

Effet cocktail de la température et d'un résidu de plastique sur deux niveaux trophiques de nos lacs alpins

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Jean Guillard



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Nathalie Cottin



Alexis Golven M1



Fanny-Laure Thomassin M2

LIFE

IN FRESHWATERS AND ESTUARIES

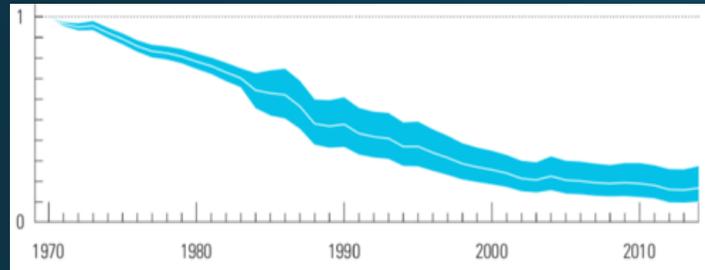
INFRASTRUCTURE DE RECHERCHE DÉDIÉE À L'ÉTUDE DU VIVANT DANS LES EAUX CONTINENTALES

JST IR LIFE

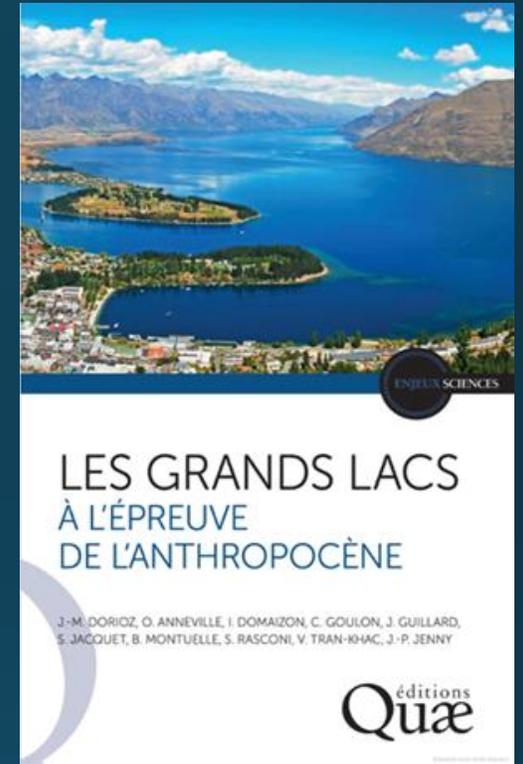
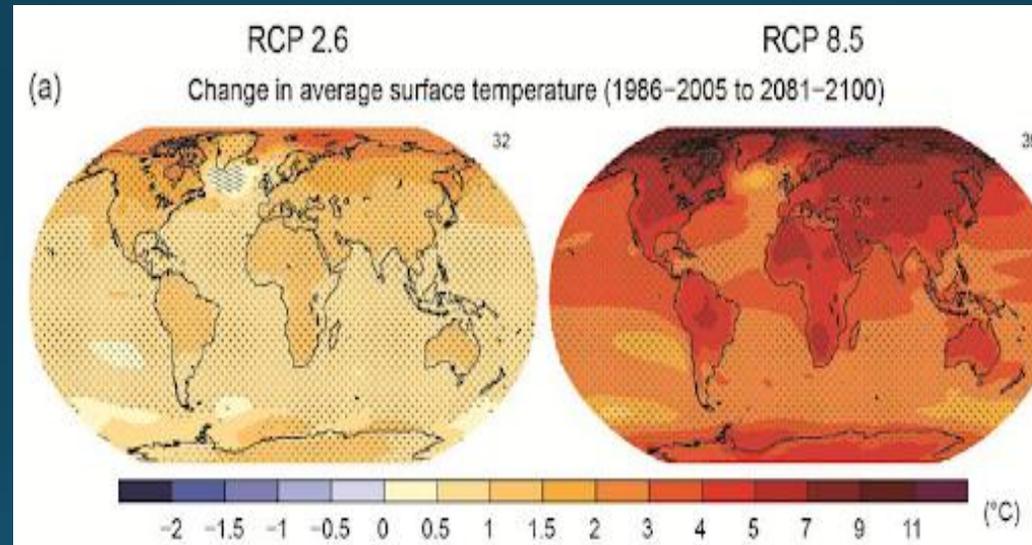


Changement des écosystèmes dues aux activités humaines

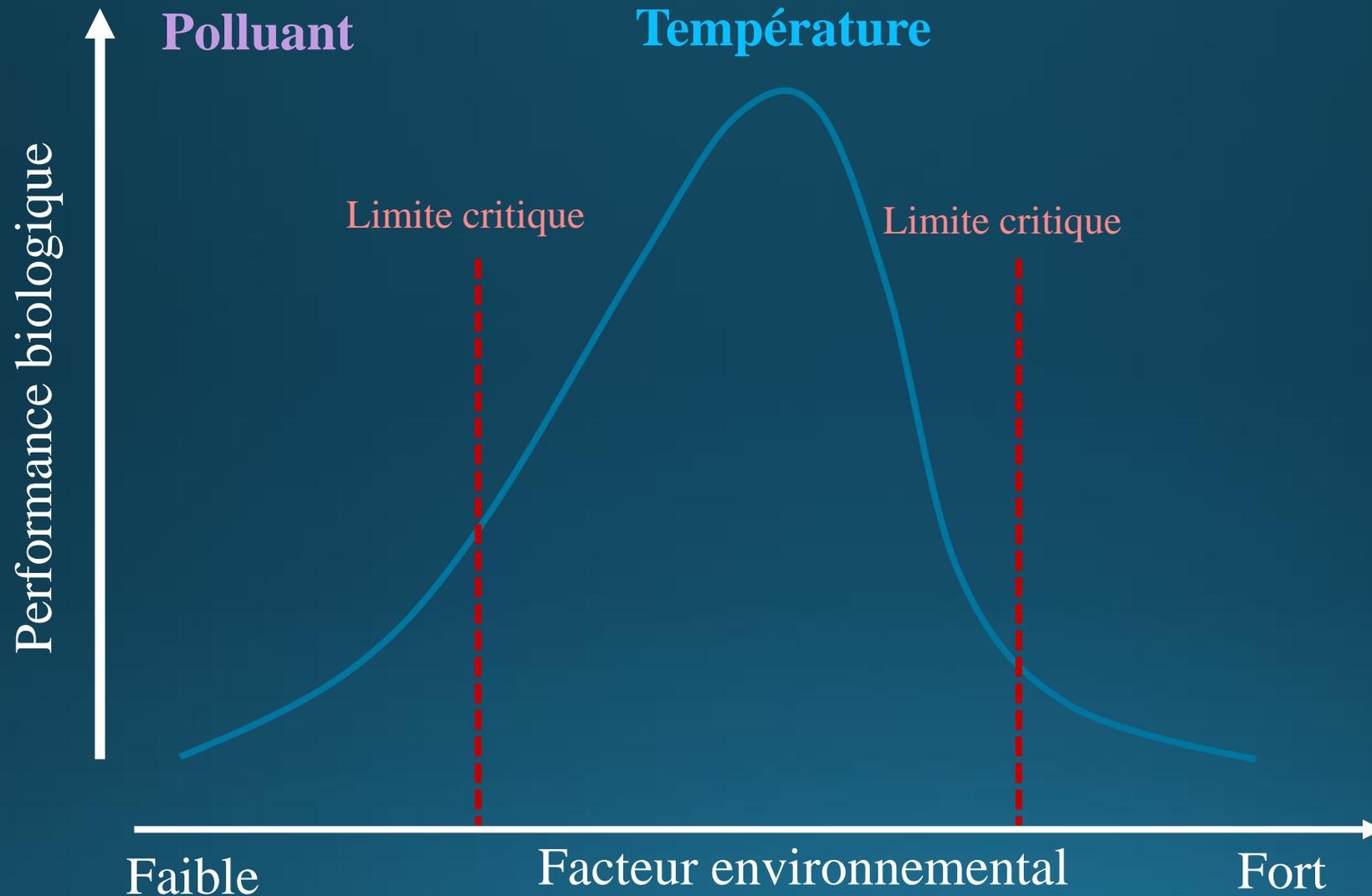
Giec, 2018



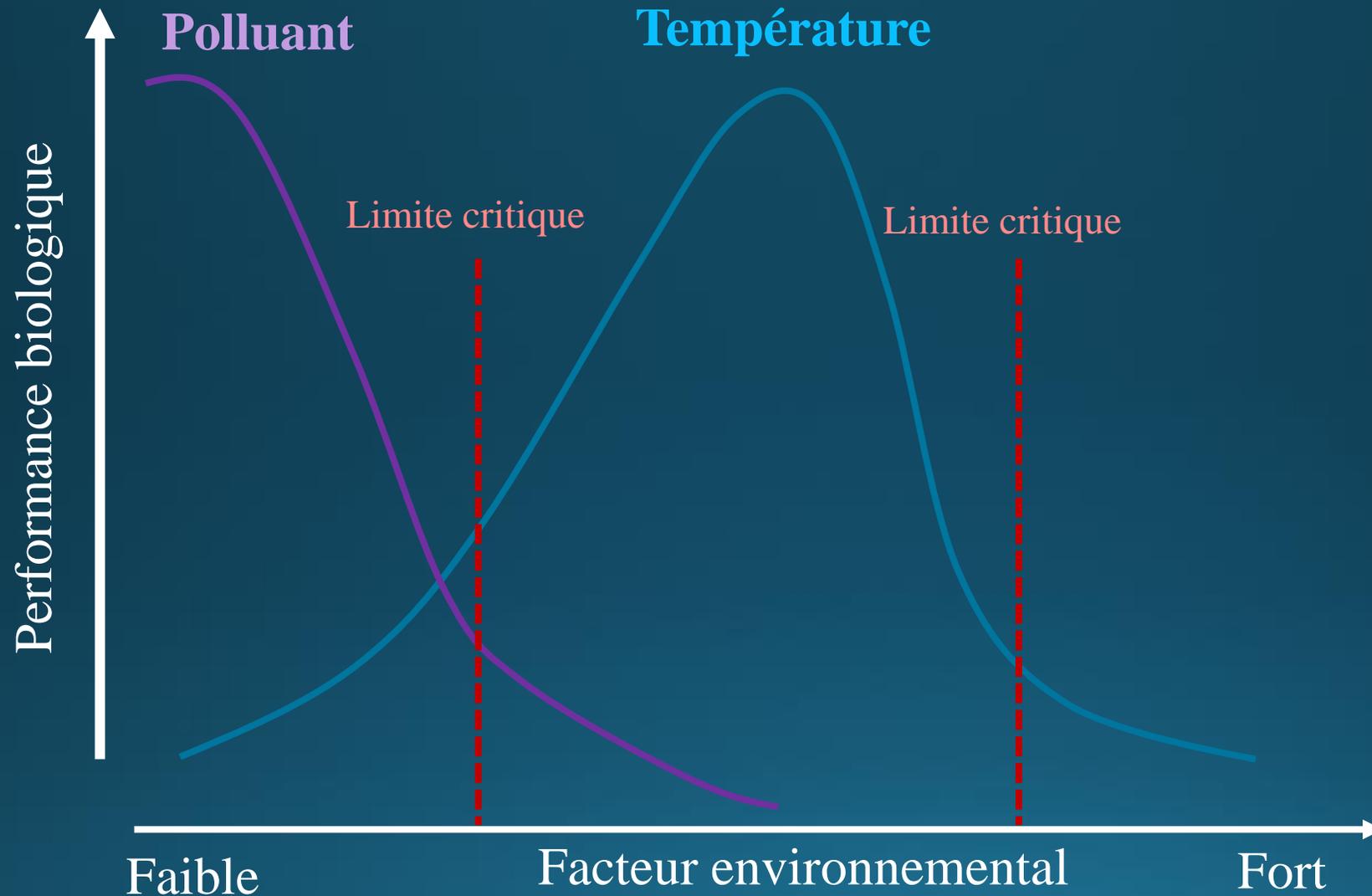
Freshwater Nature's Living Planet Index
Déclin diversité : 83% entre 1970 et 2014



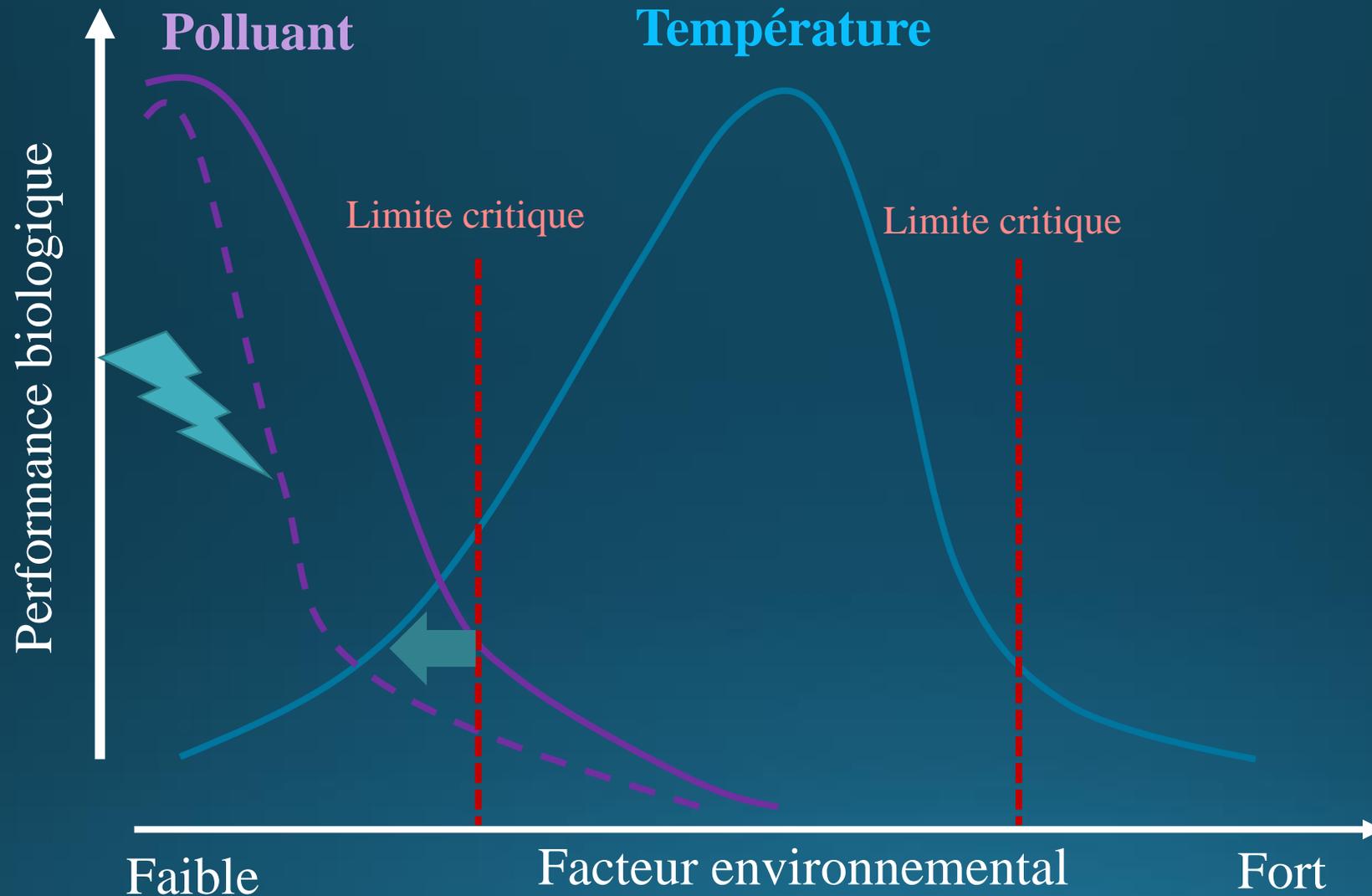
Nombreux facteurs peuvent impacter les populations de poissons:
 stress: physiques (bruits, plastiques..), chimiques (PCB, molécules émergentes...)



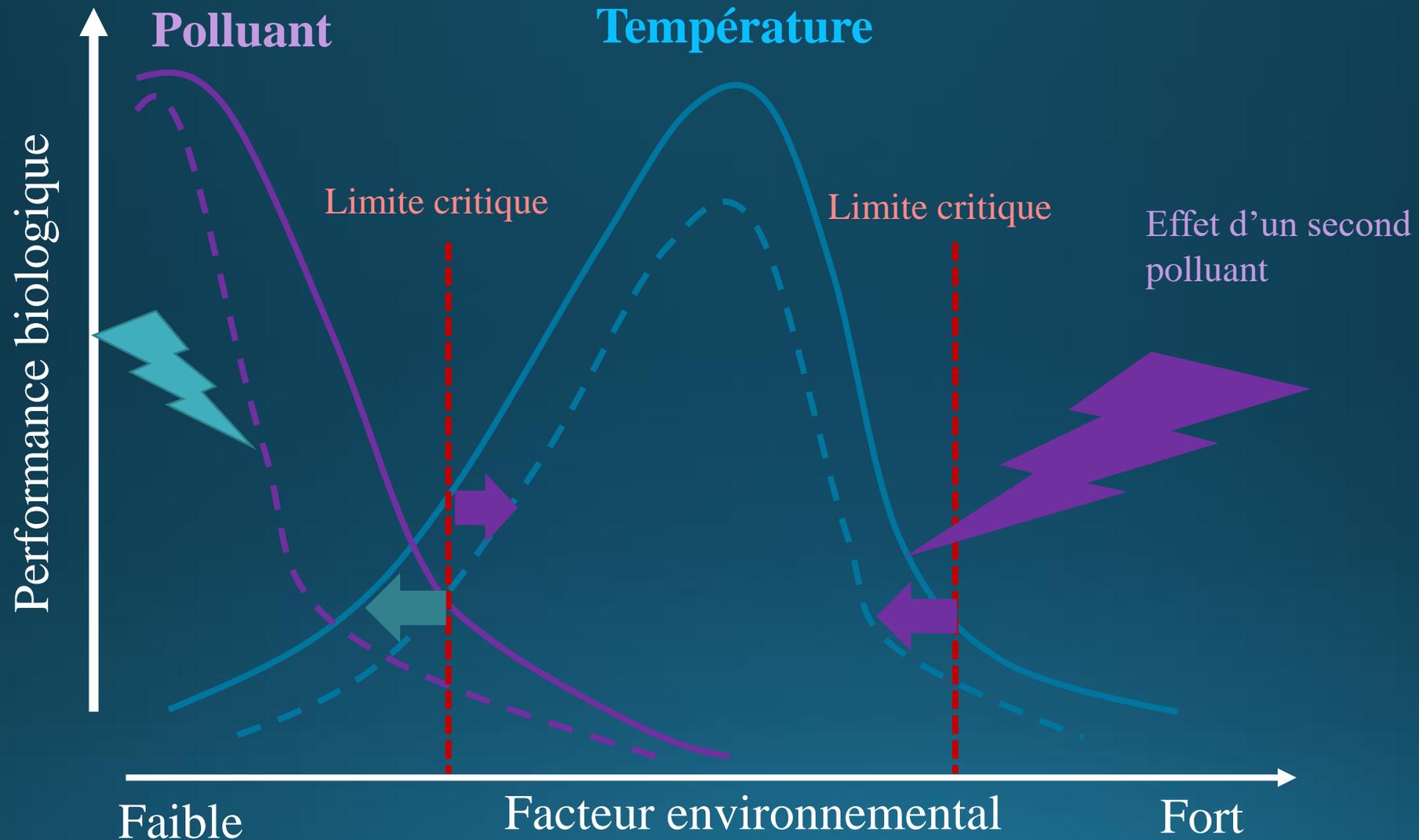
Cross-effects of temperature and pollutants on biological performance of organisms on stress tolerance (Gandar, 2015 adapted from Sokolova et al., 2012)



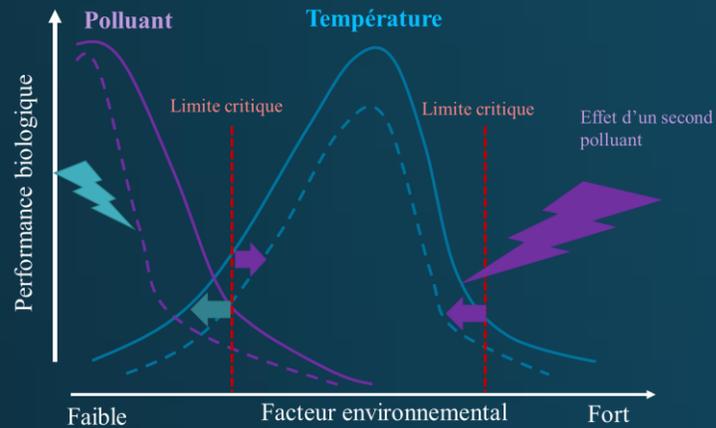
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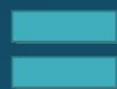
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1



1



Effet synergique

$$1 + 1 = 3$$

Effet plus fort que l'addition des polluants

Effet additif

$$1 + 1 = 2$$

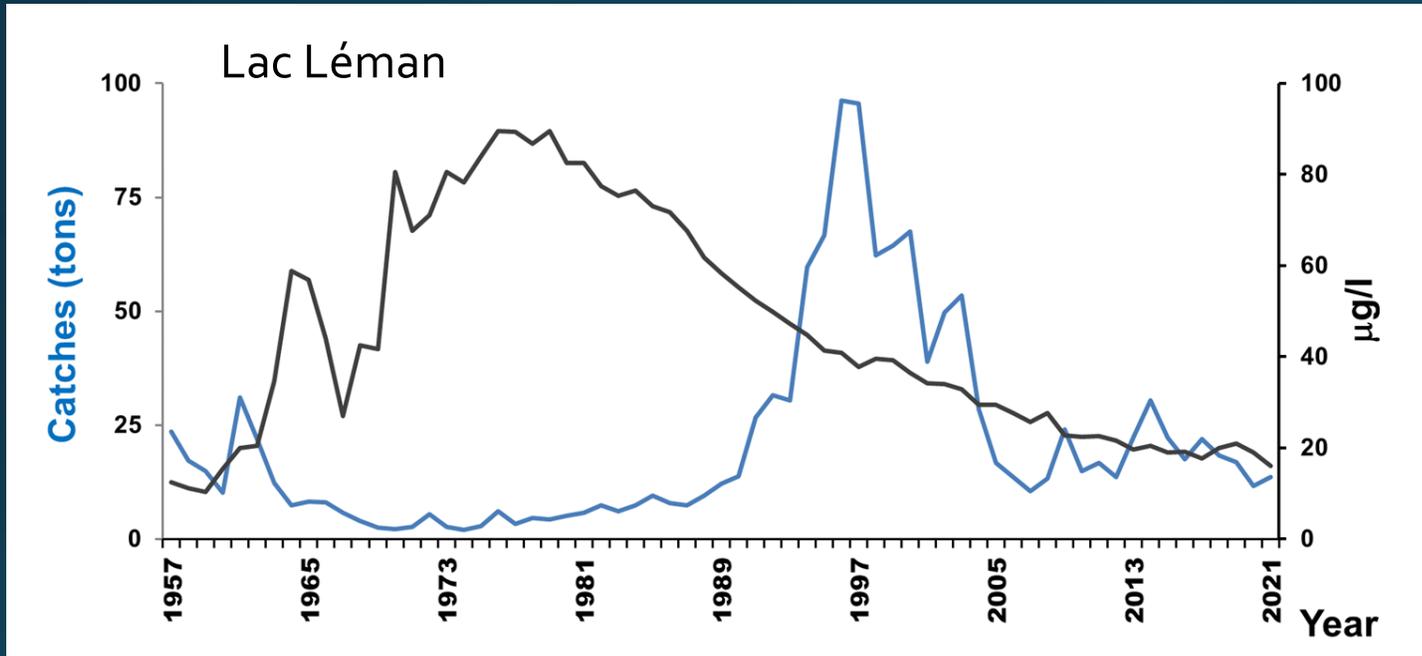
Effet égale à l'addition des polluants

Effet antagoniste

$$1 + 1 = 0,5$$

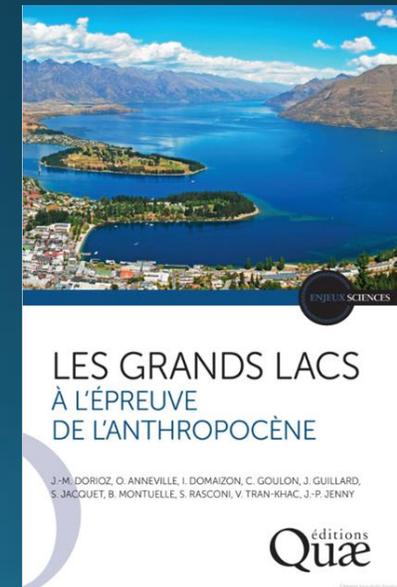
Effet moins fort de l'ensemble de l'addition des polluants

Déclin des populations d'omble chevalier malgré des efforts d'amélioration de la qualité de l'eau

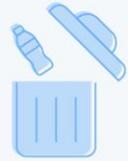


Guillard et al.

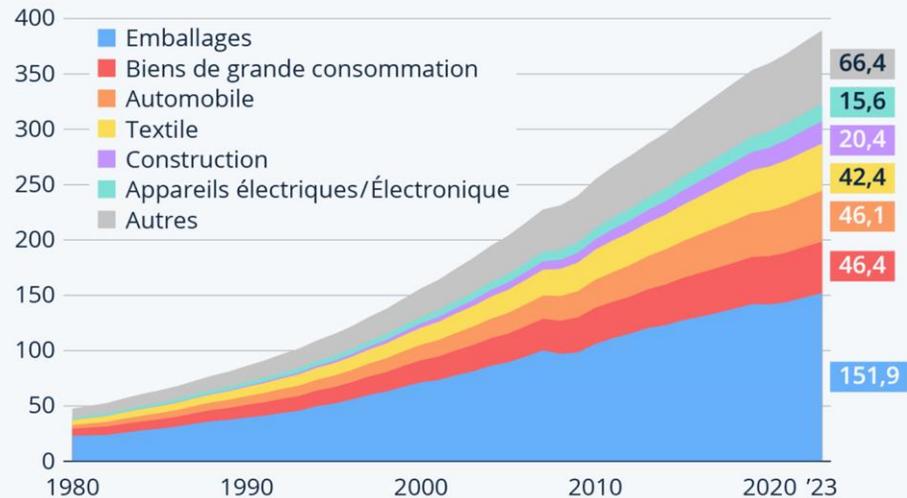
Nombreux facteurs peuvent impacter les populations de poissons:
Le changements climatiques, l'augmentation des stress: physiques (bruits, plastiques..), chimiques (PCB, molécules émergentes...)



Le monde croule sous les déchets plastiques



Production mondiale de déchets plastiques selon le domaine d'utilisation, en millions de tonnes métriques



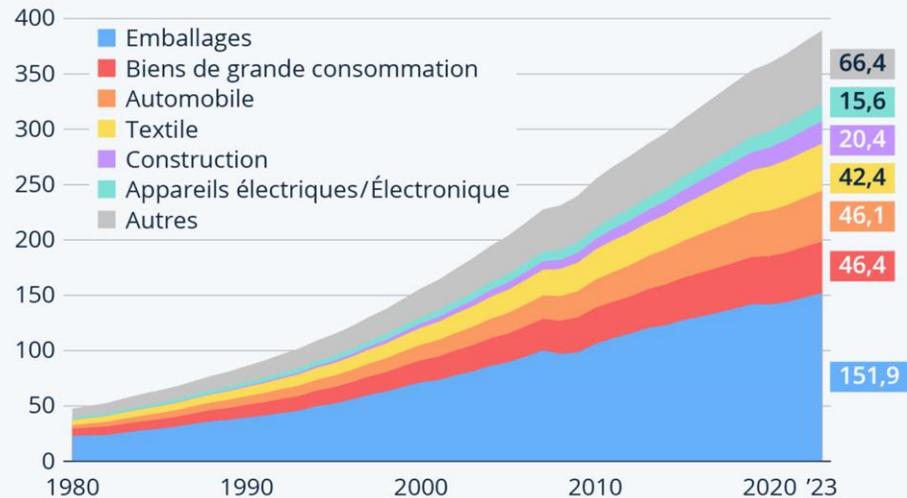
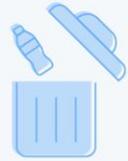
Projections de 2020 à 2023.

Source : OCDE



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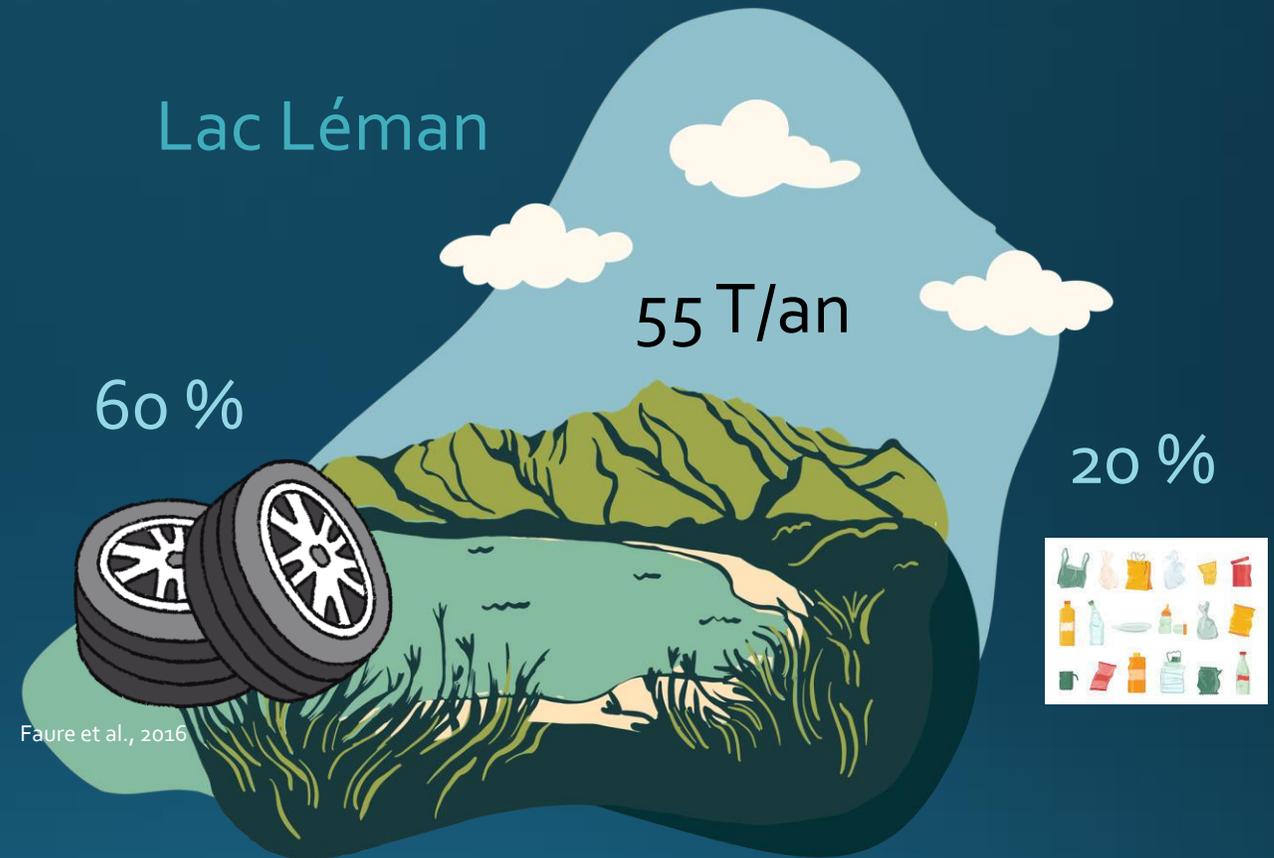
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Source : OCDE

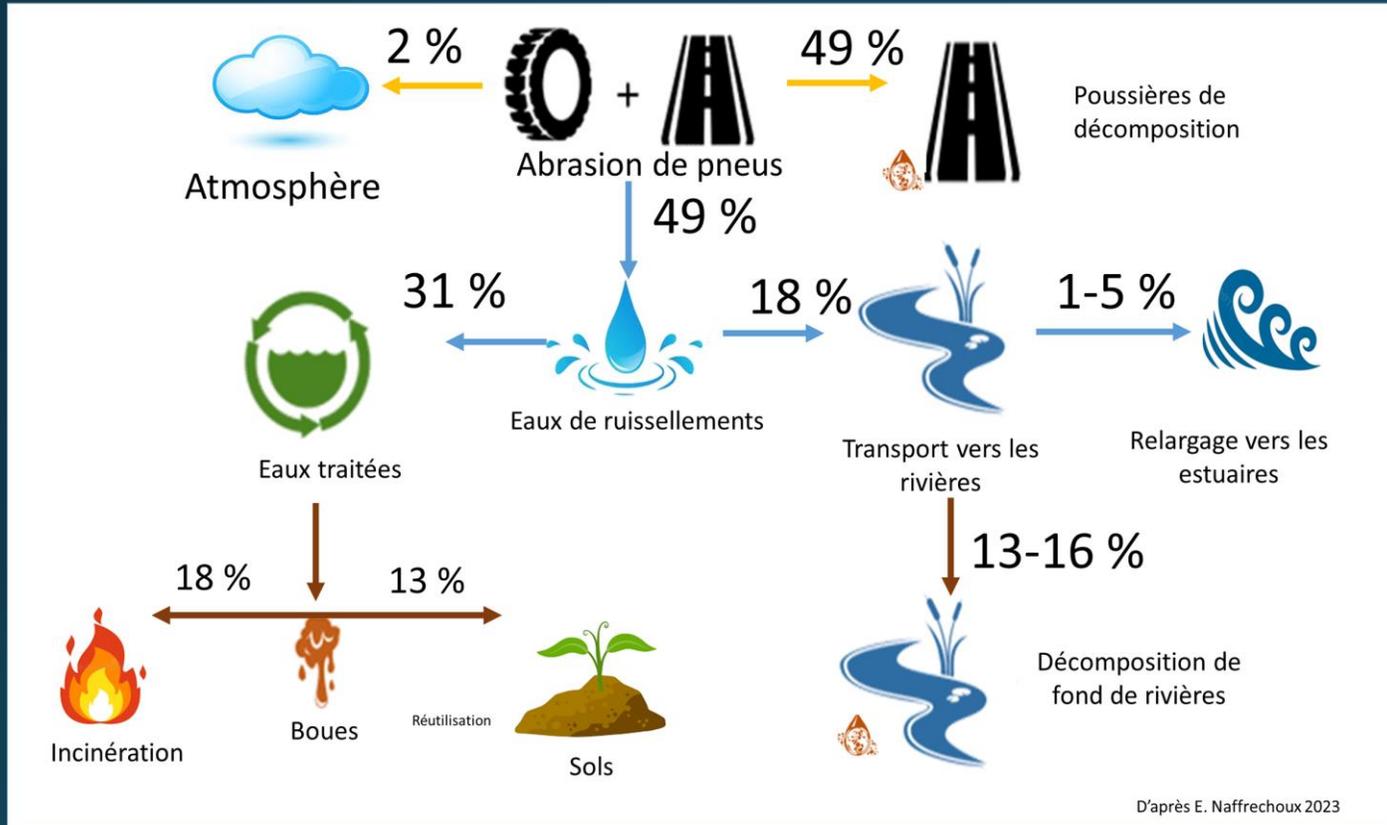


statista

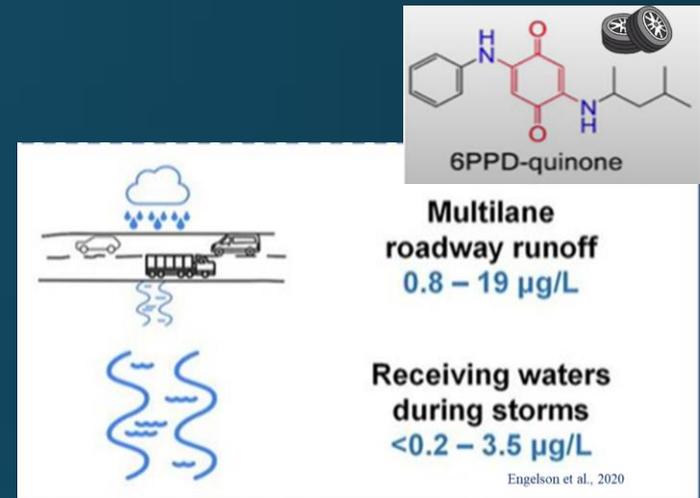
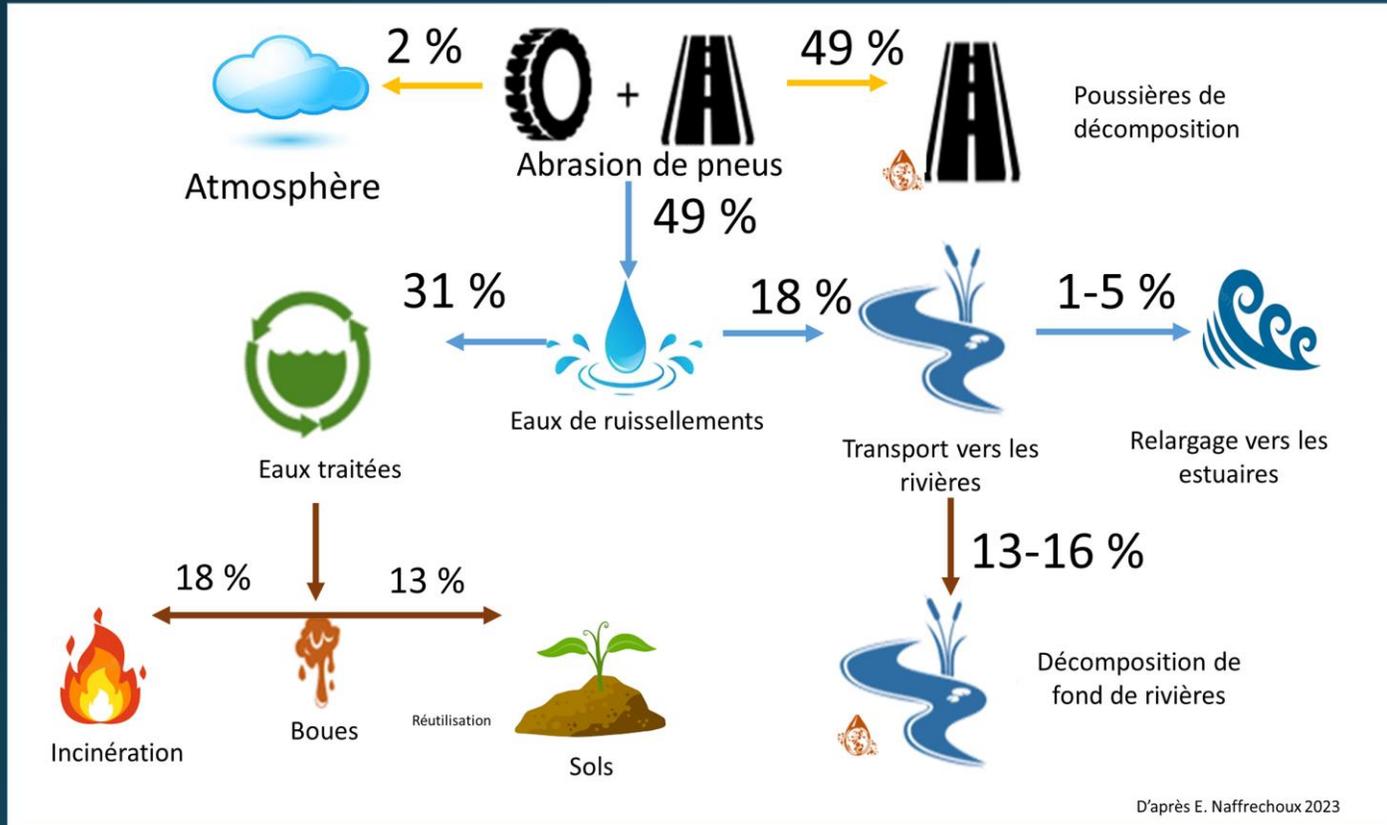
Lac Léman



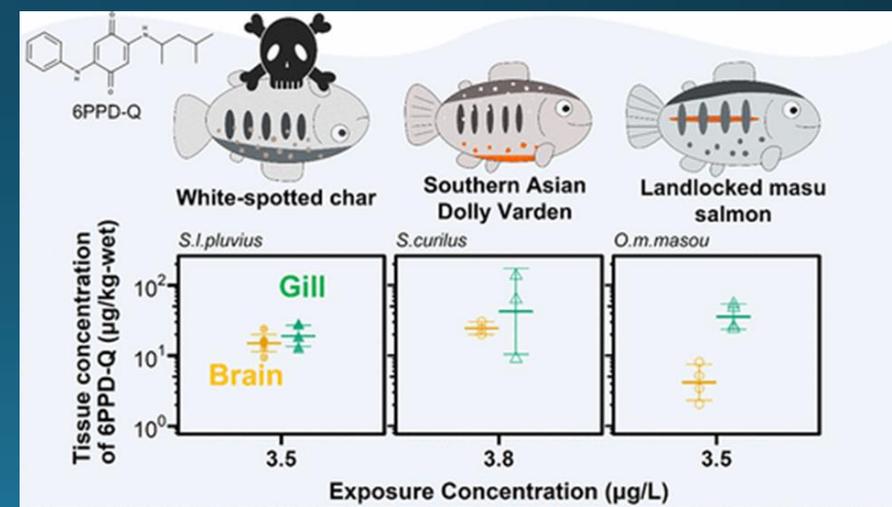
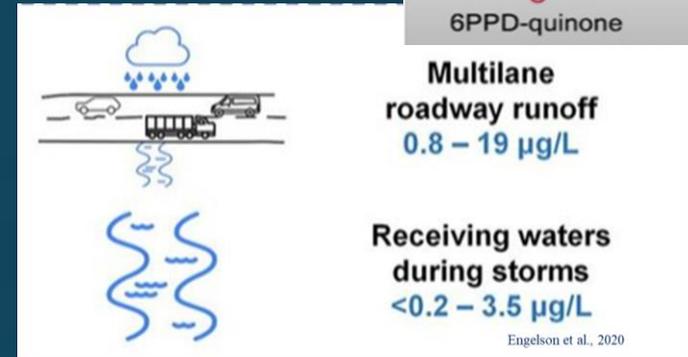
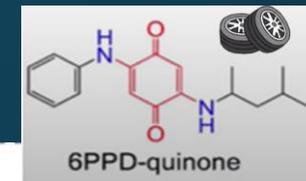
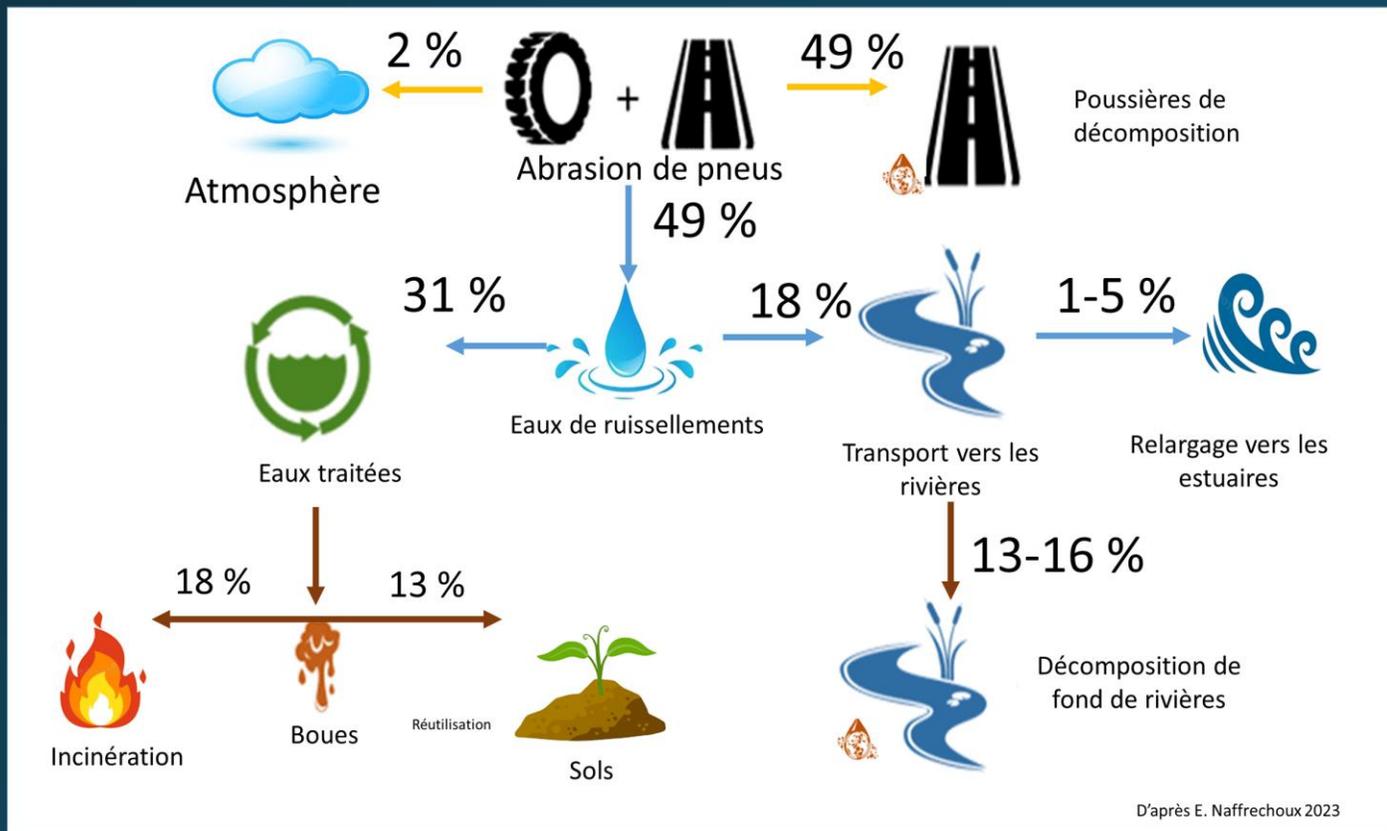
Les impacts des résidus issus du plastiques sont encore très peu connus



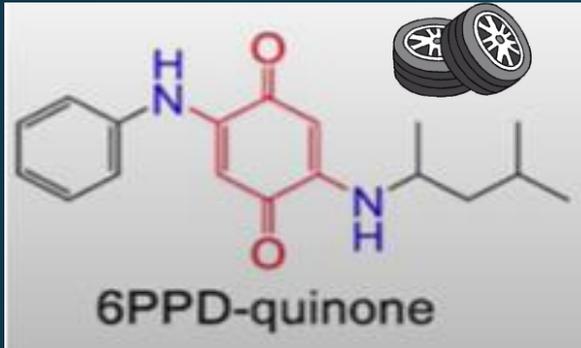
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Hiki & Yamamoto, 2022



Son mode d'action est inconnu (Varshney et al., 2022)

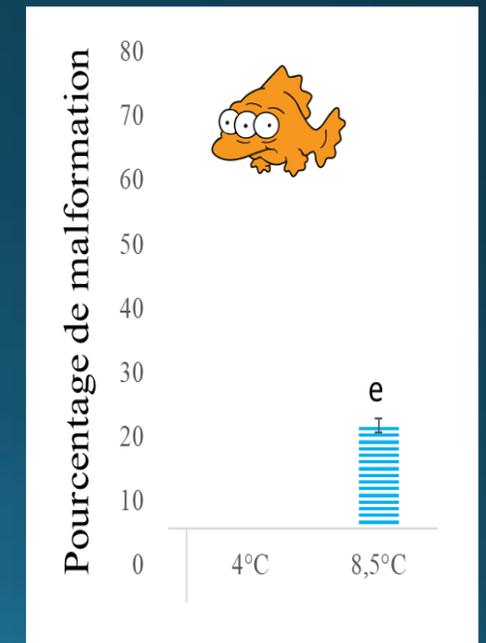
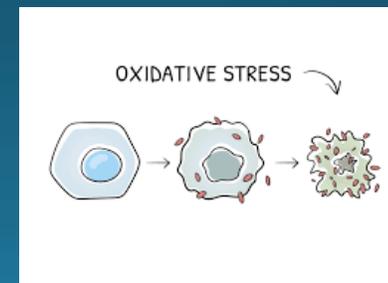
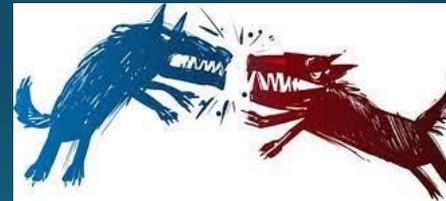
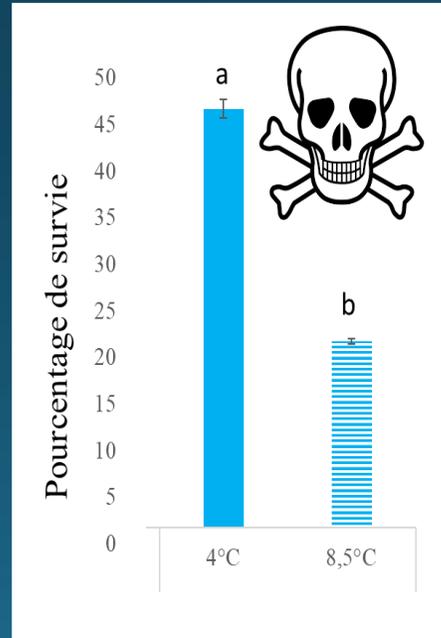
Pas d'étude sur les premiers stades de vie de salmonidés

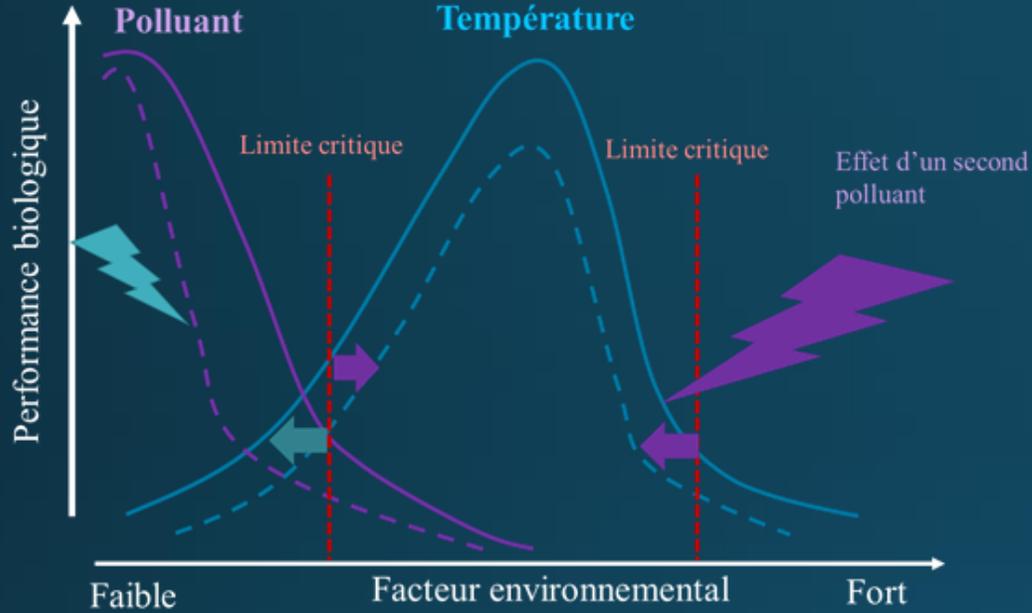




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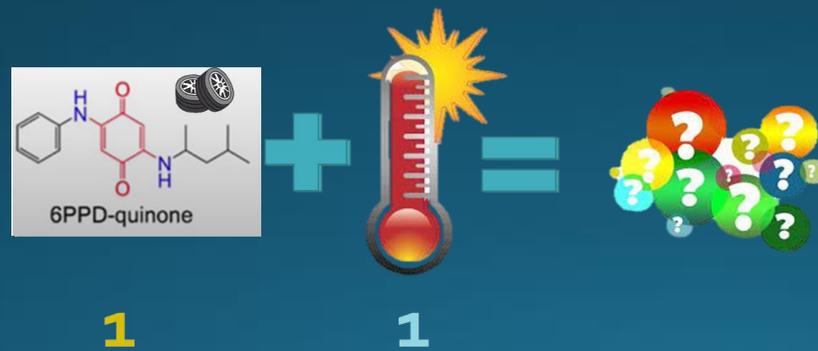
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Quels mécanismes d'actions ?

Stade de vie particulier ?



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Contamination à doses environnementales



T = 0 µg/L
M = 1,5 µg/L
F = 3 µg/L

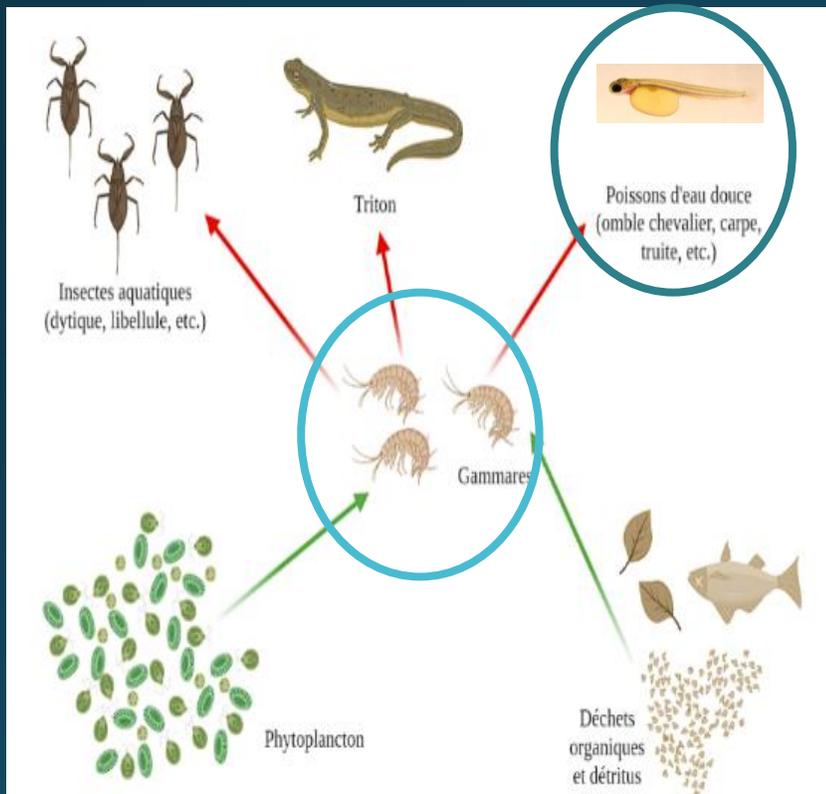


Figure 4 : Schéma de la chaîne trophique faisant intervenir les prédateurs et prédateurs des gammarès.

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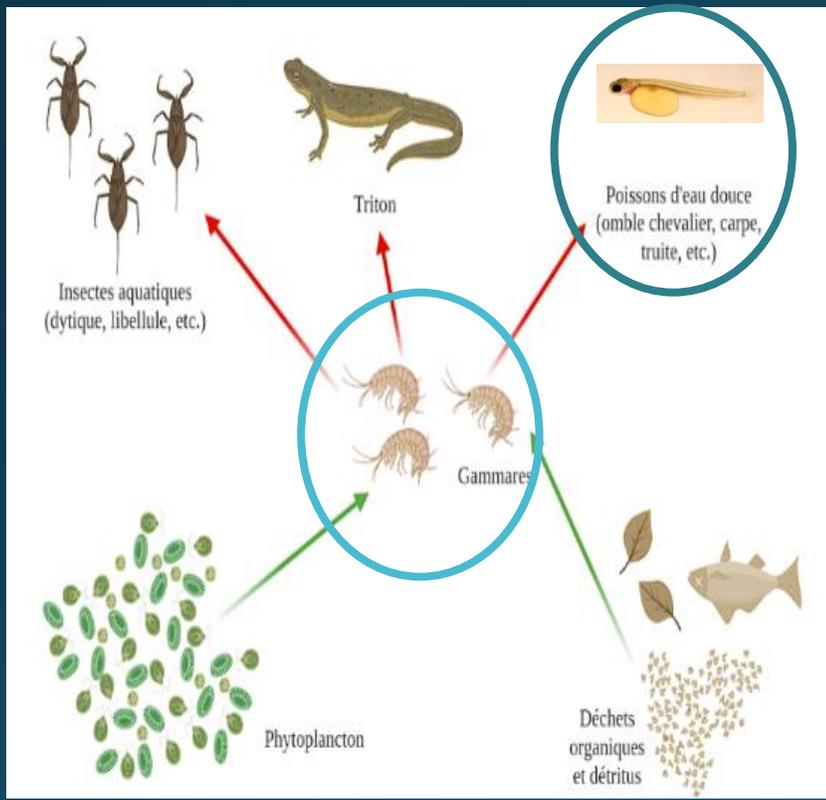
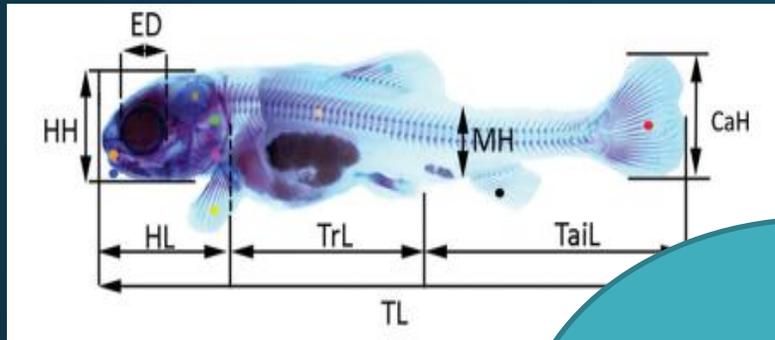


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Bio-demographique

(taux de survie, croissance..)

Effet toxicologique

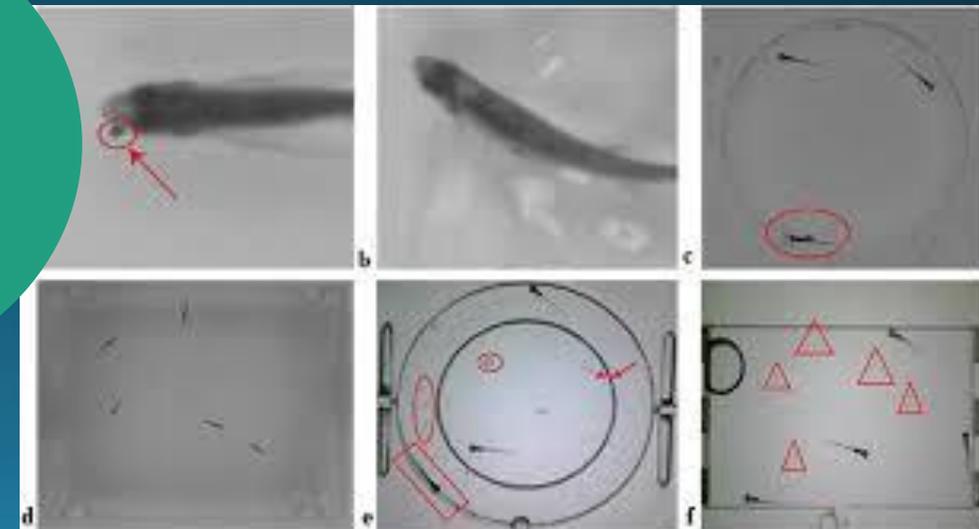
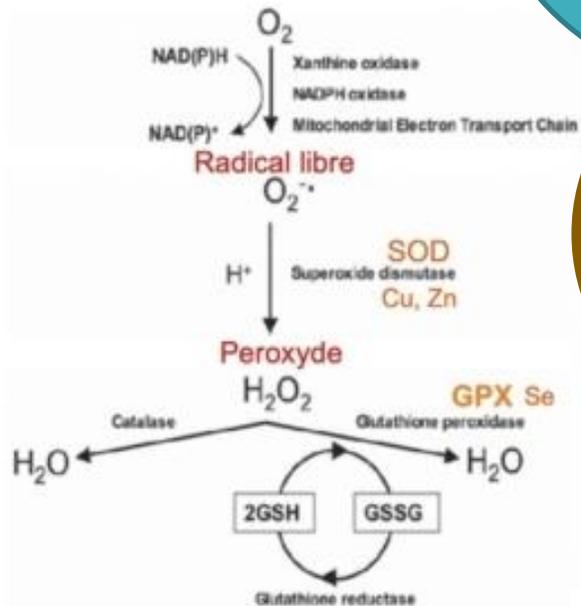
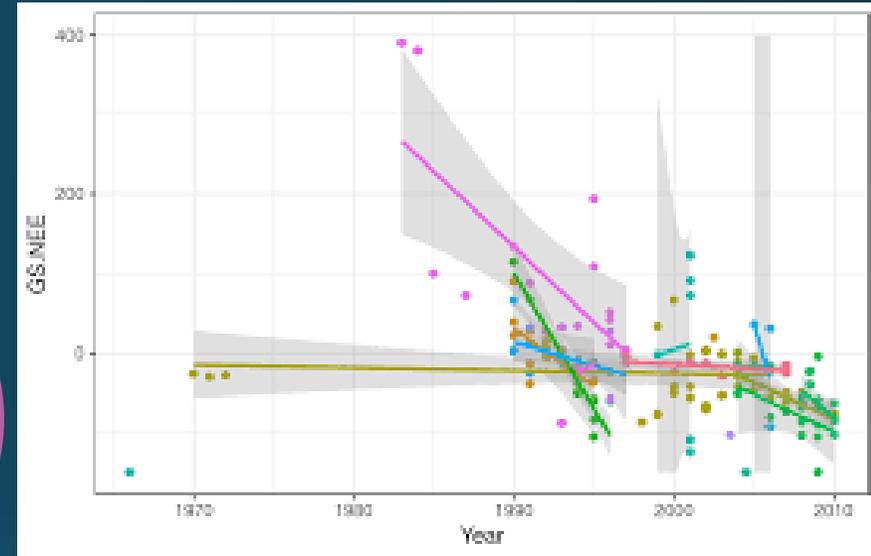
(synergique, additif...)

Physiologique

(stress oxydatif, métabolisme...)

Comportement

(activité, agressivité...)





Fanny-Laure Thomassin M2

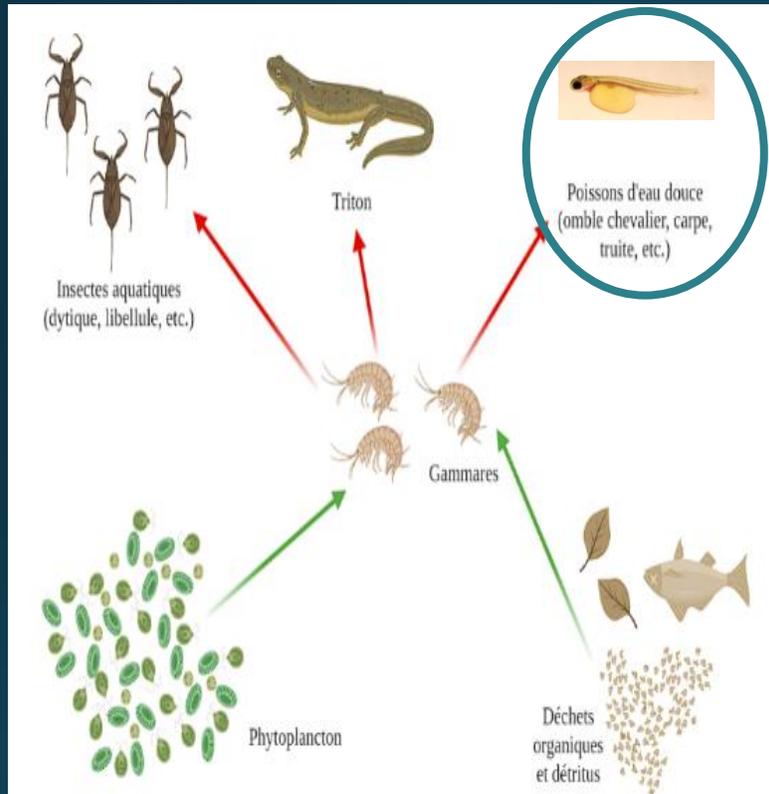
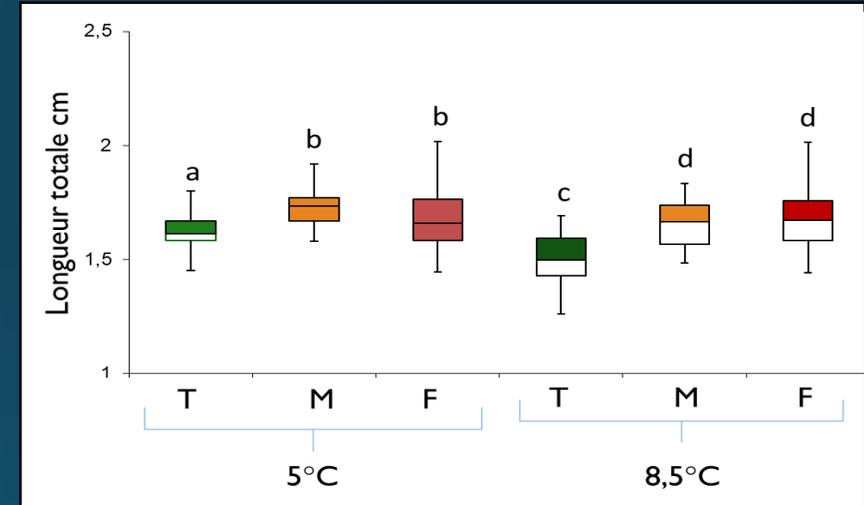
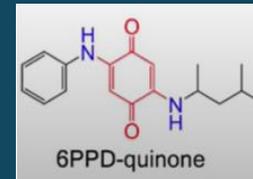


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X



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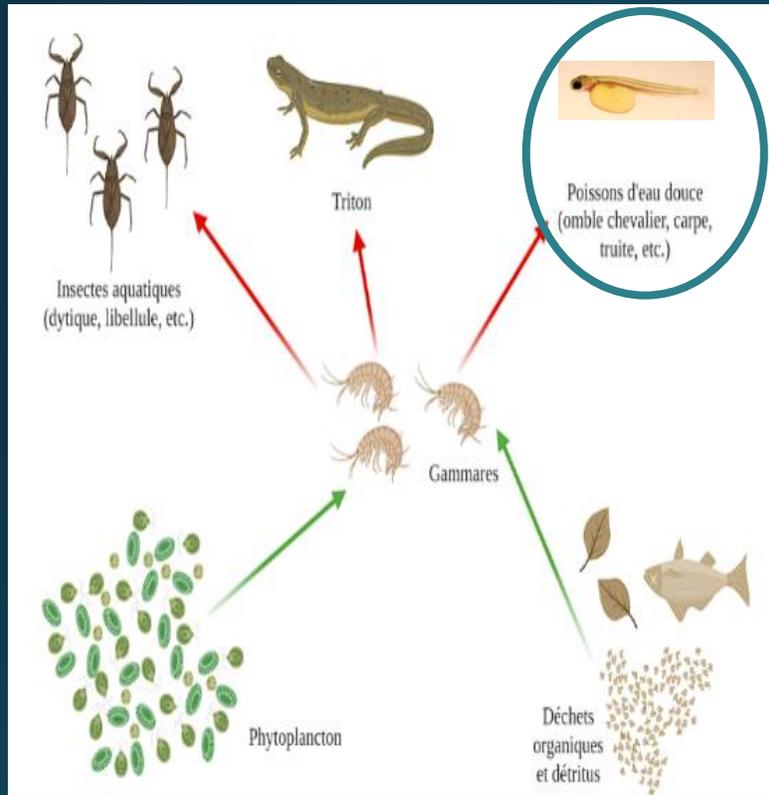
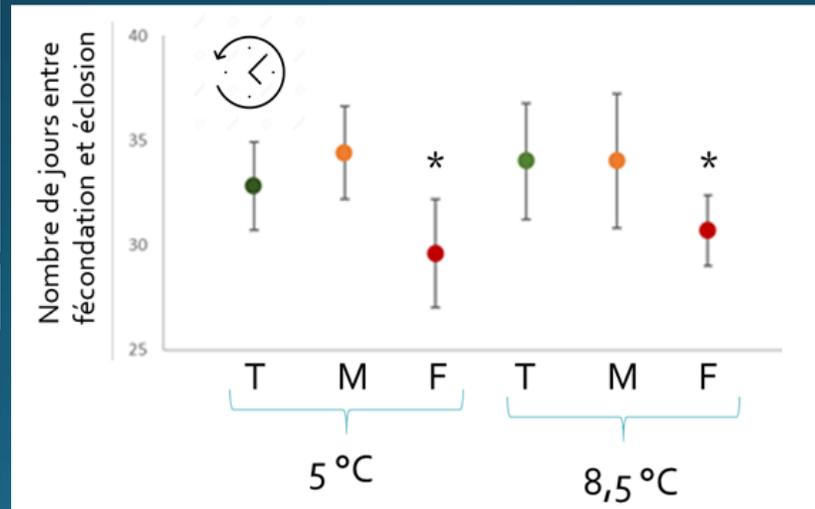
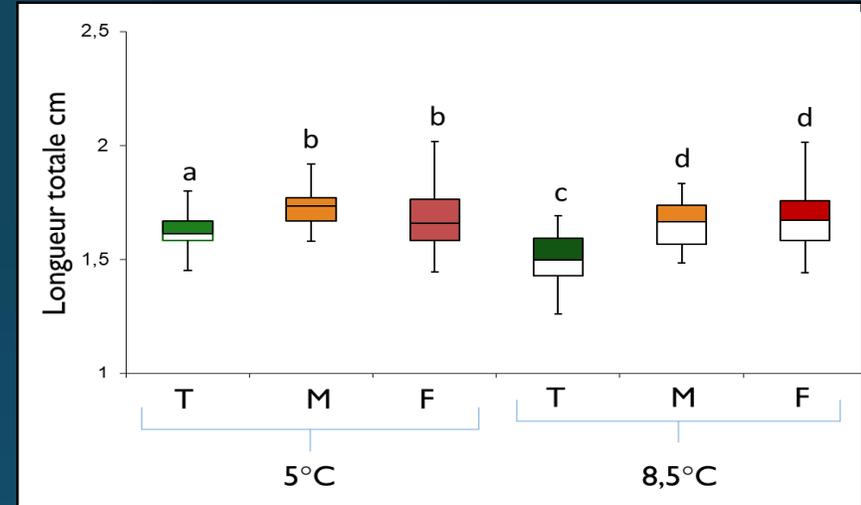
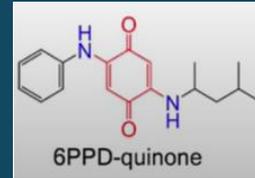


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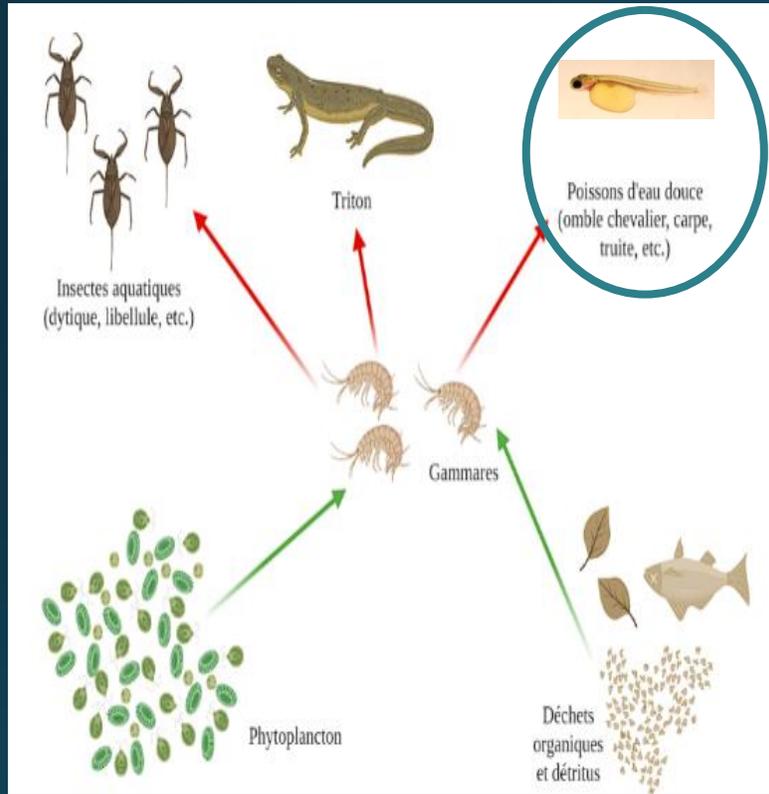
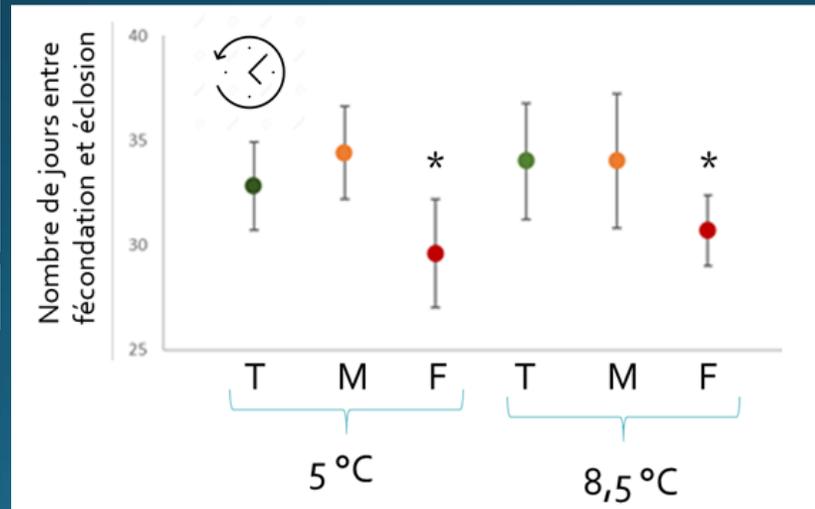
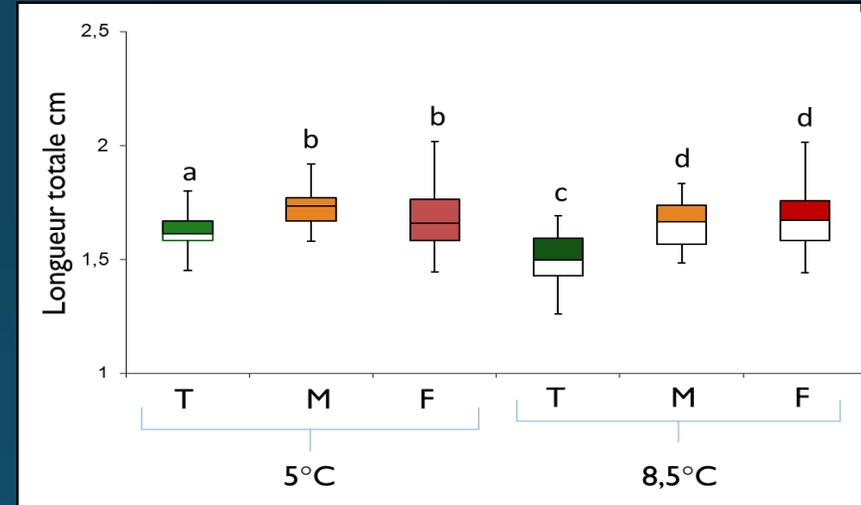
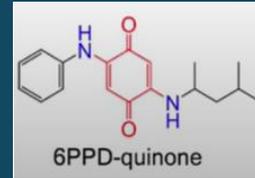


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X



+ 14 %
À 3µg/L 8,5°C



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Alexis Golven M1

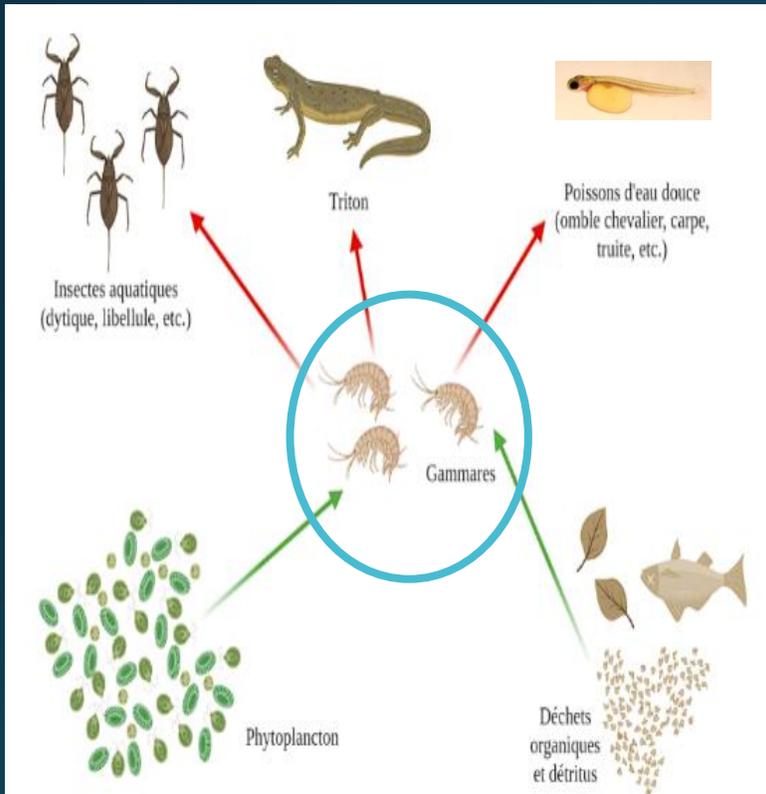
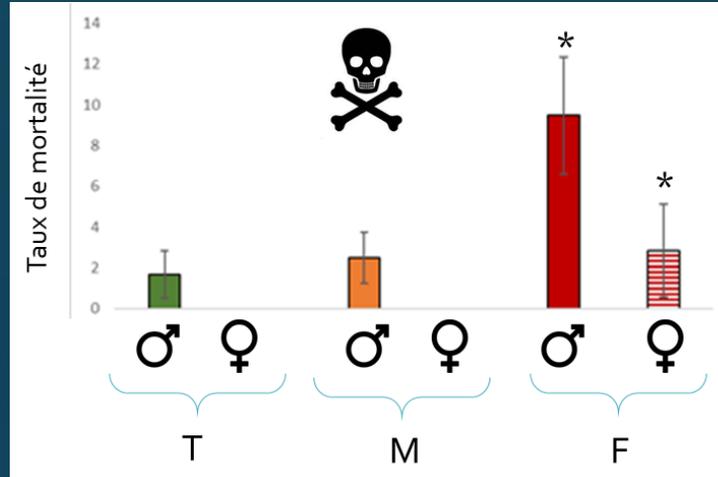


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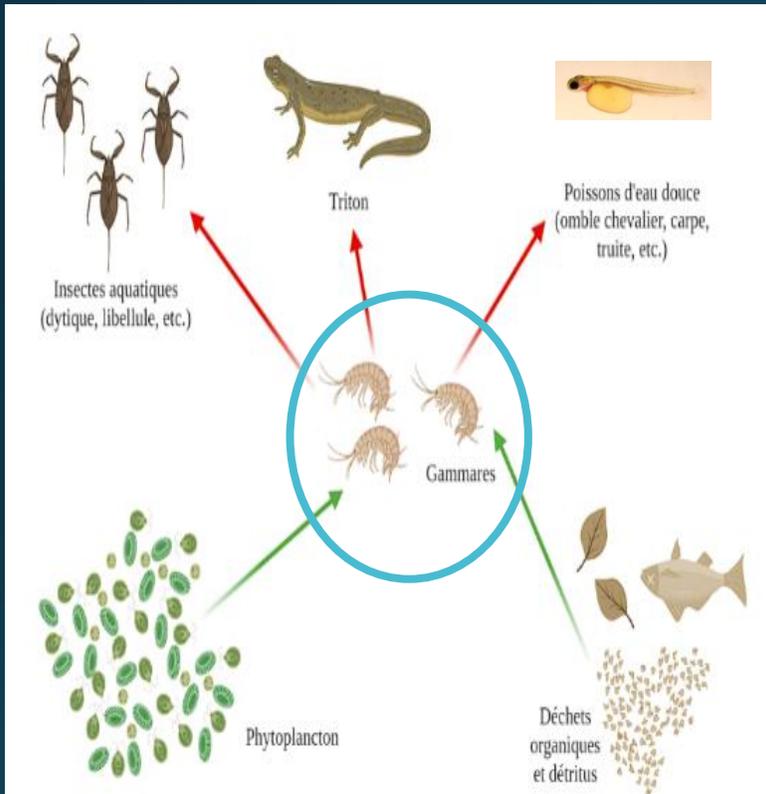
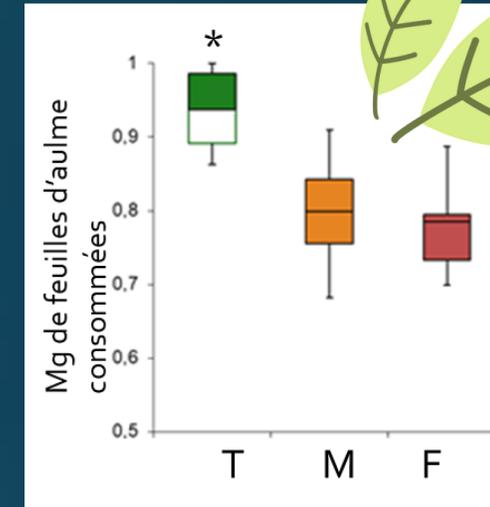
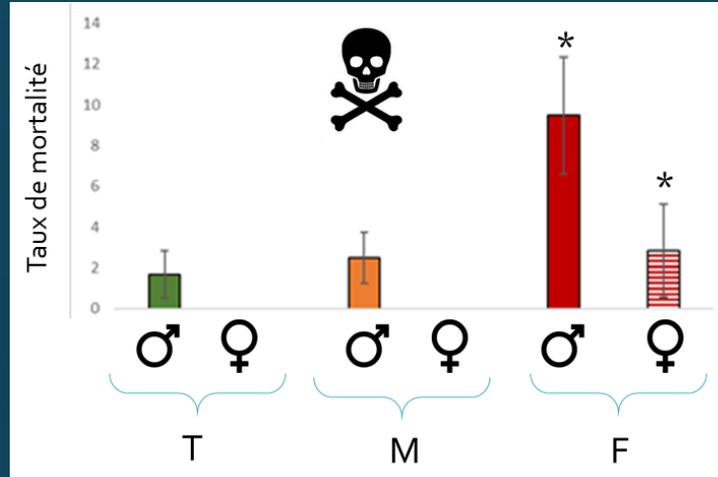


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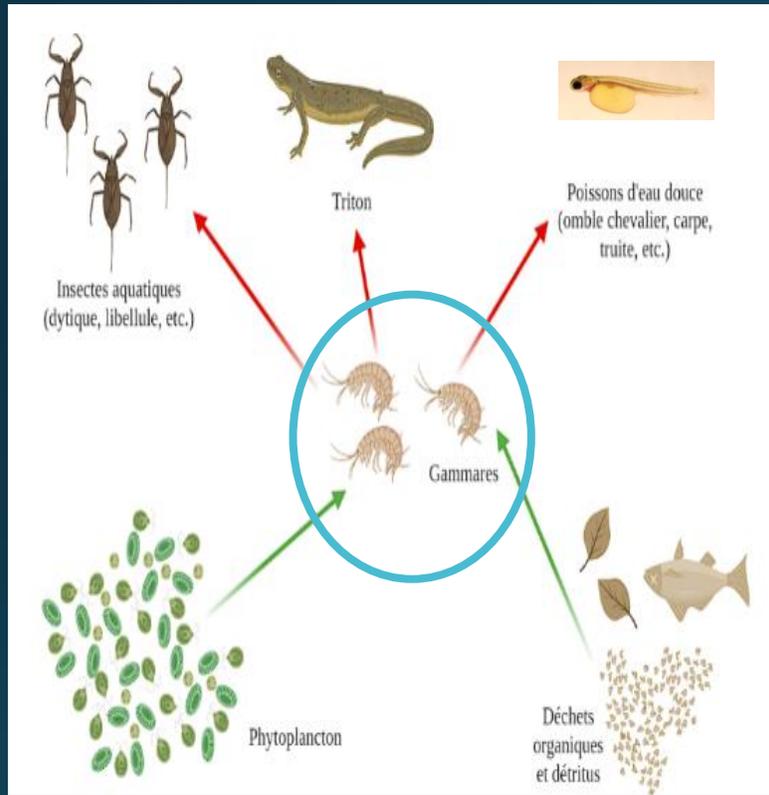
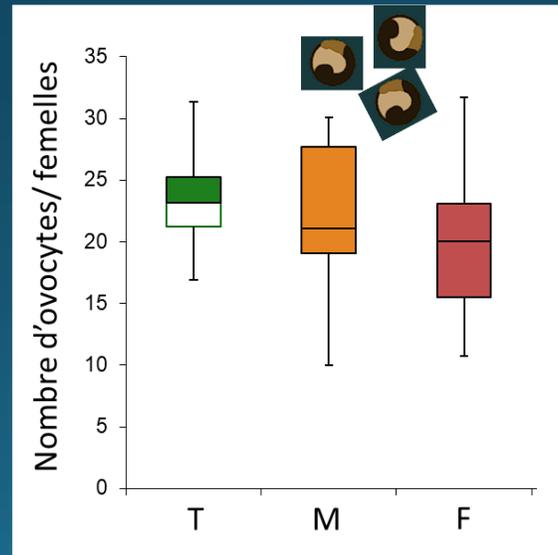
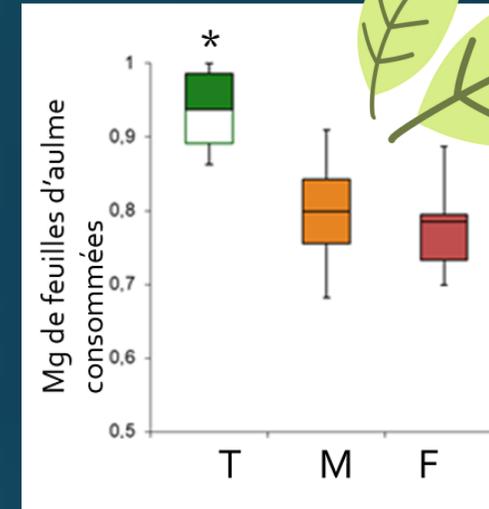
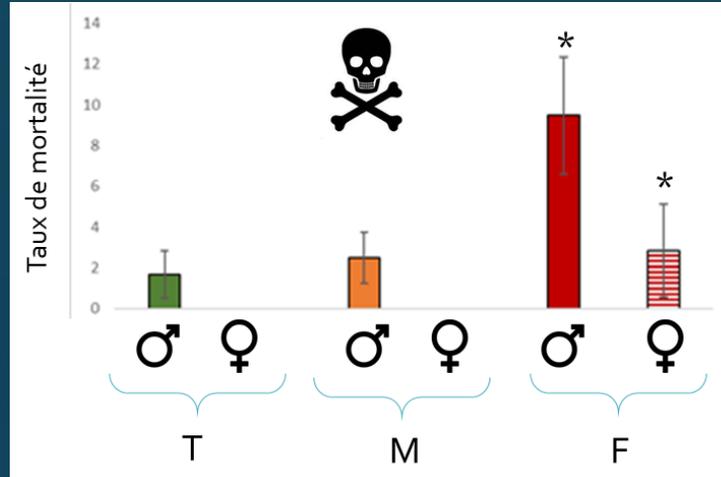


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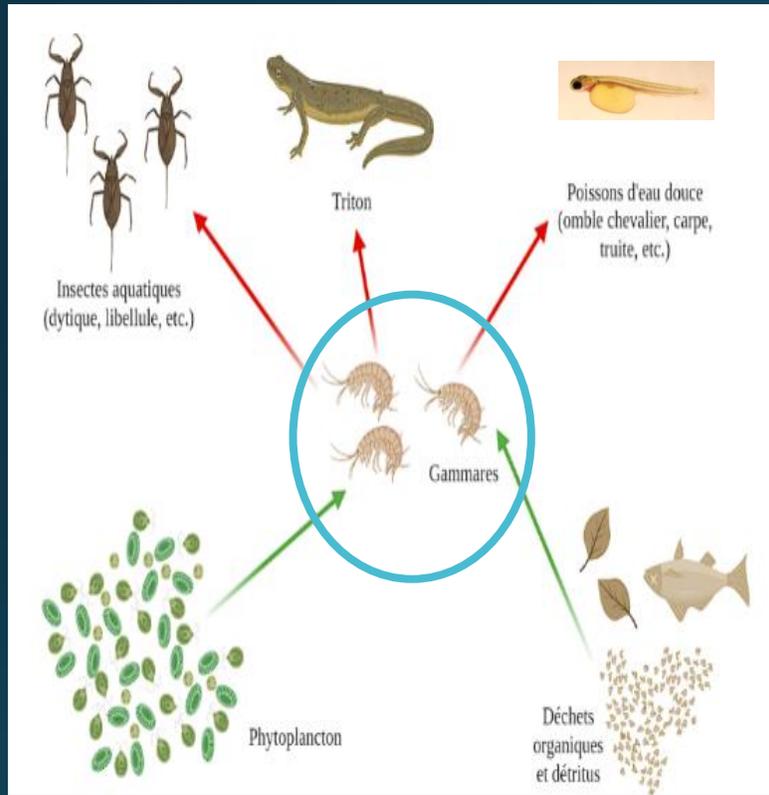
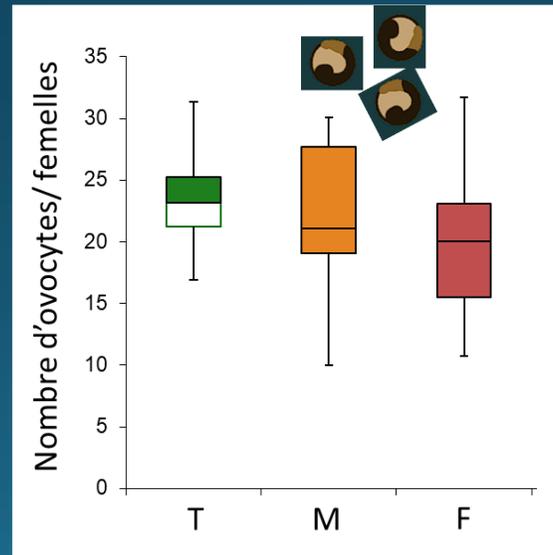
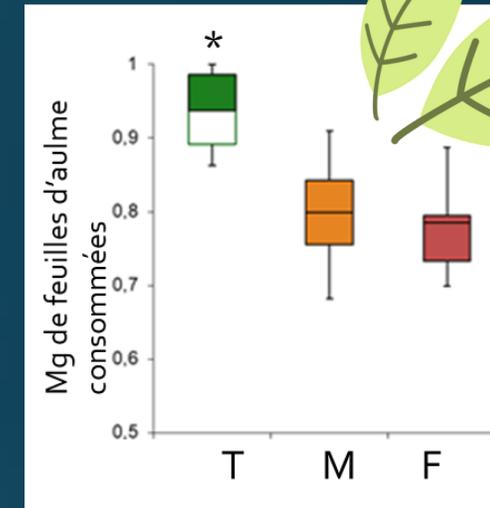
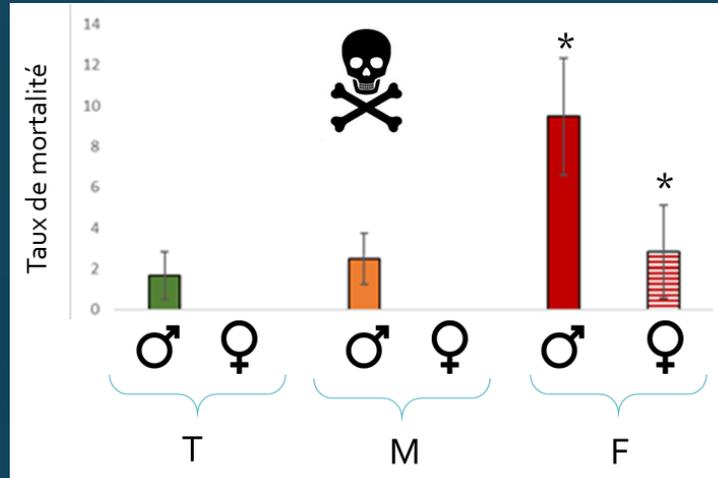


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Diminution de l'activité à 1,5 µg/L



Regroupement des gammares à 1,5 µg/L

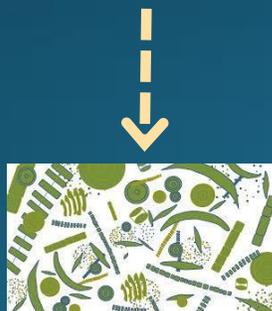
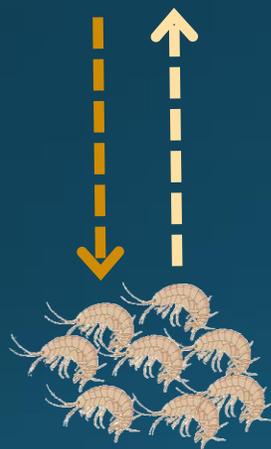
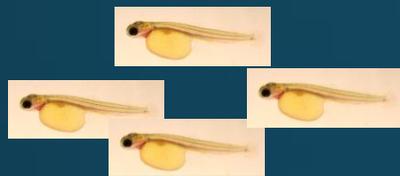
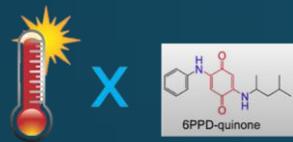
Contexte

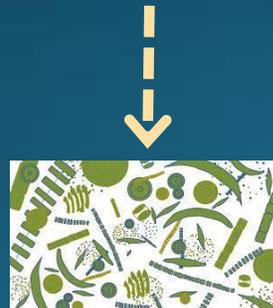
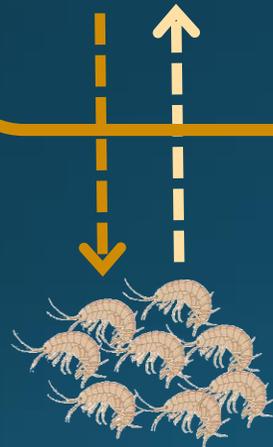
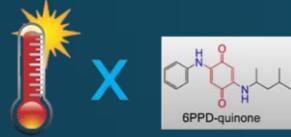
Objectif

Matériel & méthode

Résultats & discussion

Conclusion





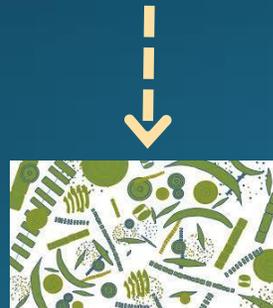
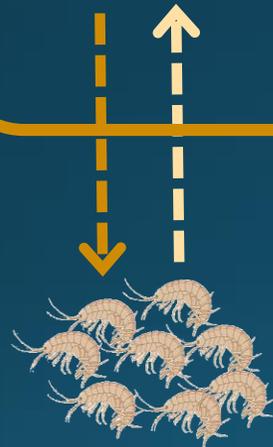
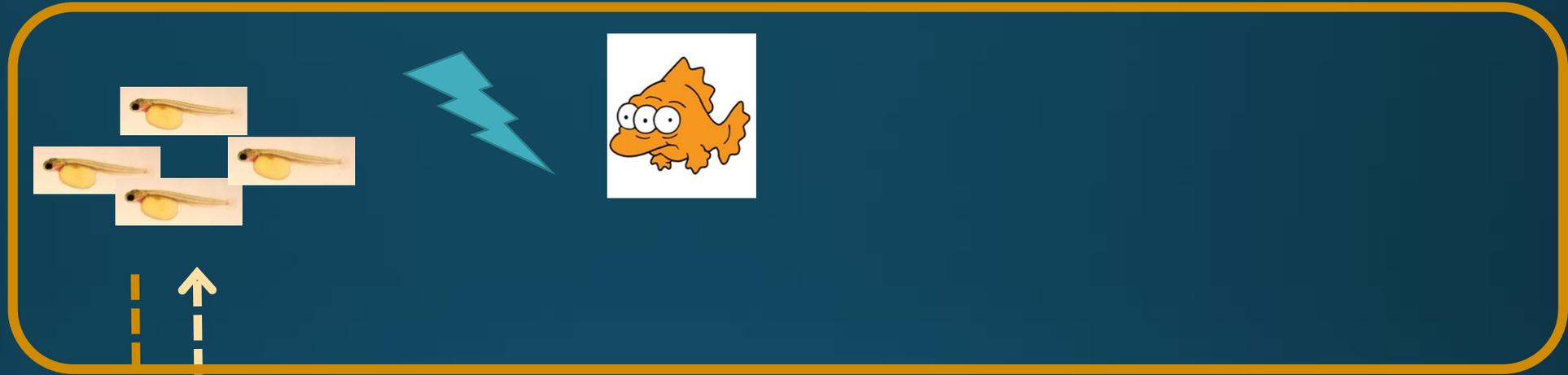
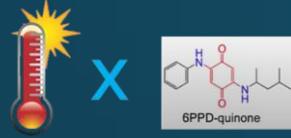
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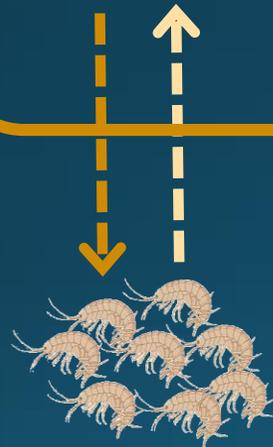
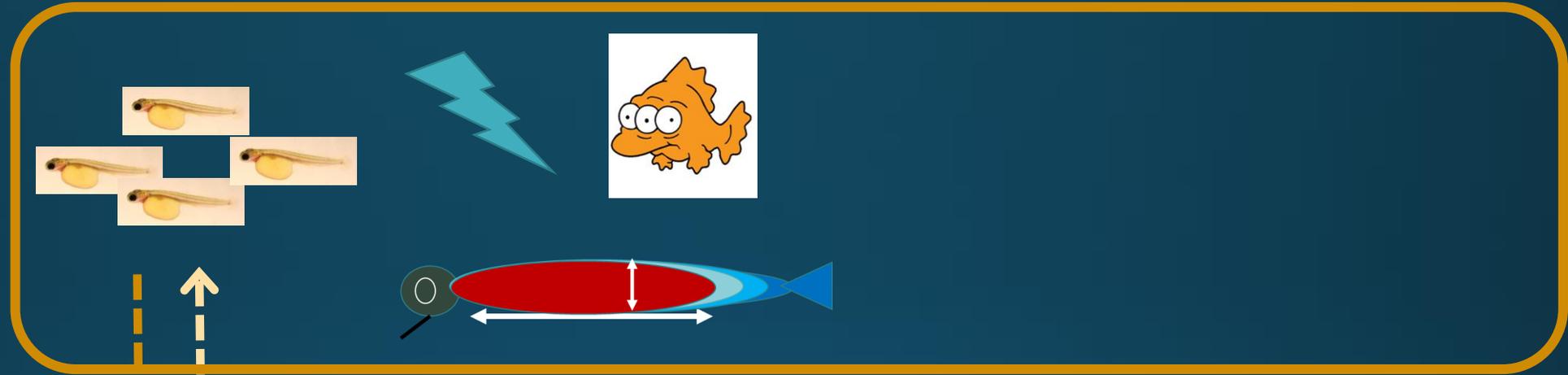
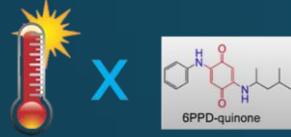
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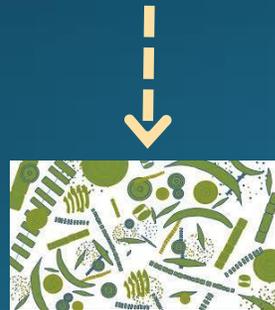
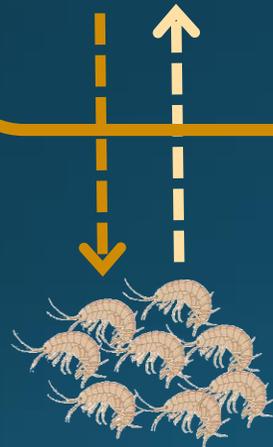
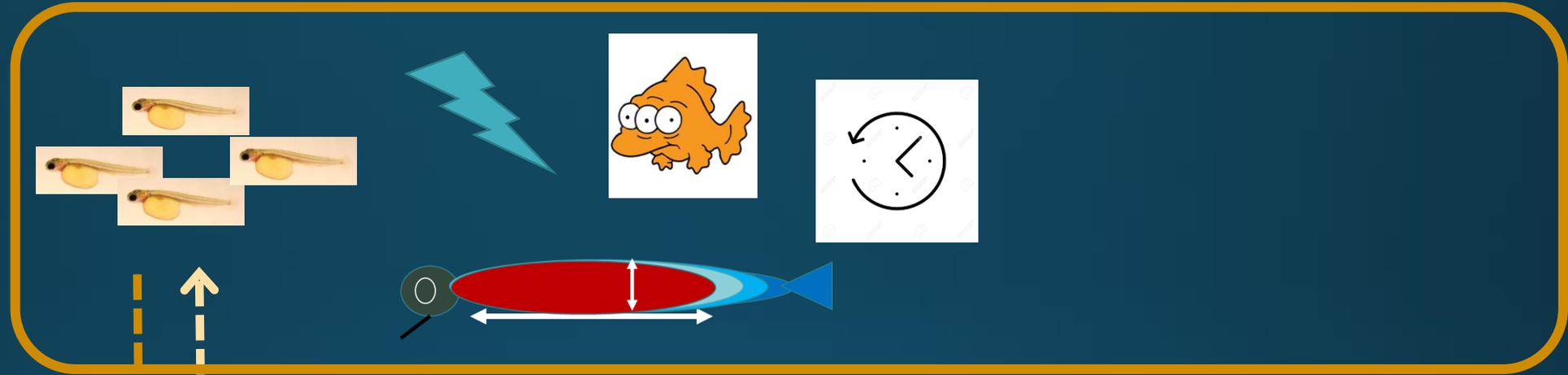
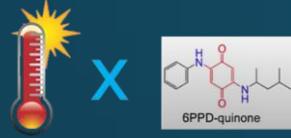
Matériel & méthode

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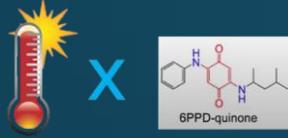
Contexte

Objectif

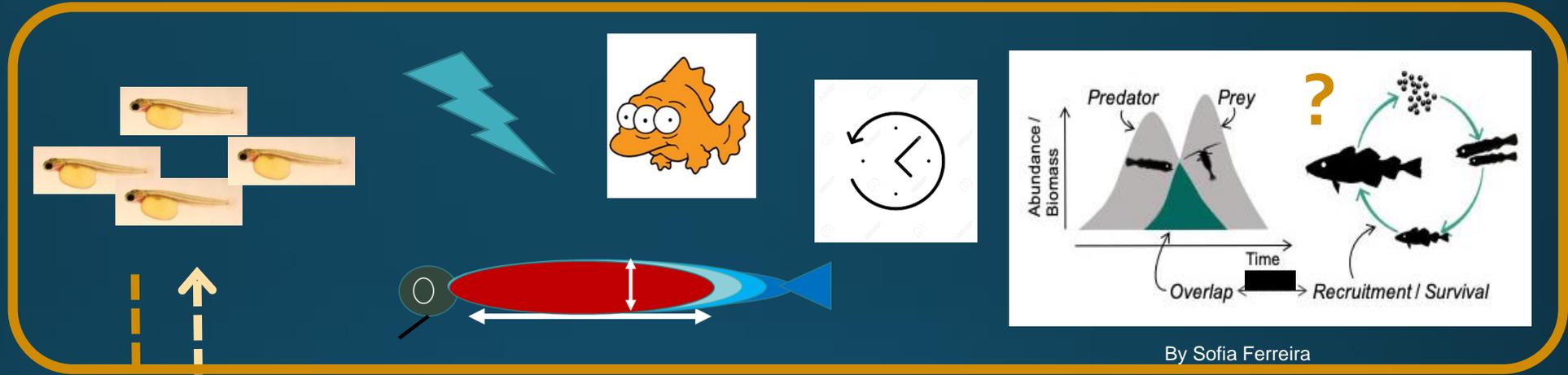
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PNR? Match-mismatch ?



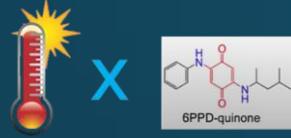
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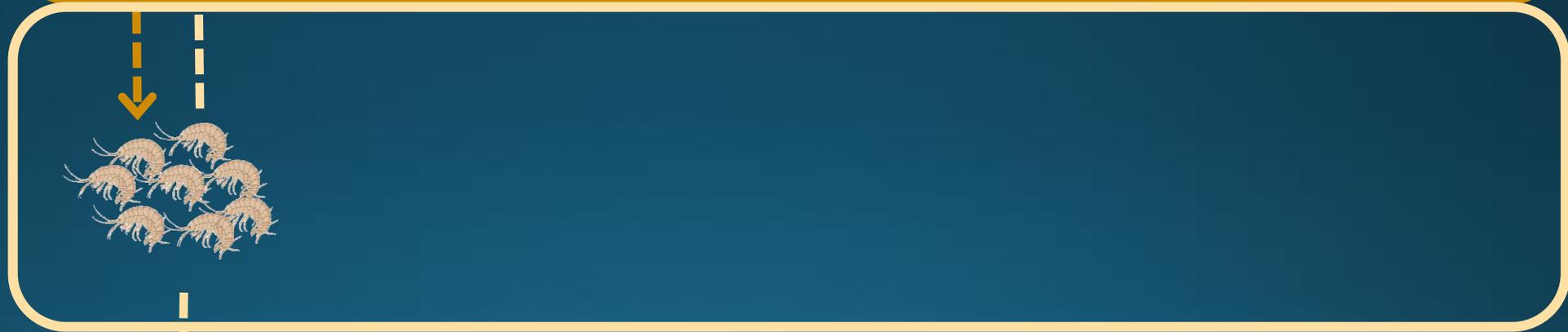
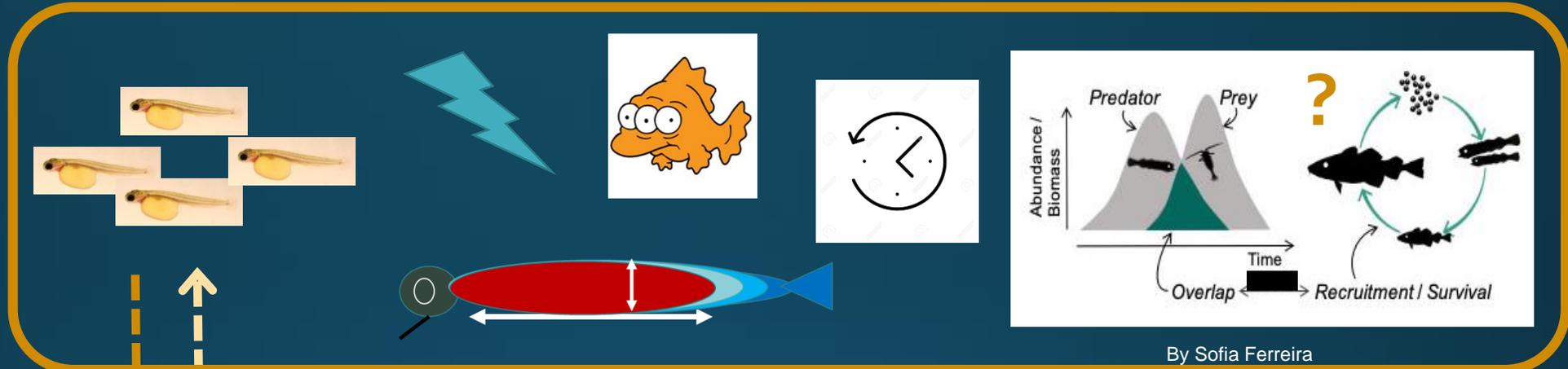
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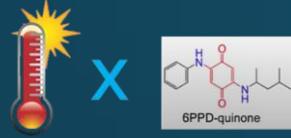
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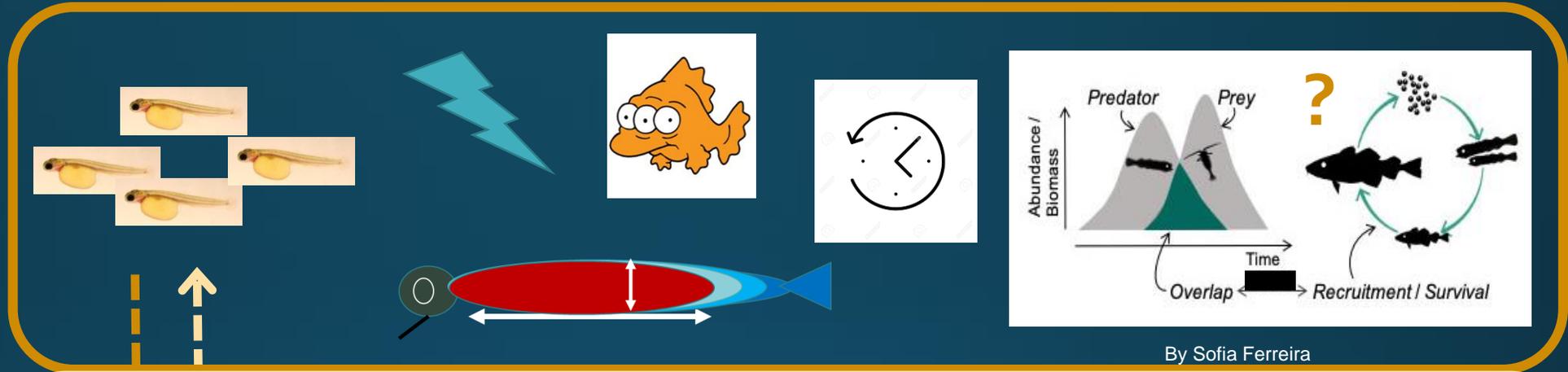
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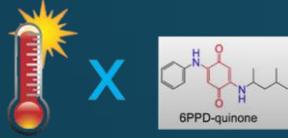
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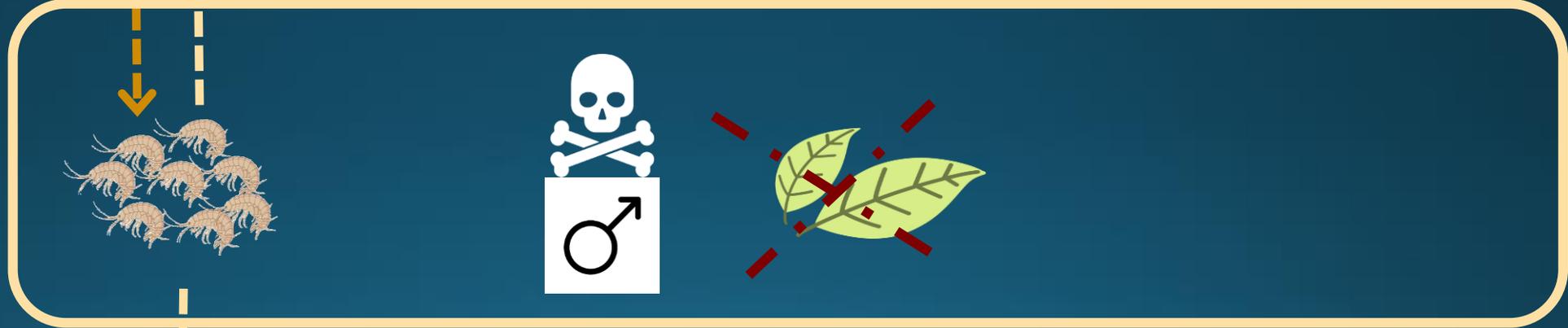
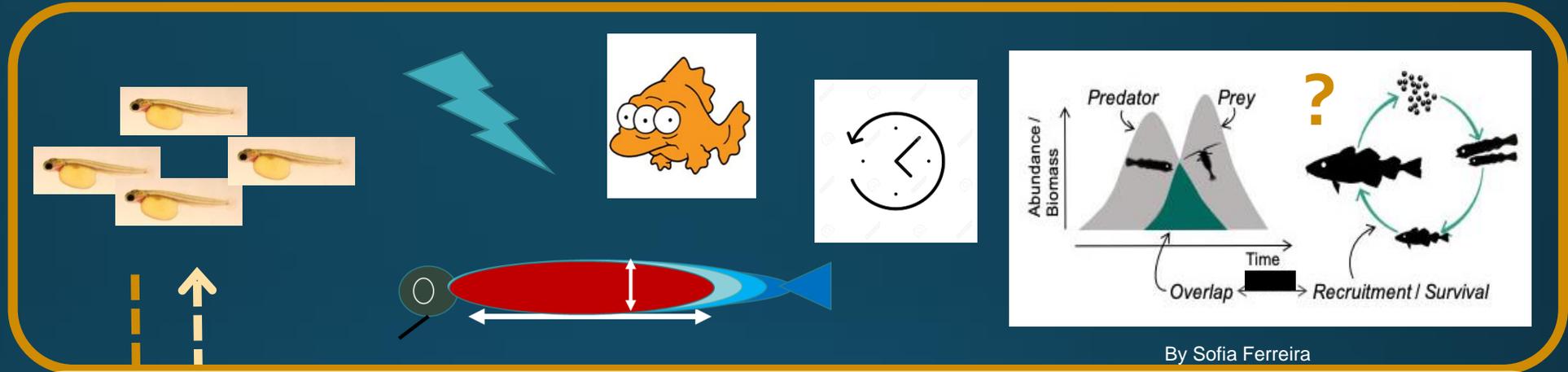
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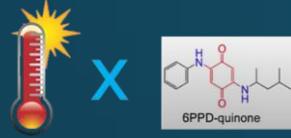
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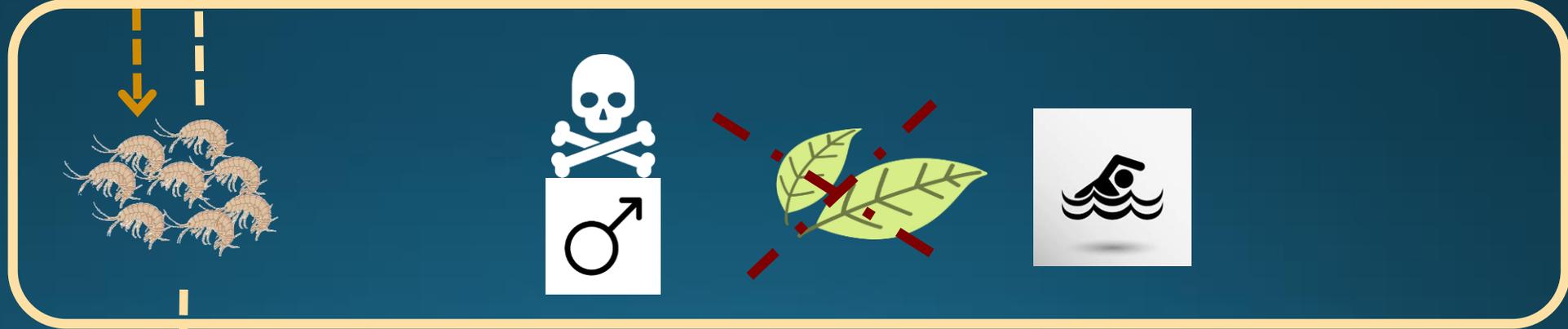
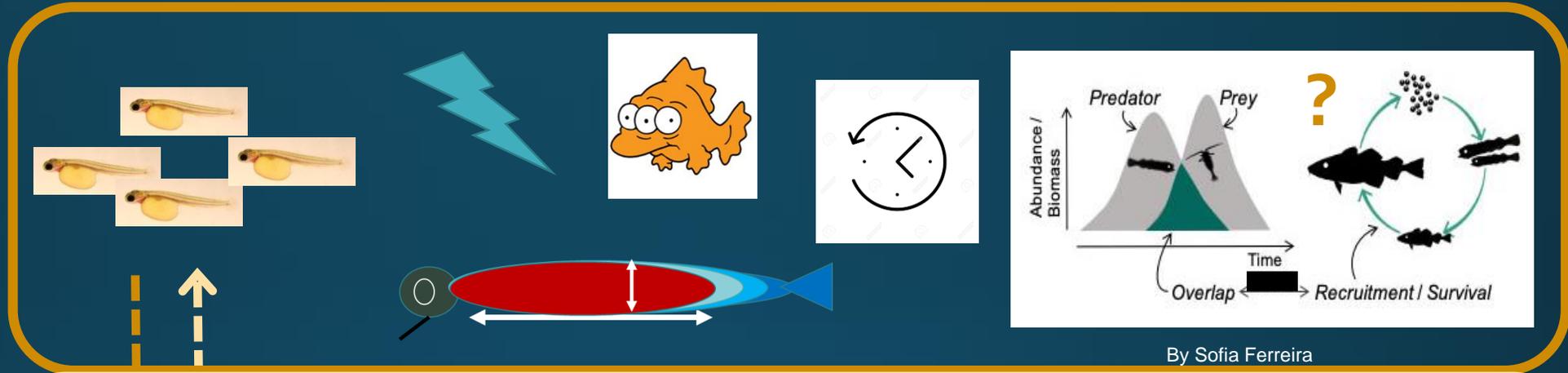
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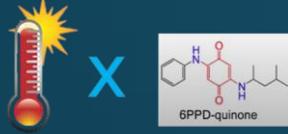
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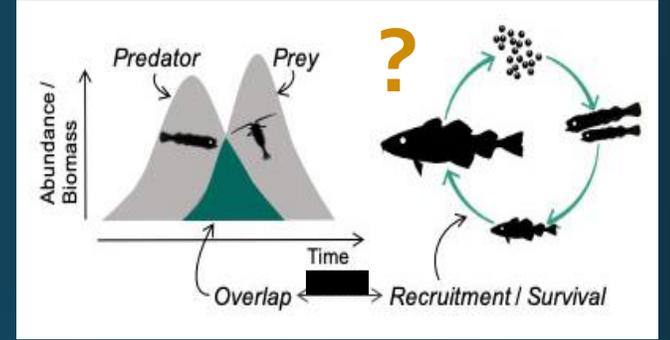
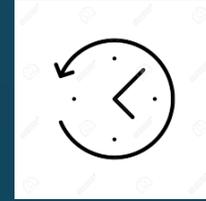
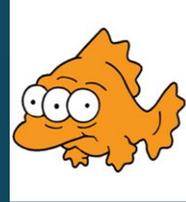
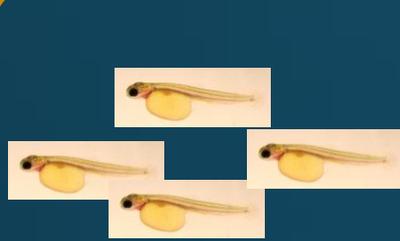
Contexte



Objectif

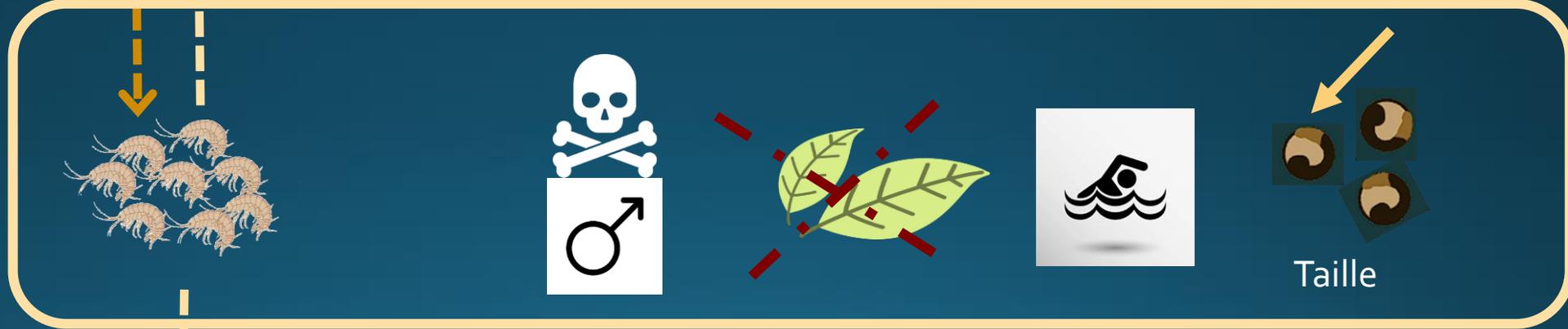


Matériel & méthode



By Sofia Ferreira

PNR? Match-mismatch ?



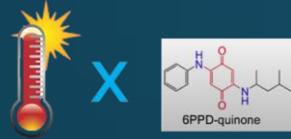
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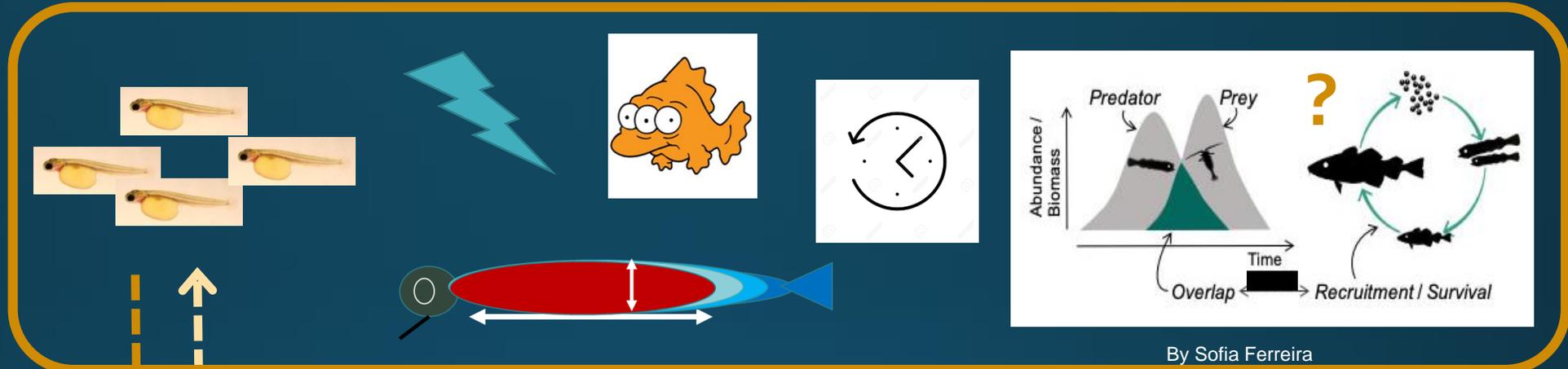
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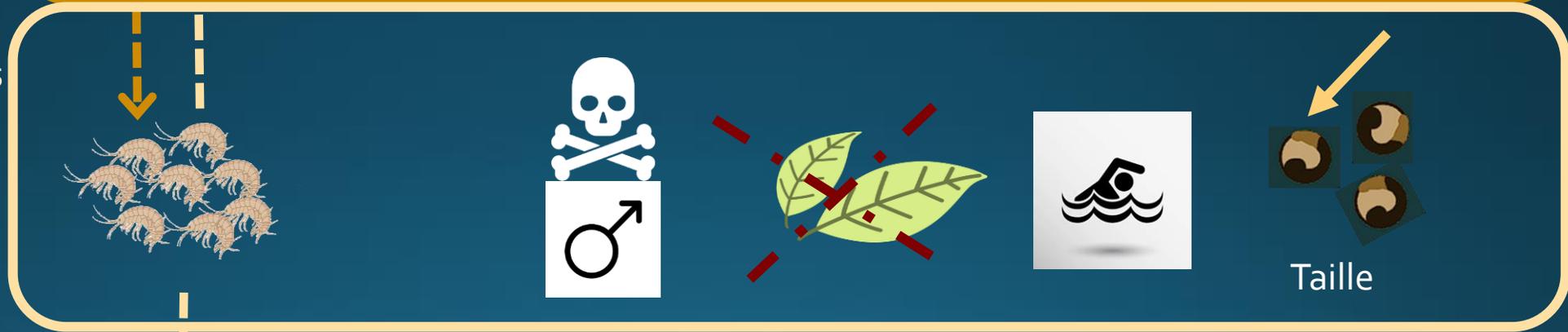
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PNR? Match-mismatch ?



Diminution nutrition des poissons et autres



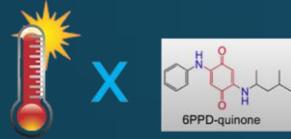
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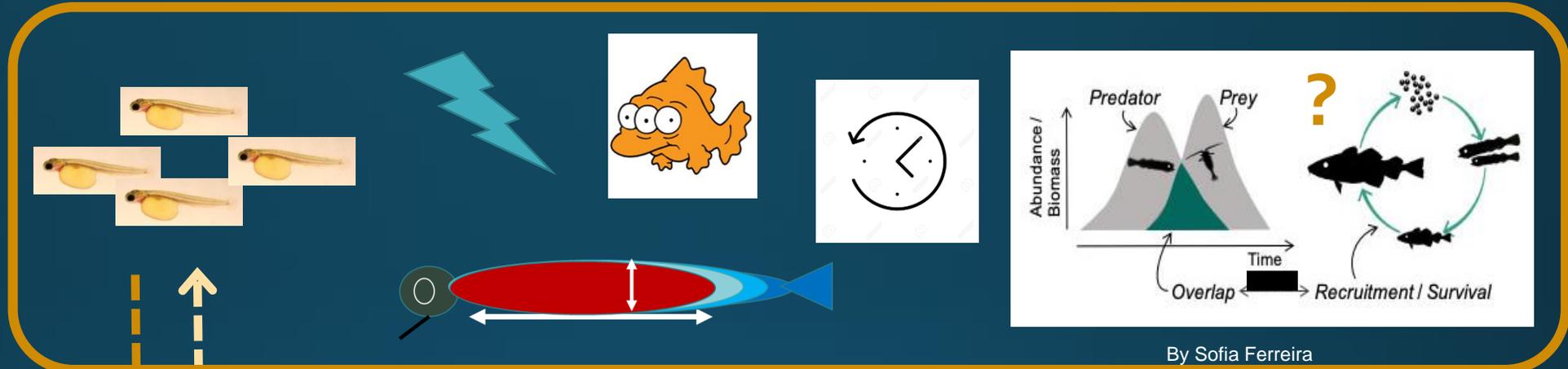
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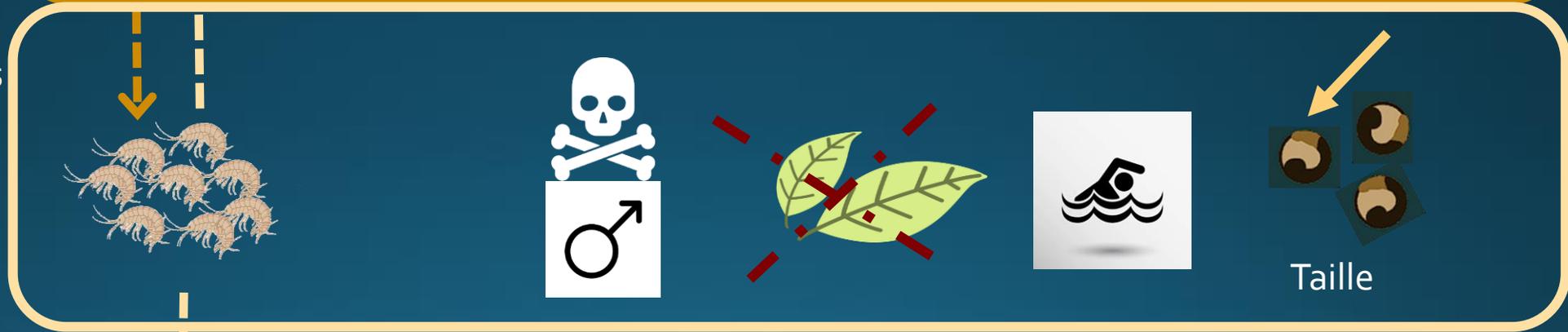


PNR? Match-mismatch ?



Diminution nutrition des poissons et autres

Diminution de la dégradation de la litière



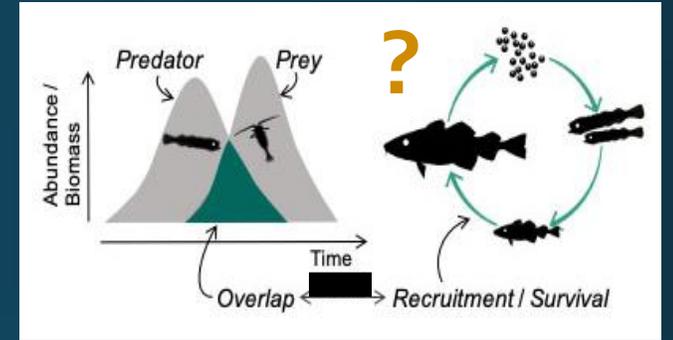
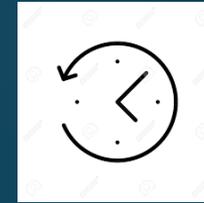
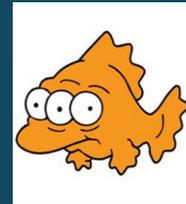
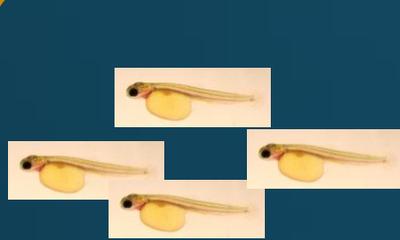
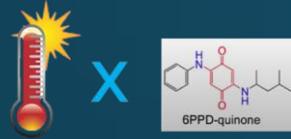
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PNR? Match-mismatch ?



Diminution nutrition des poissons et autres



Taille

Diminution de la dégradation de la litière



A VENTR

Les analyses ohmiques et comportementales



Effet cocktail de la température et d'un résidu de plastique sur deux niveaux trophiques de nos lacs alpins

Emilie Réalis-Doyelle



Jean Guillard



Emmanuel Naffrechoux



Stéphane Reynaud



Nathalie Cottin



Alexis Golven M1



Fanny-Laure Thomassin M2

LIFE

IN FRESHWATERS
AND ESTUARIES

INFRASTRUCTURE DE RECHERCHE
DÉDIÉE À L'ÉTUDE DU VIVANT
DANS LES EAUX CONTINENTALES

JST IR LIFE

