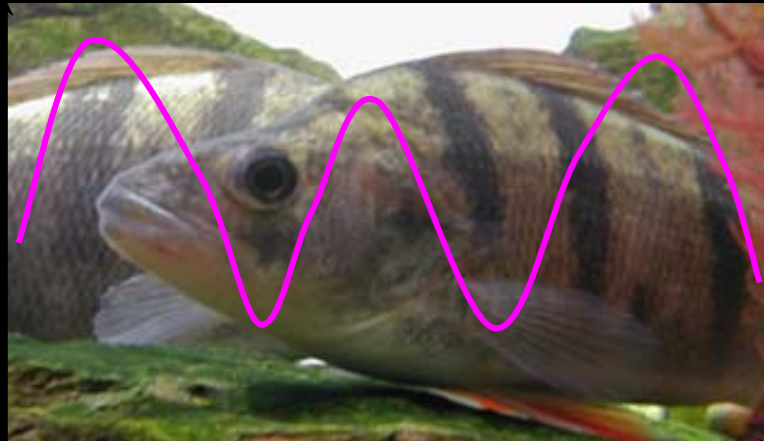


# *Ante mortem determinism of the quality*



# Quality determinism – Conclusion

## Multifactorial determinism of the quality building



### Perspectives

