



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

Emilie Réalis-Doyelle



Jean Guillard



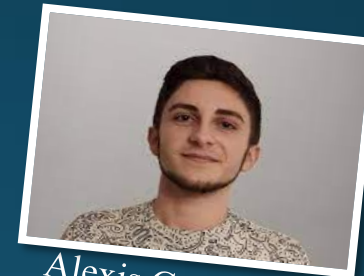
Emmanuel Naffrechoux



Stéphane Reynaud



Nathalie Cottin



Alexis Golven M1



Fanny-Laure Thomassin M2

LIFE

IN FRESHWATERS AND ESTUARIES

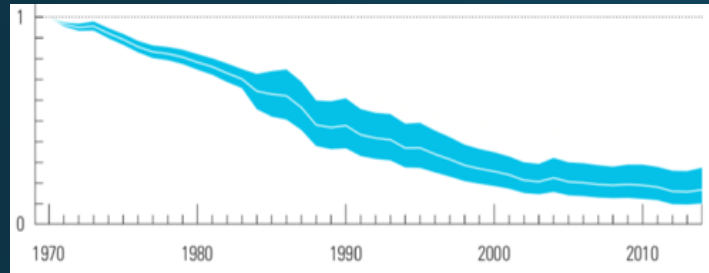
INFRASTRUCTURE DE RECHERCHE DÉDIÉE À L'ÉTUDE DU VIVANT DANS LES EAUX CONTINENTALES

JST IR LIFE

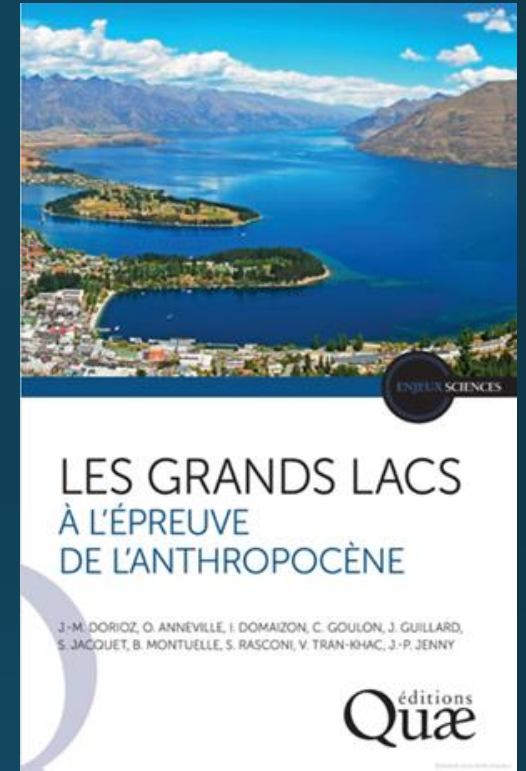
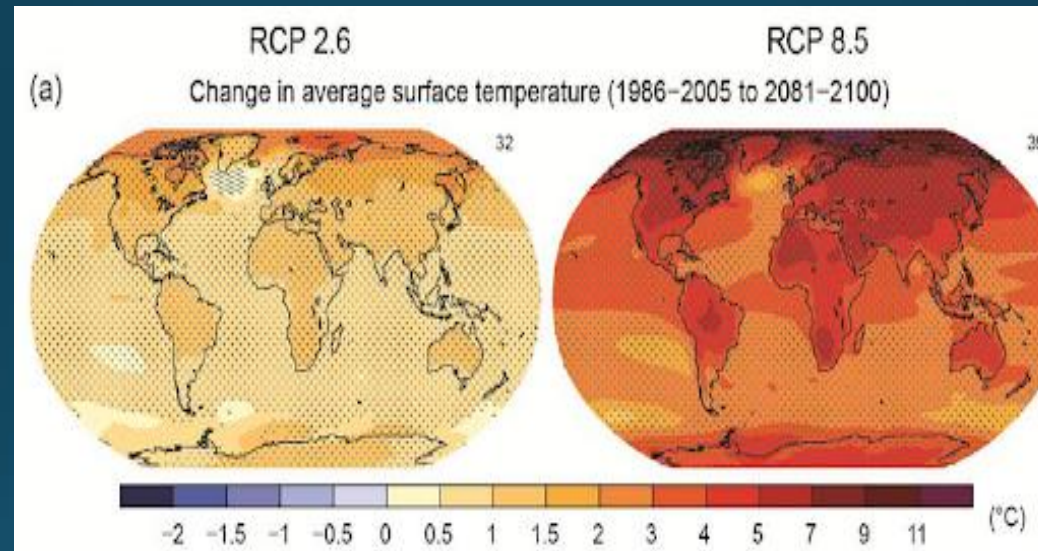


Changement des écosystèmes dues aux activités humaines

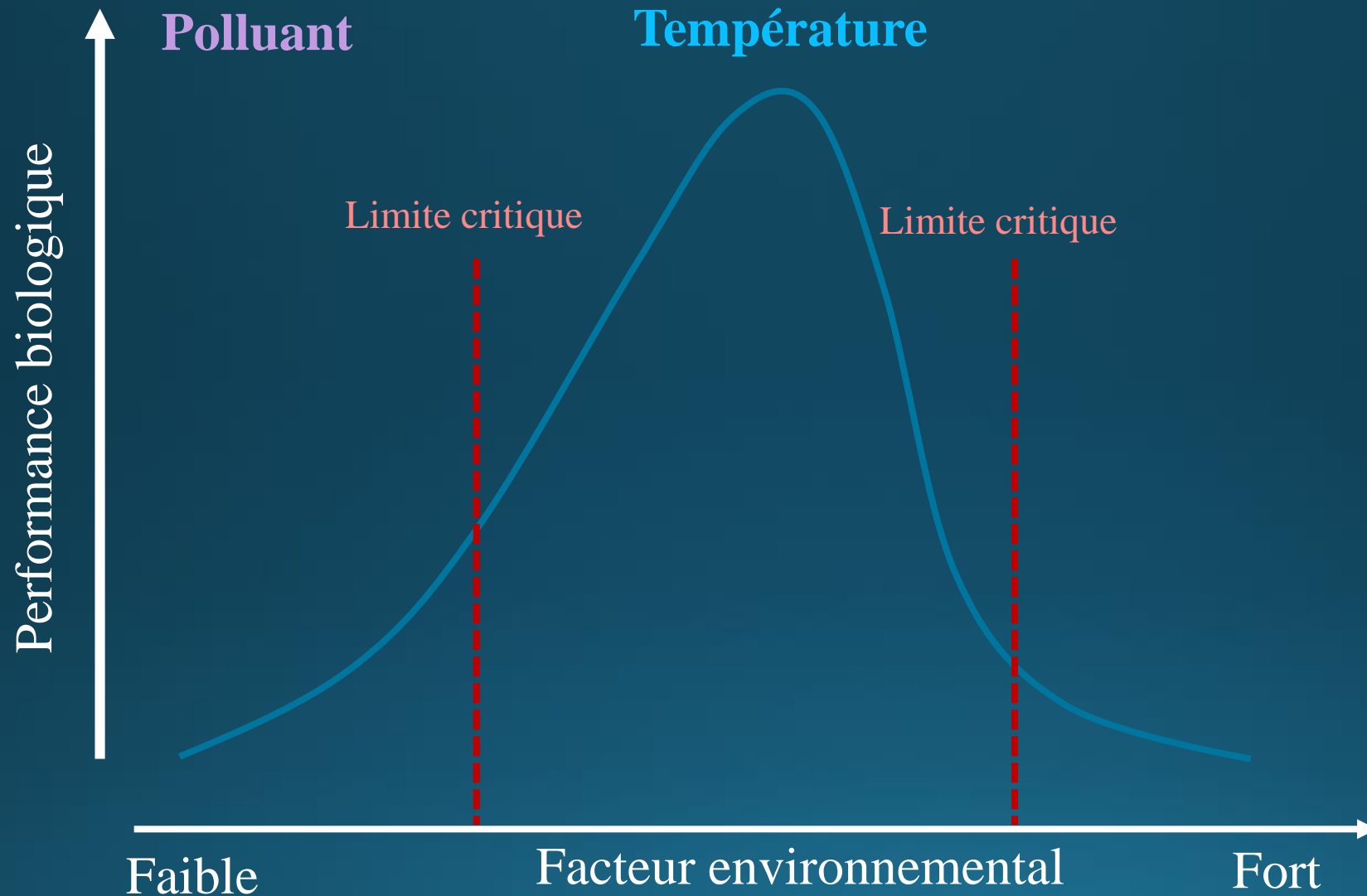
Giec, 2018



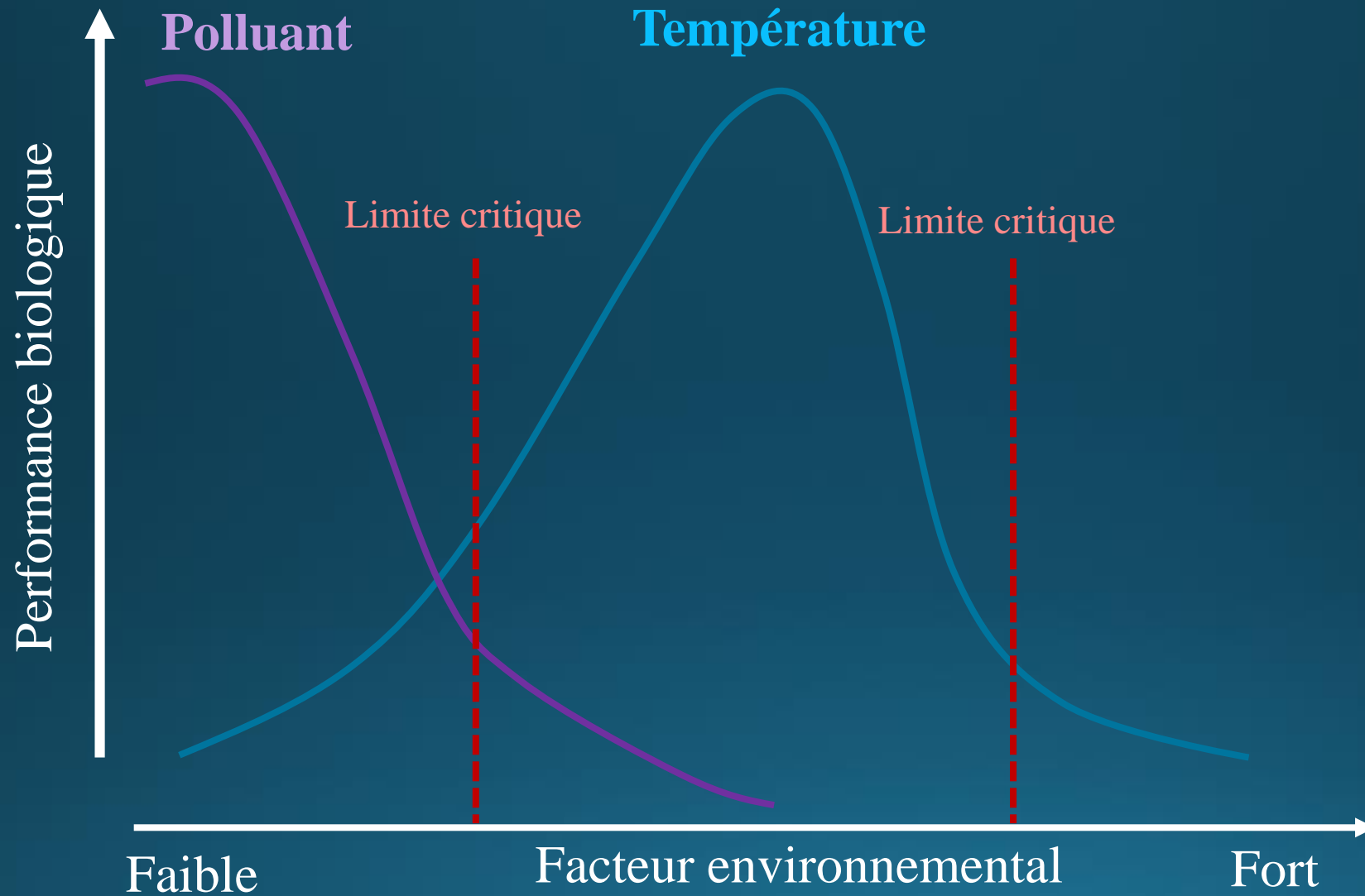
Freshwater Nature's Living Planet Index
Déclin diversité : 83% entre 1970 et 2014



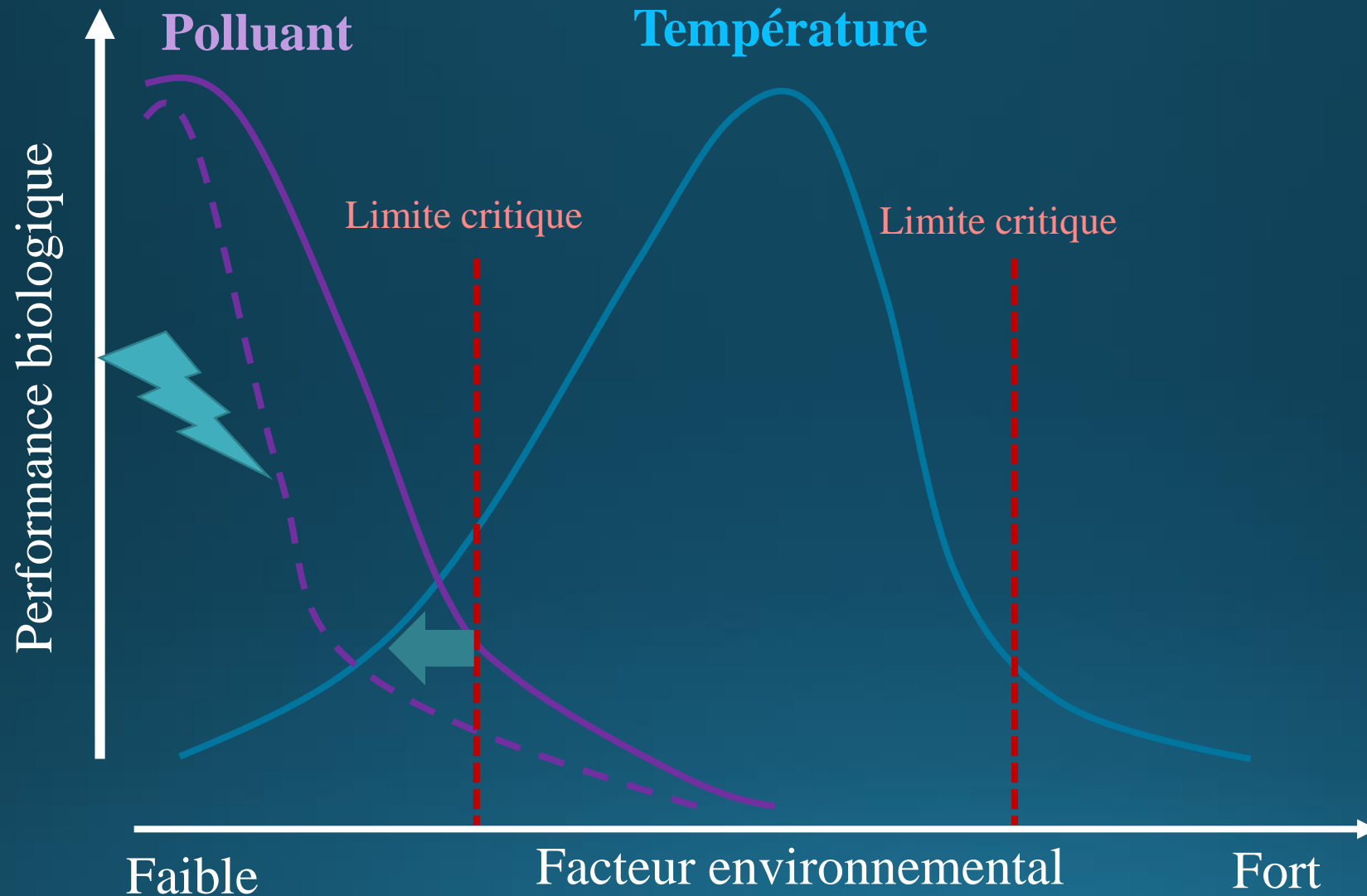
Nombreux facteurs peuvent impacter les populations de poissons:
 stress: physiques (bruits, plastiques..), chimiques (PCB, molécules émergentes...)



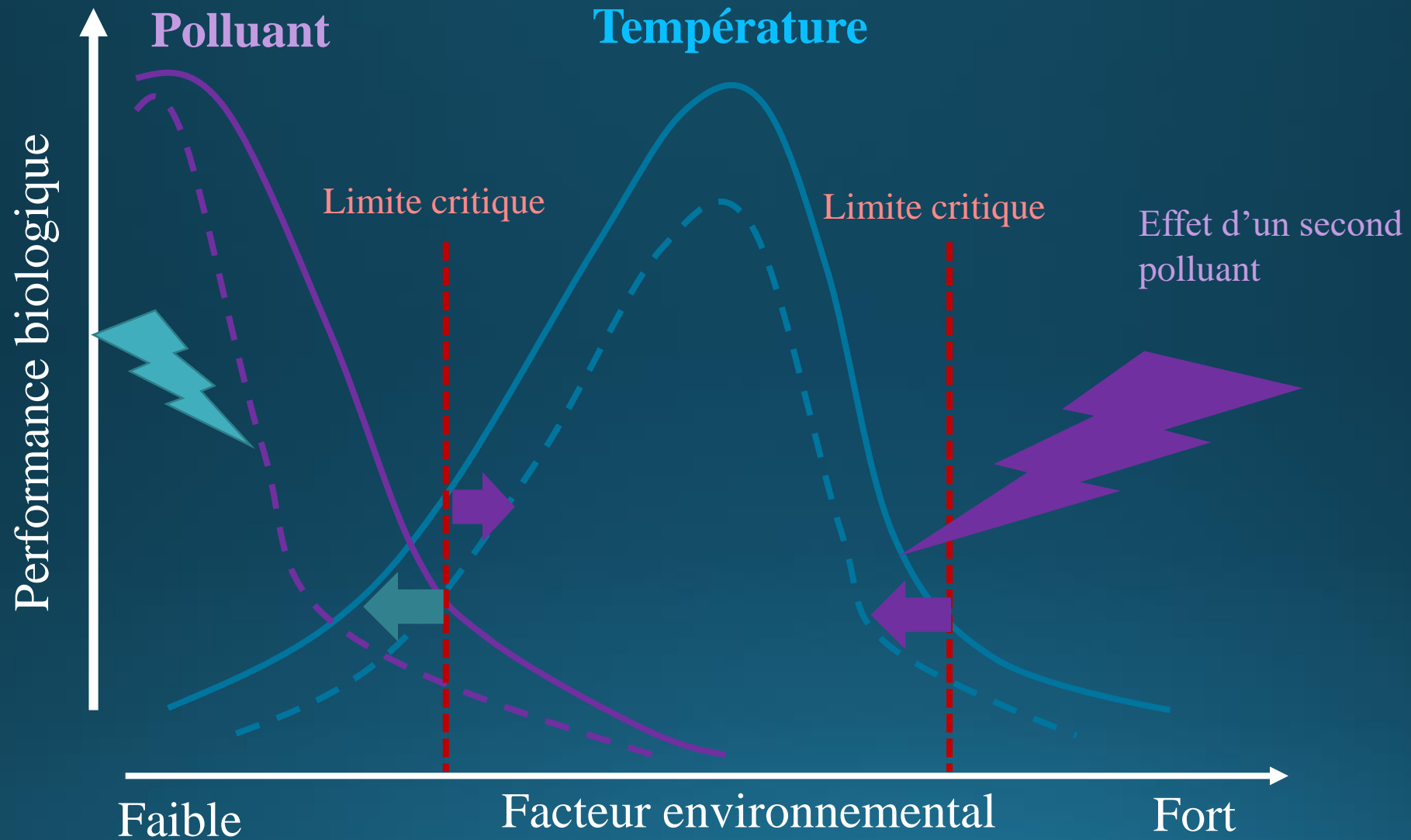
Cross-effects of temperature and pollutants on biological performance of organisms on stress tolerance (Gandar, 2015 adapted from Sokolova et al., 2012)



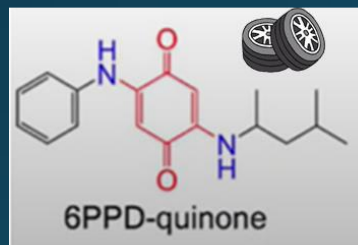
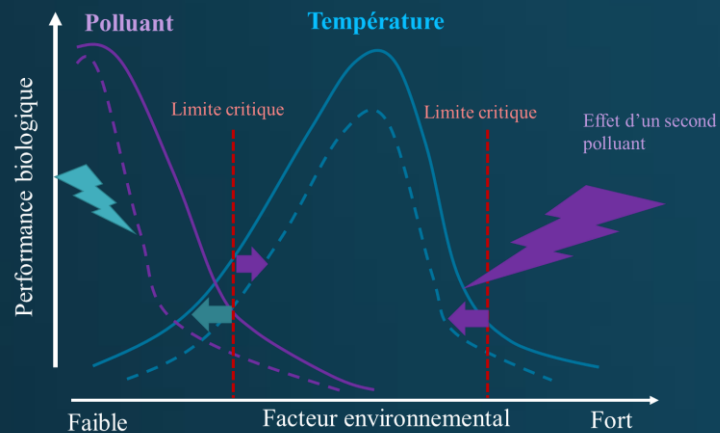
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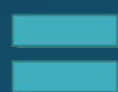
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1



1



Effet synergique

$$1 + 1 = 3$$

Effet plus fort que l'addition des polluants

Effet additif

$$1 + 1 = 2$$

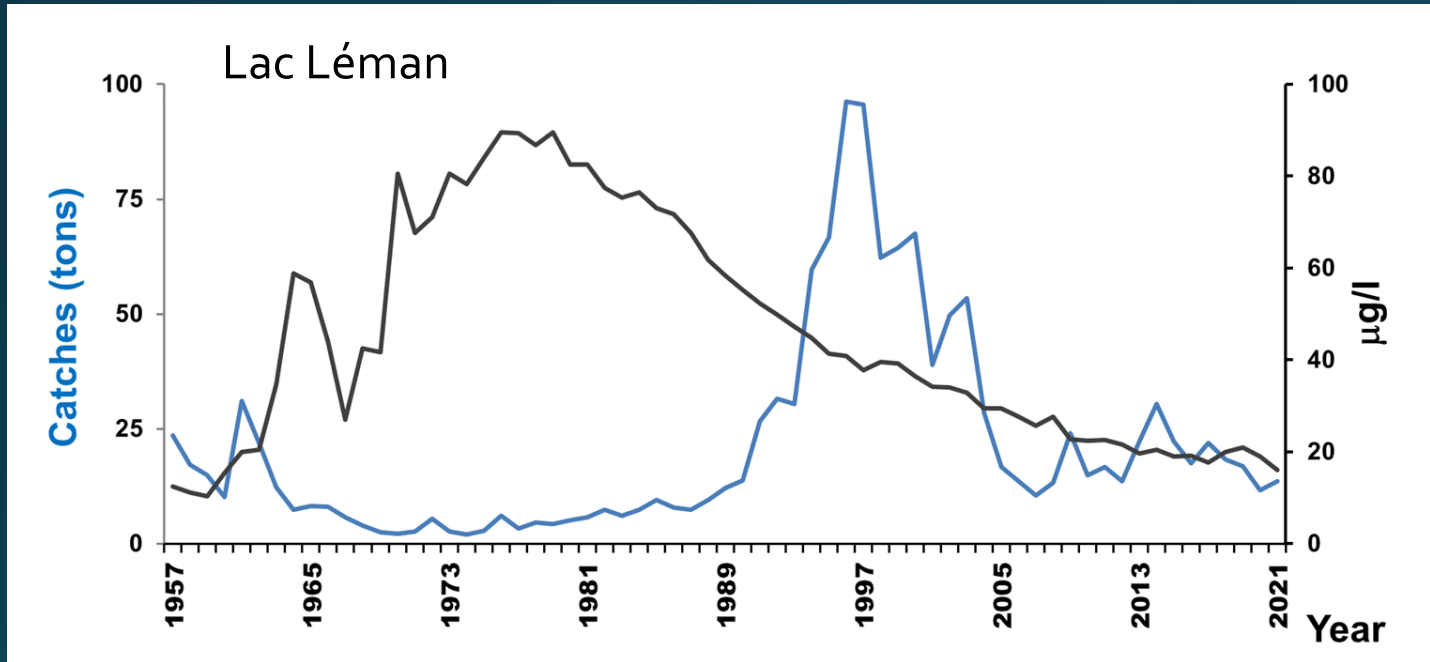
Effet égale à l'addition des polluants

Effet antagoniste

$$1 + 1 = 0,5$$

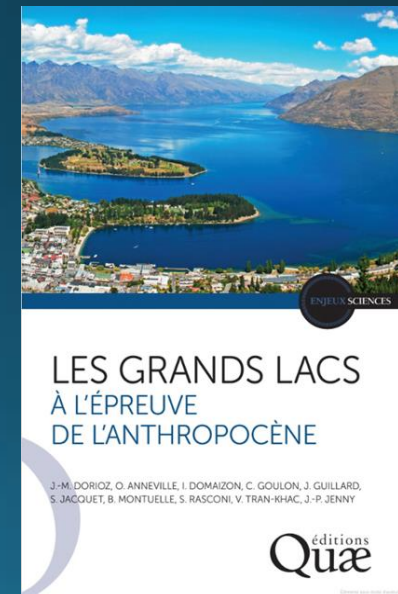
Effet moins fort de l'ensemble de l'addition des polluants

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



Guillard et al.

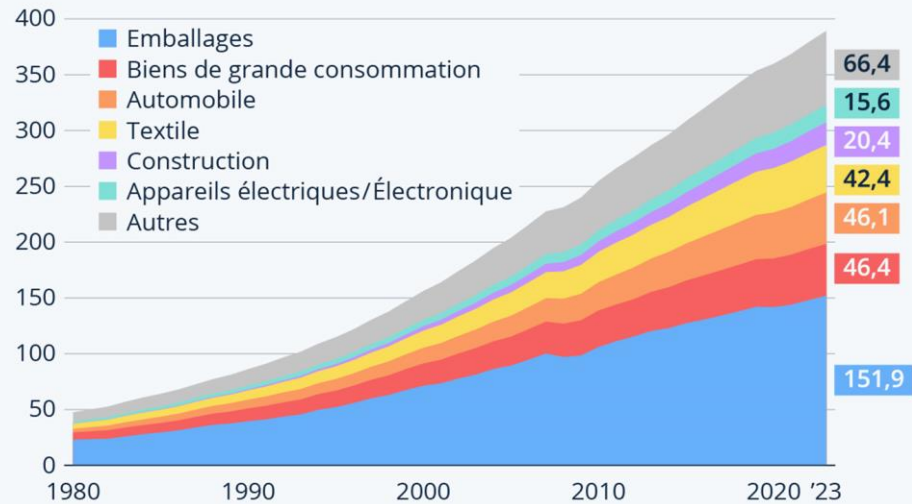
Nombreux facteurs peuvent impacter les populations de poissons:
Le changements climatiques, l'augmentation des stress: physiques (bruits, plastiques..), chimiques (PCB, molécules émergentes...)



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.

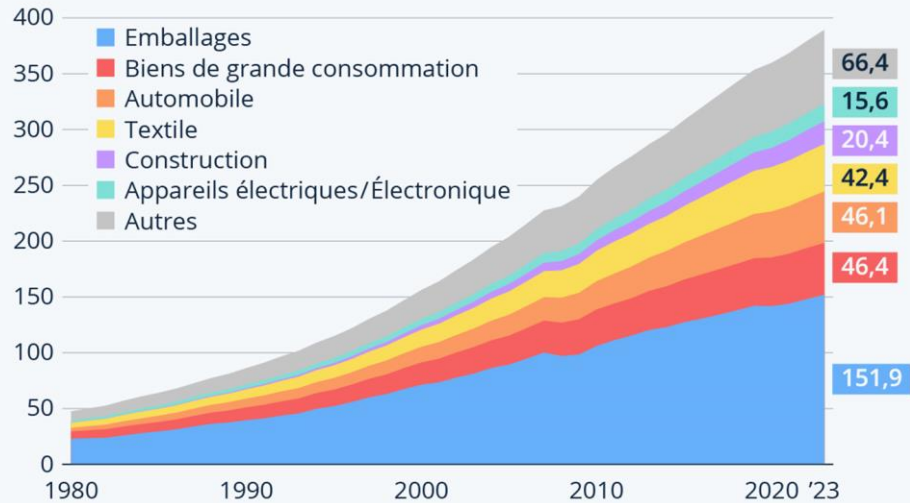
Source : OCDE



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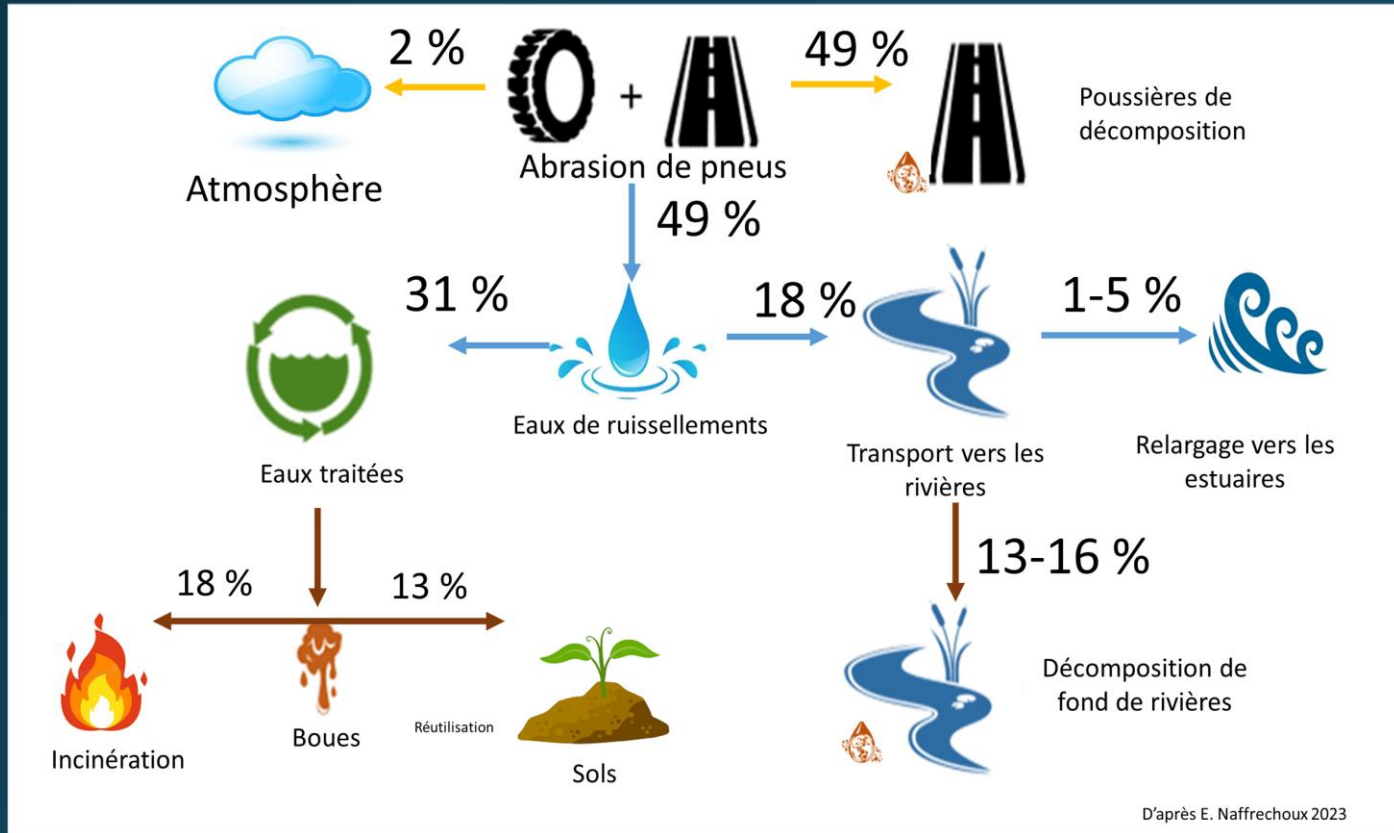
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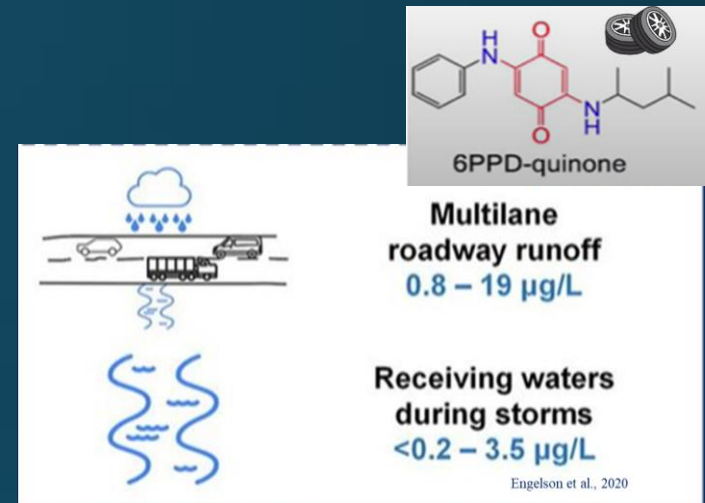
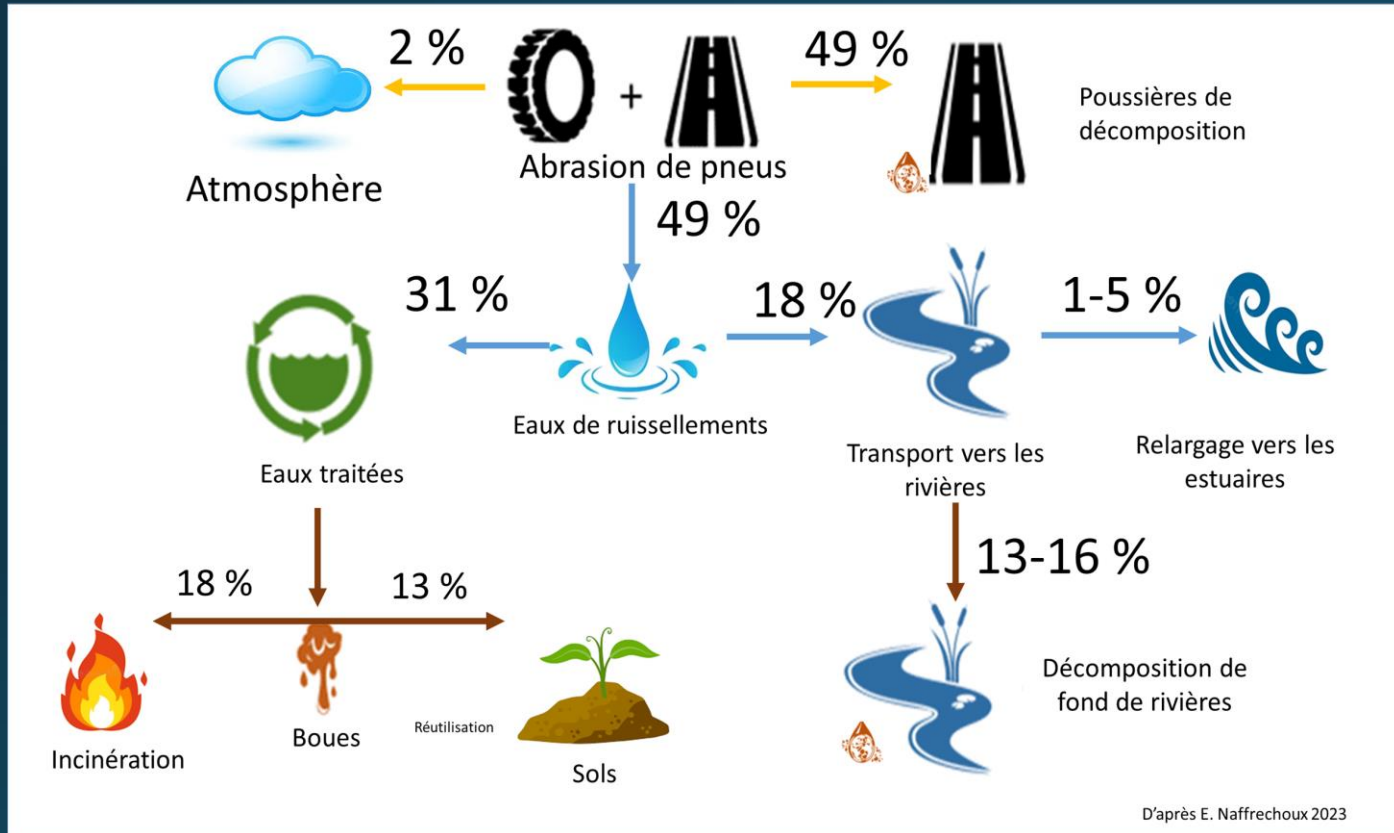
Lac Léman



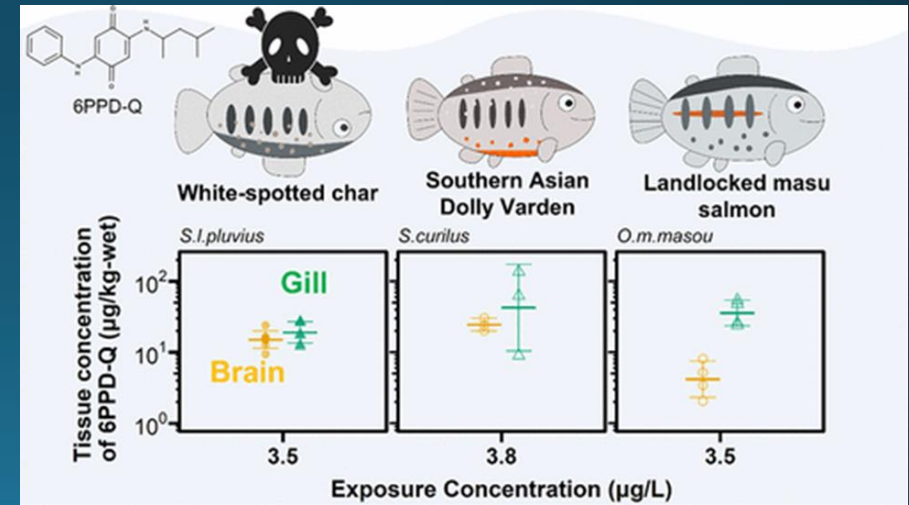
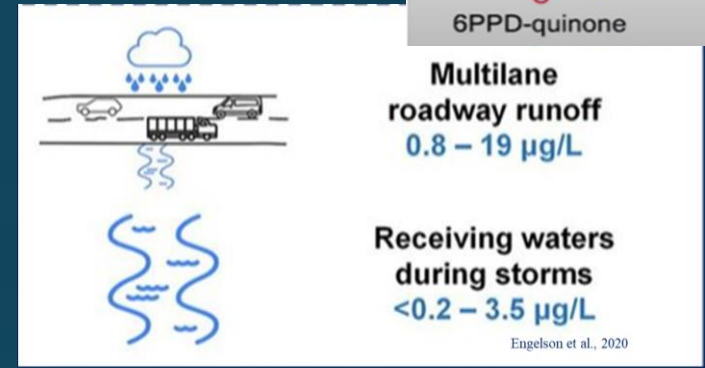
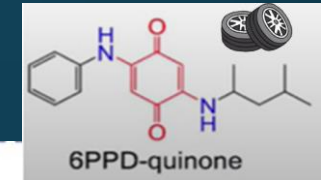
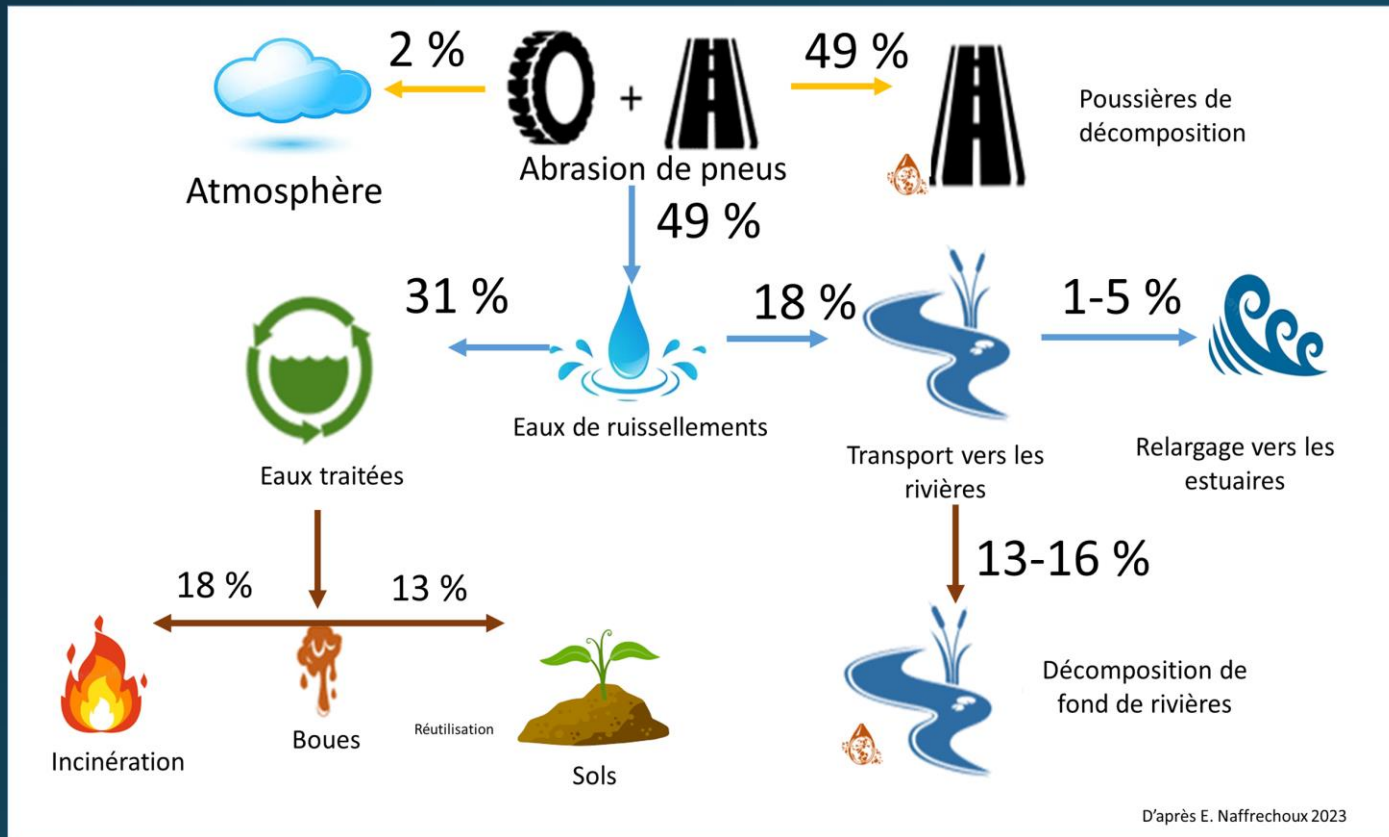
Les impacts des résidus issus du plastiques sont encore très peu connus



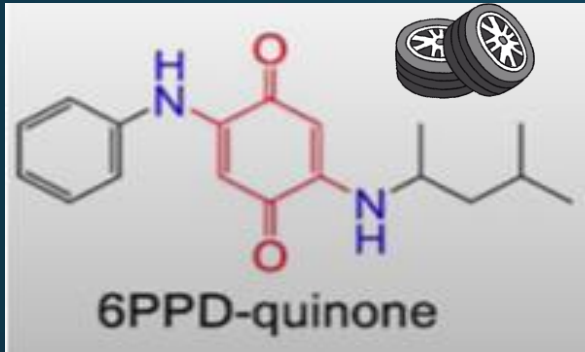
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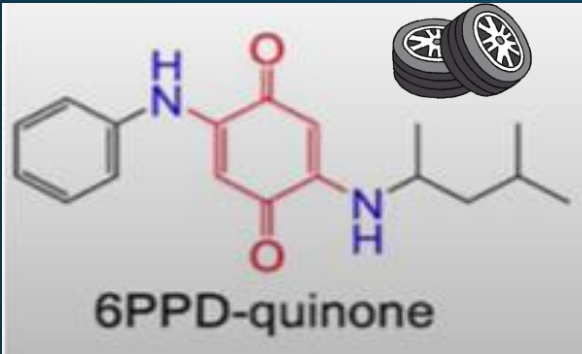
Hiki & Yamamoto, 2022



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

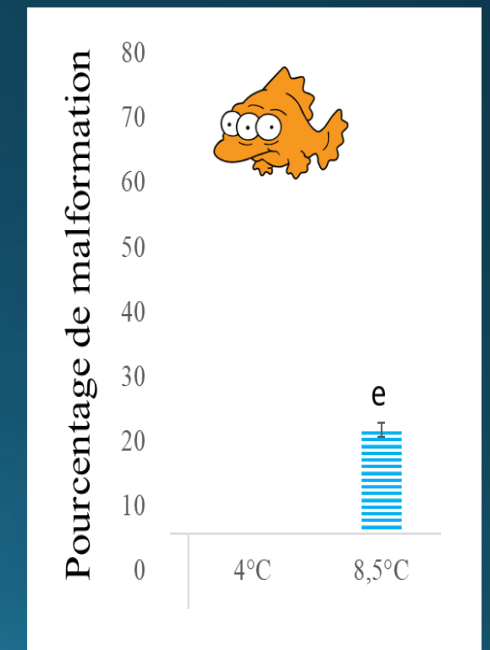
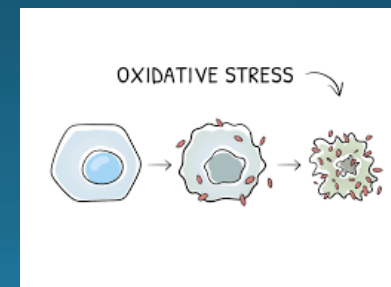
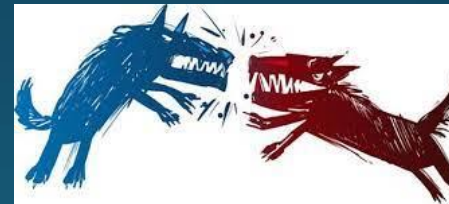
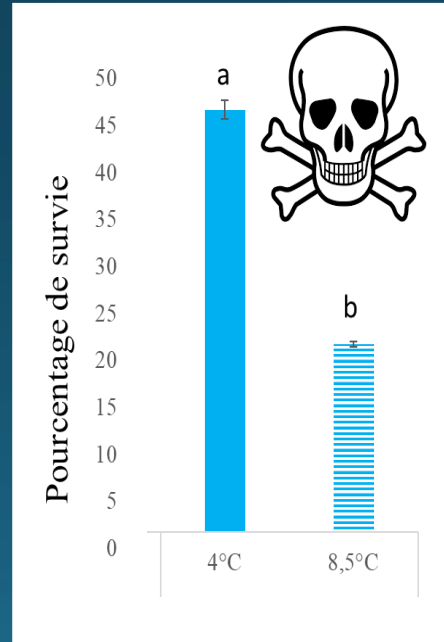
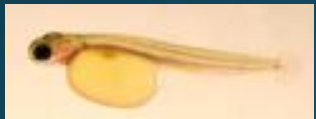
Pas d'étude sur les premiers stades de vie de salmonidés

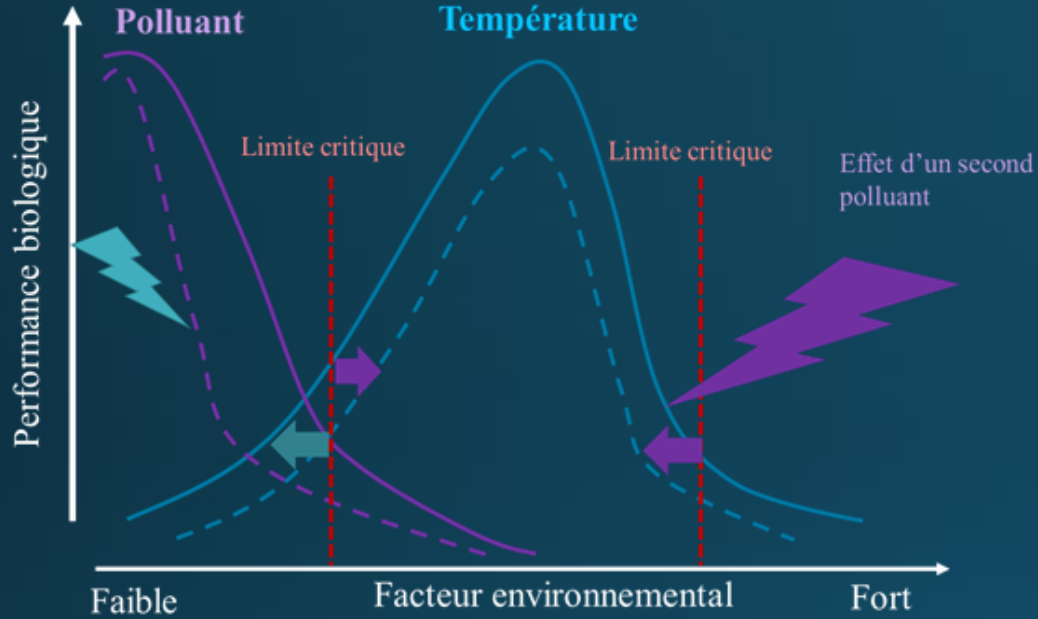




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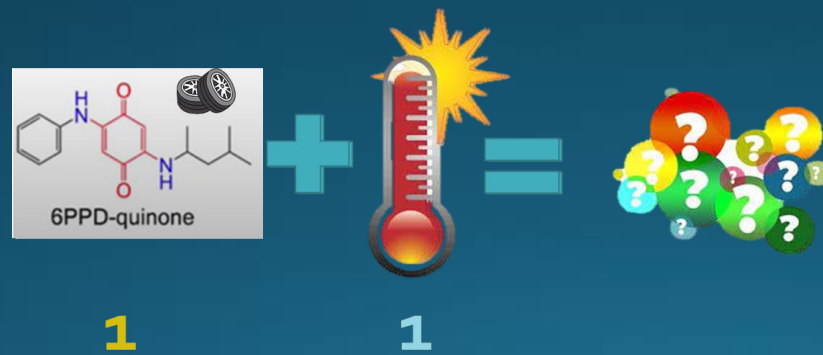
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Quels mécanismes d'actions ?

Stade de vie particulier ?



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Effet égale à l'addition des polluants

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

Contamination à doses environnementales

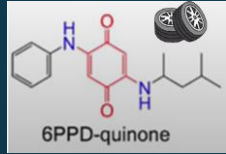
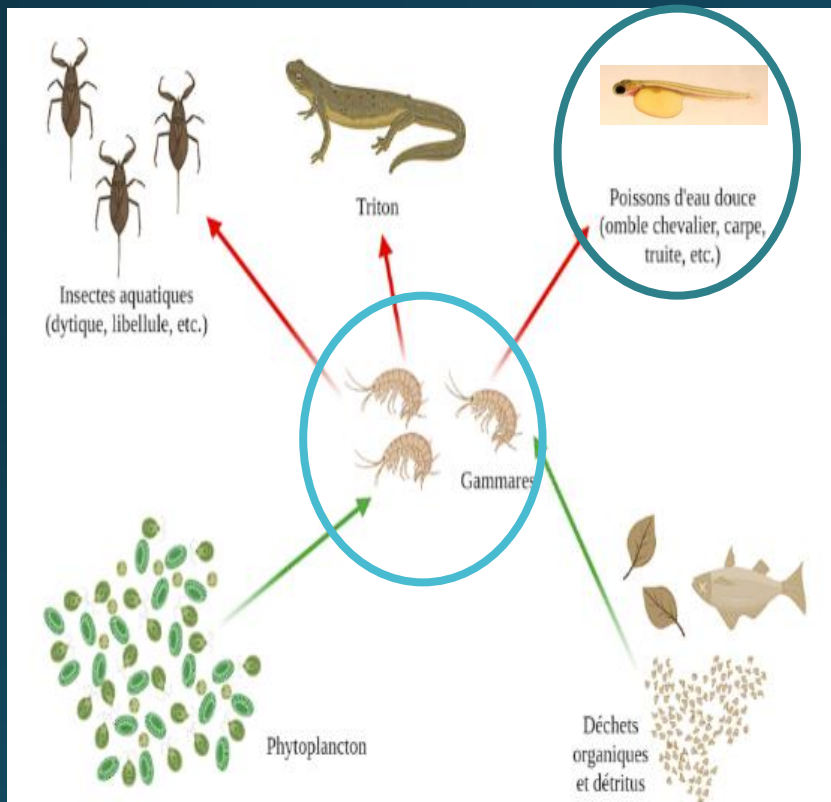

 $T = 0 \mu\text{g/L}$
 $M = 1,5 \mu\text{g/L}$
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Figure 4 : Schéma de la chaîne trophique faisant intervenir les prédateurs et prédateurs des gammarès.

Contamination à doses environnementales

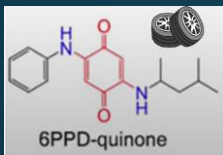
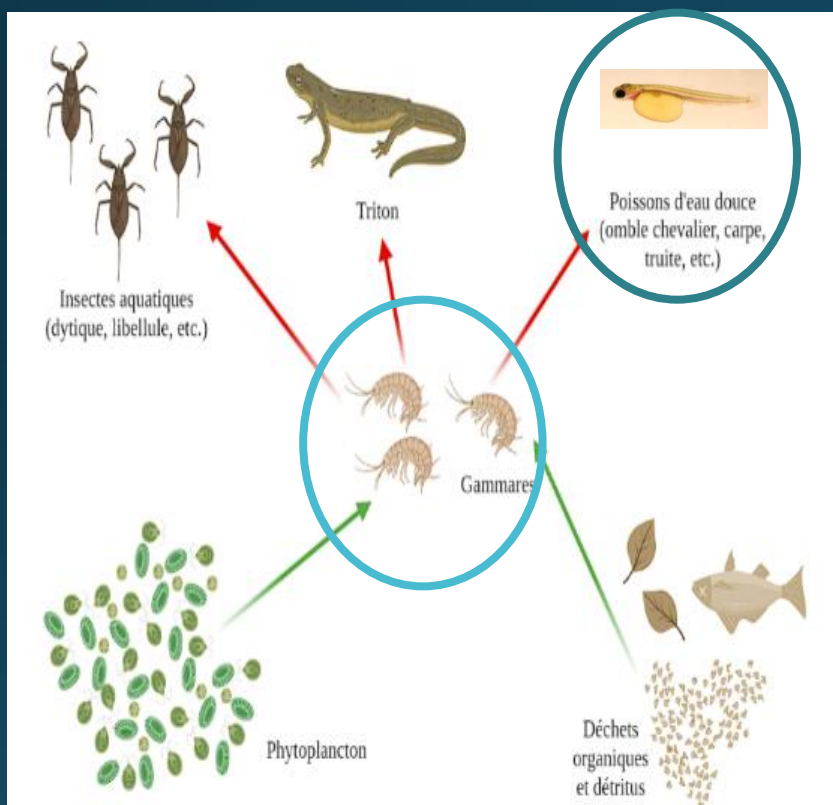
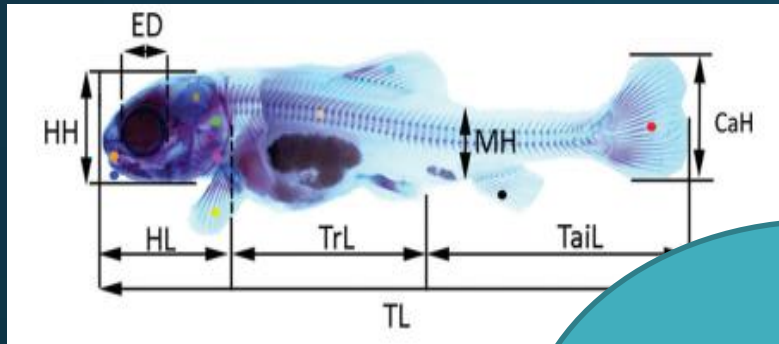

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Bio-demographique

(taux de survie, croissance..)

Effet toxicologique

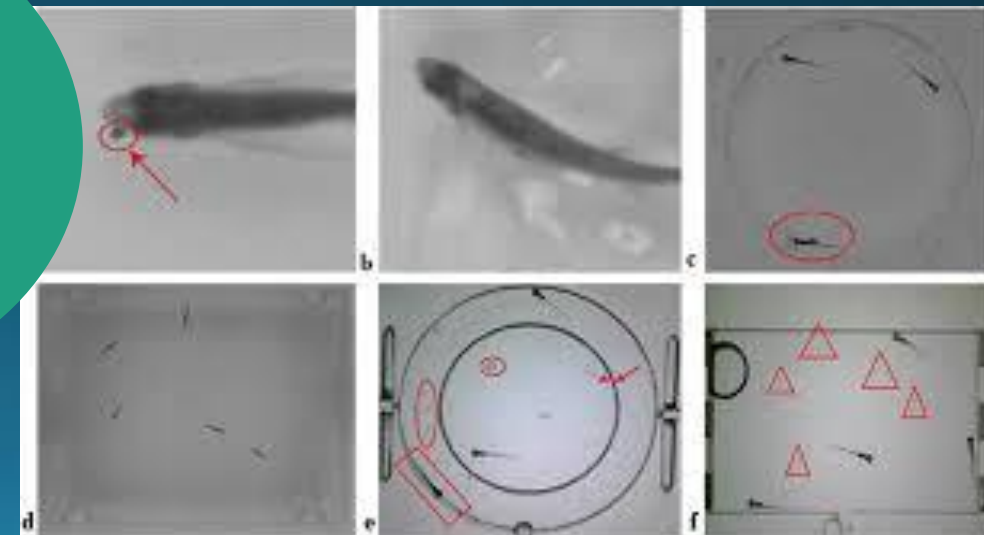
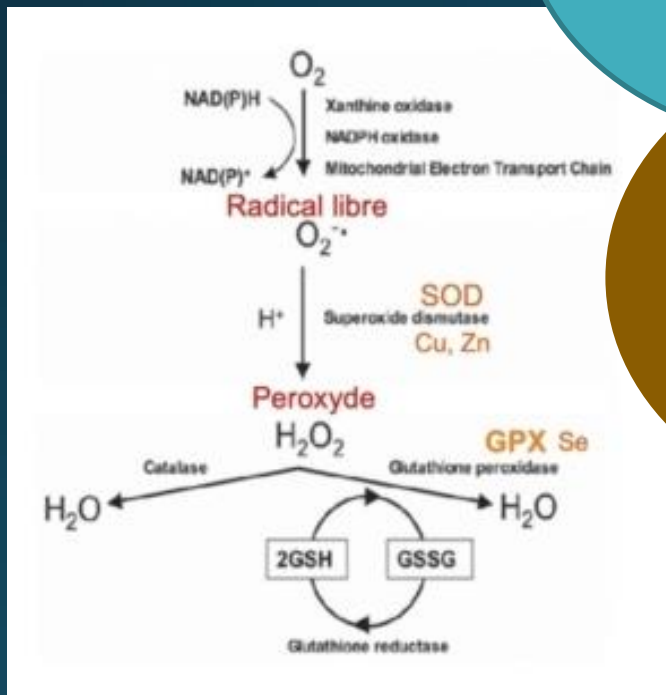
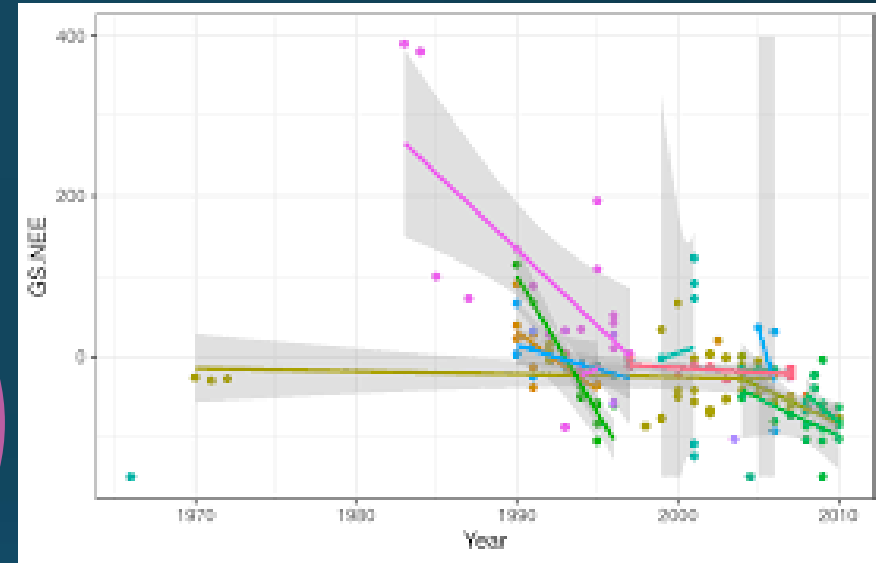
(synergique, additif...)

Physiologique

(stress oxydatif, métabolisme...)

Comportement

(activité, agressivité...)





Fanny-Laure Thomassin M2

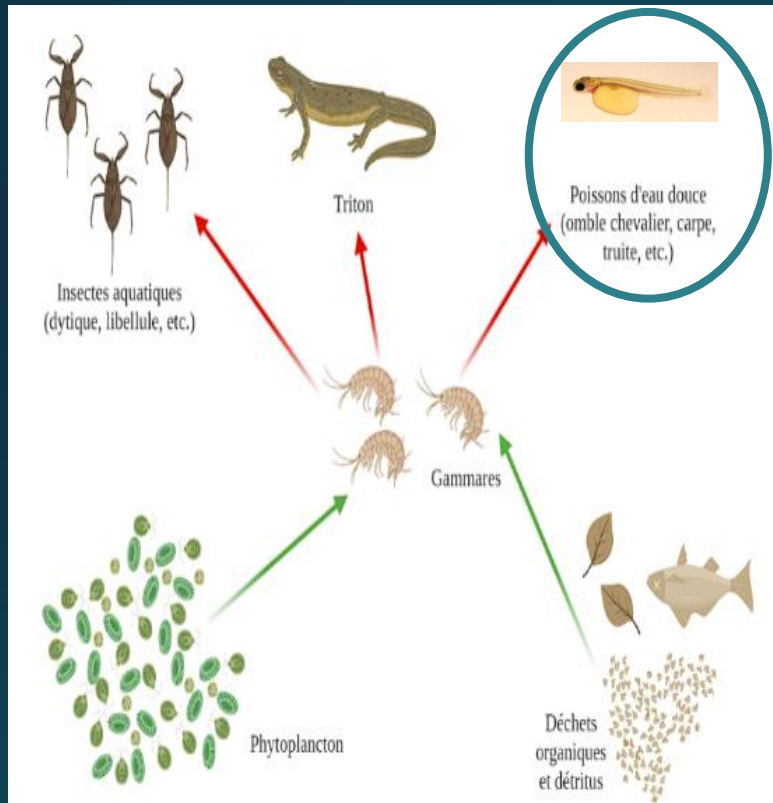
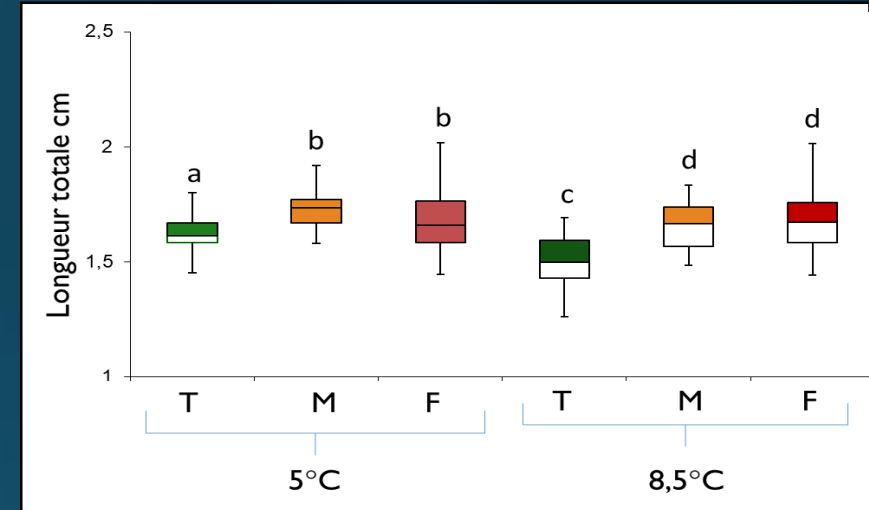
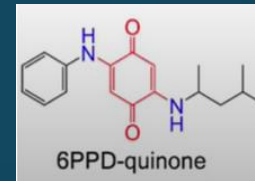


Figure 4 : Schéma de la chaîne trophique faisant intervenir les prédateurs et prédateurs des gammares.



X



T= témoin
M = 1,5 µg/L
F = 3µg/L



Fanny-Laure Thomassin M2

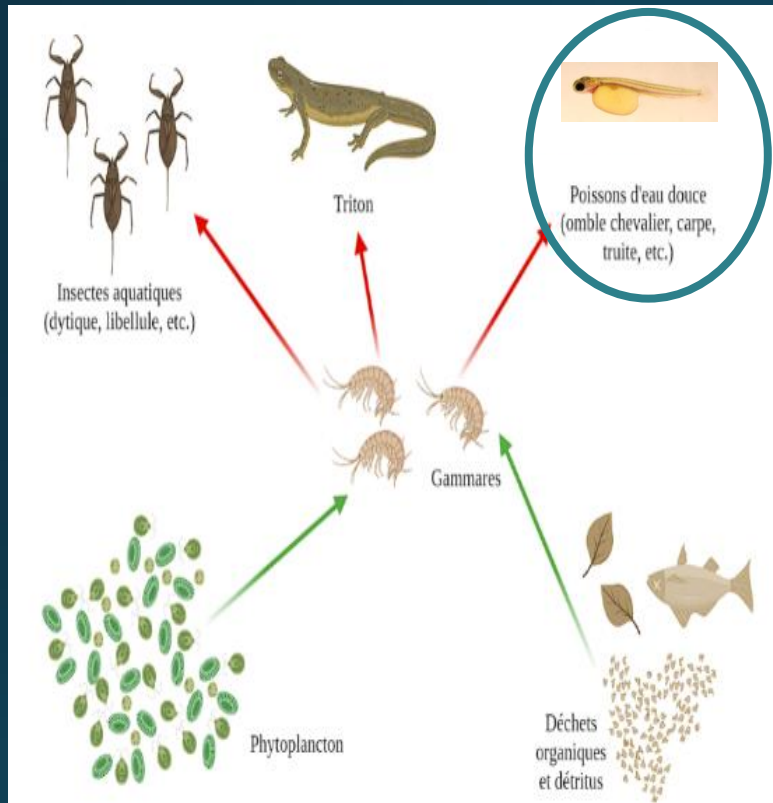
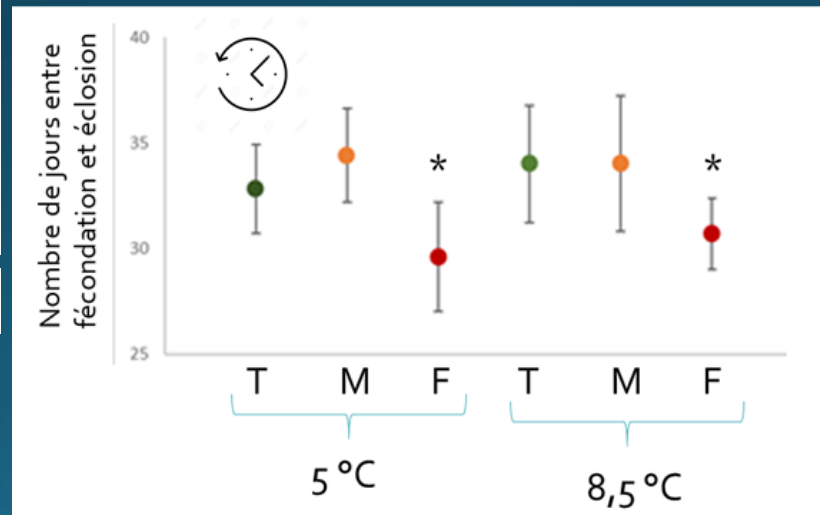
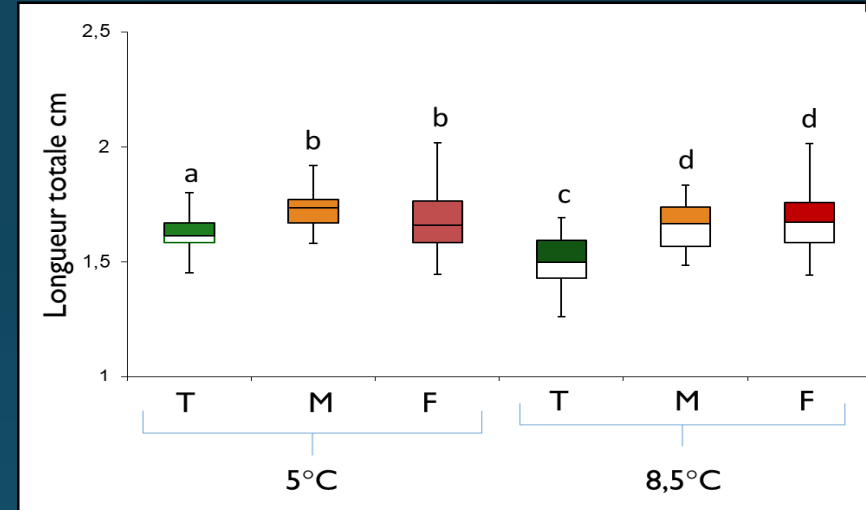
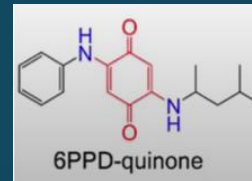


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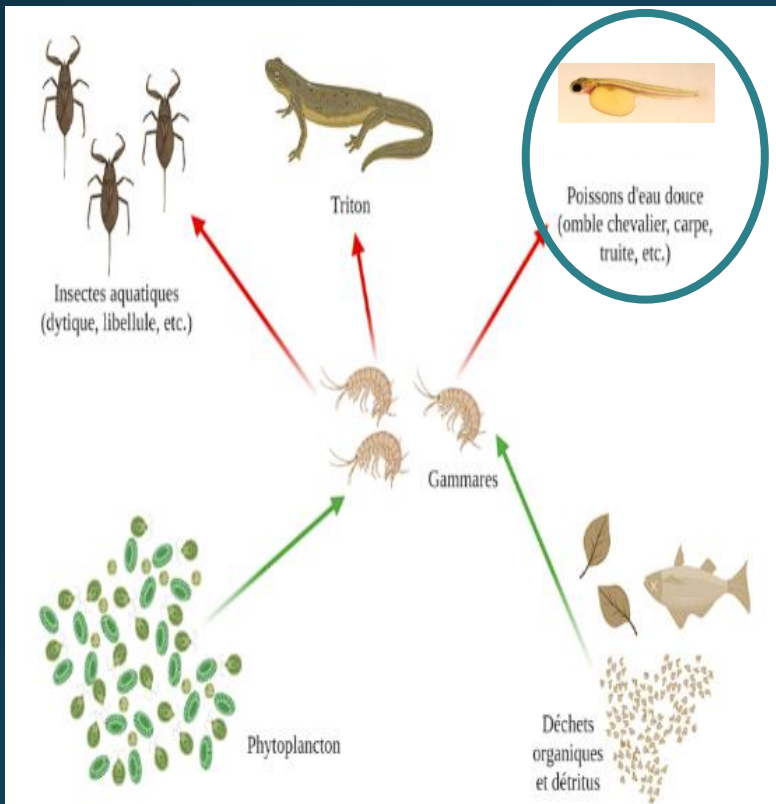
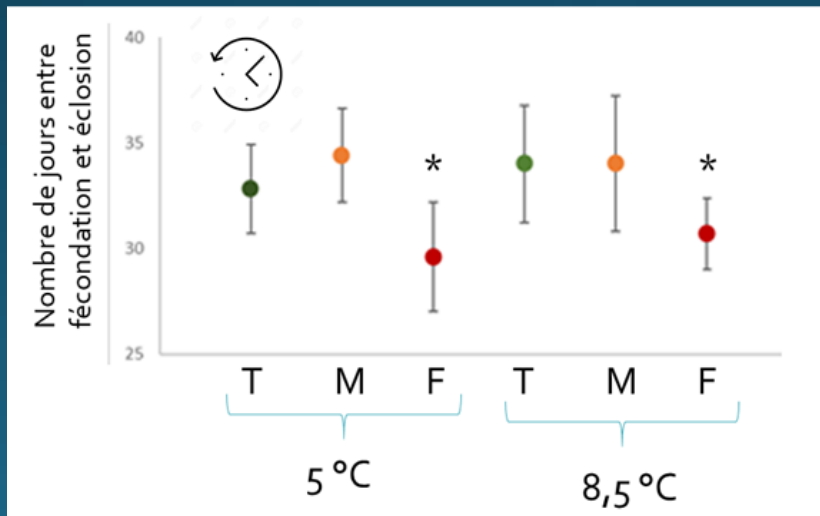
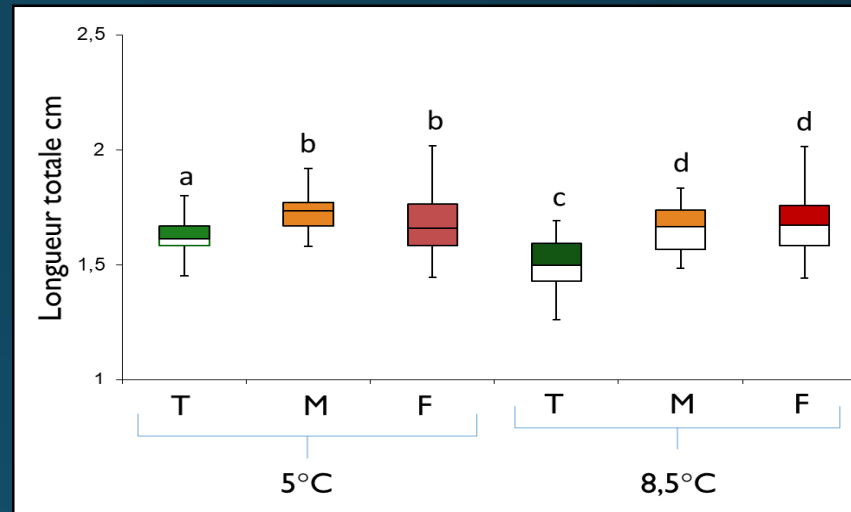
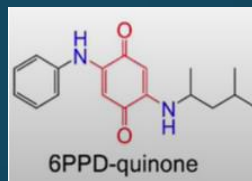


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X



+ 14 %
À 3µg/L 8,5°C



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Alexis Golven M1

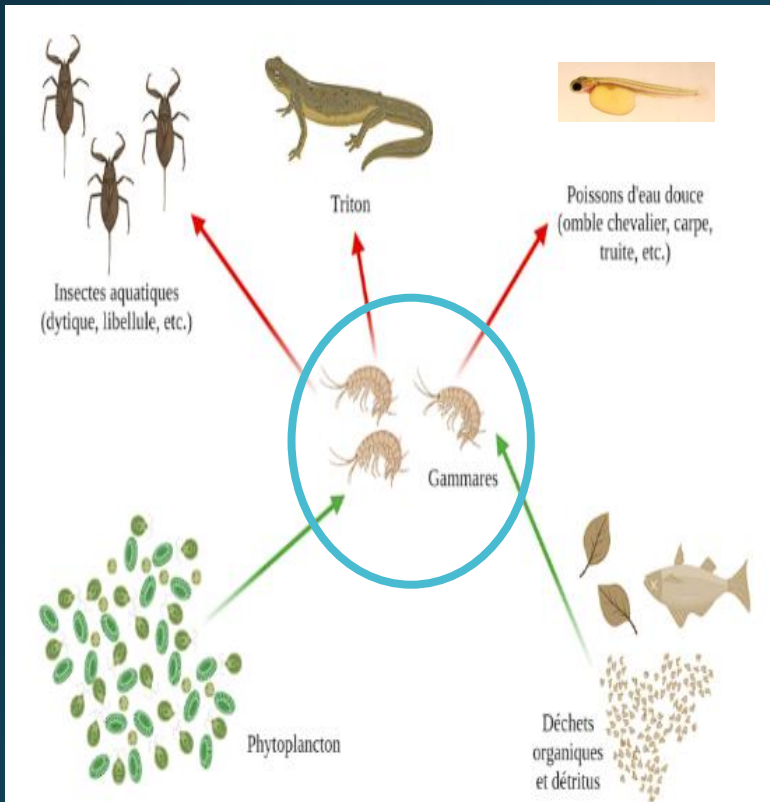
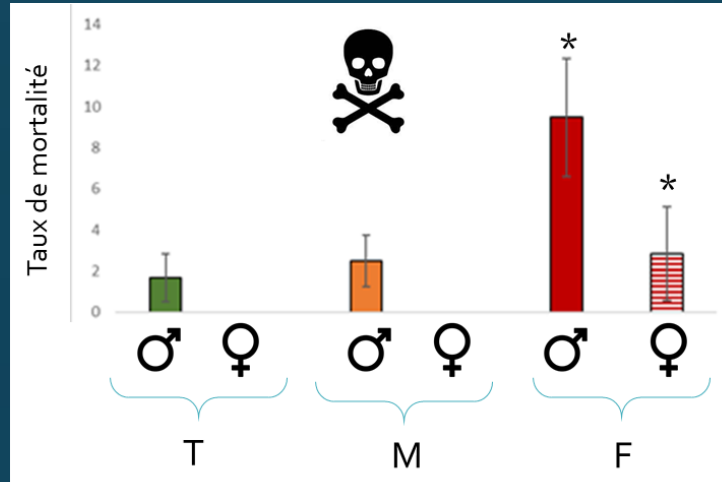


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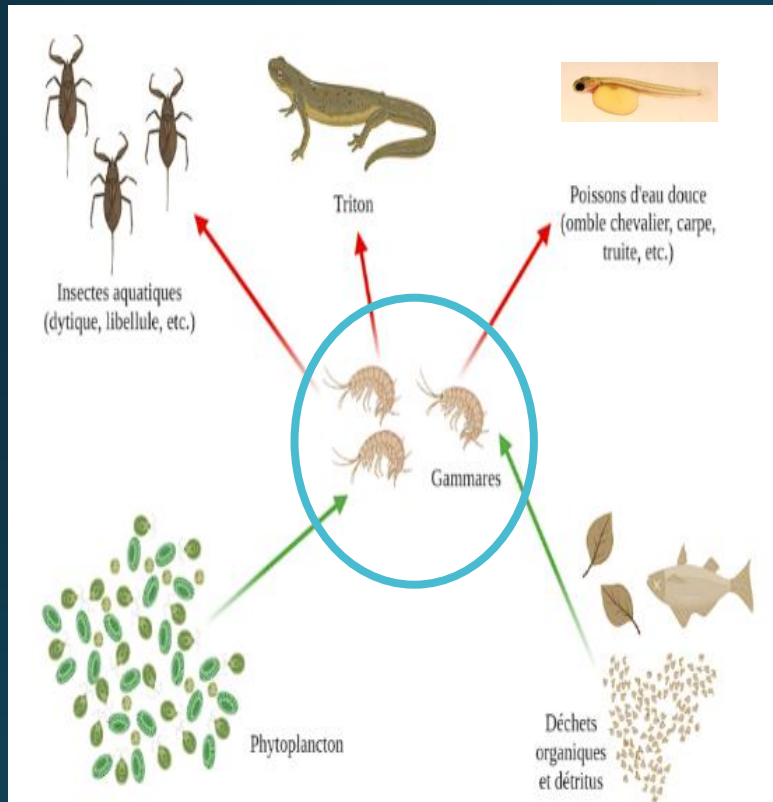
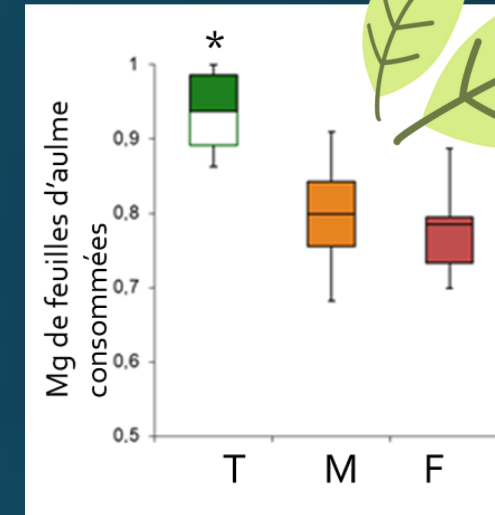
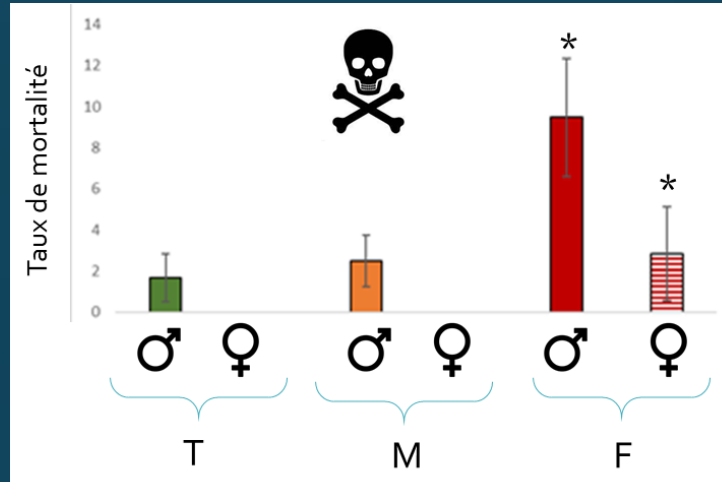


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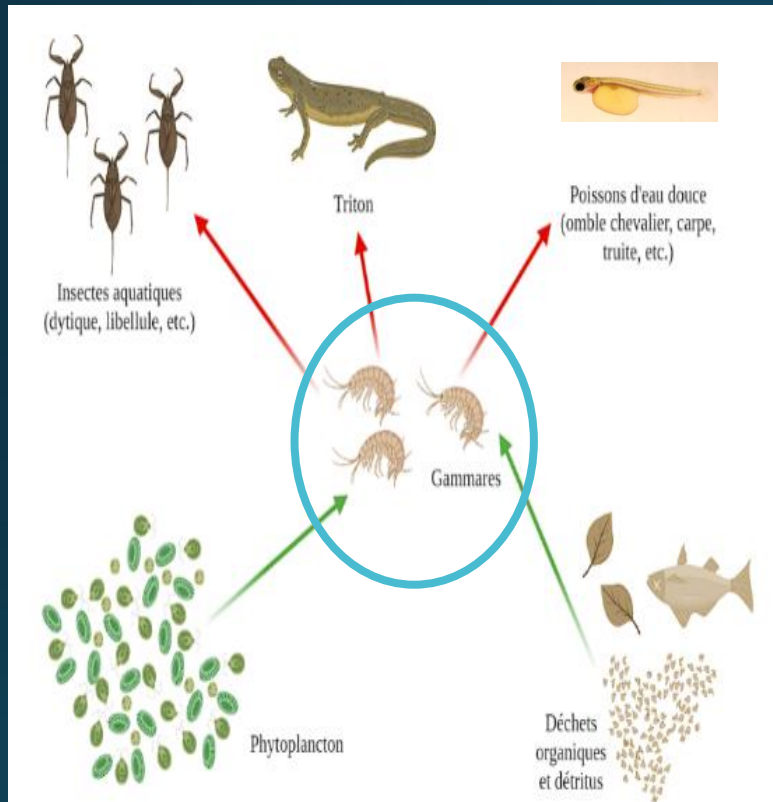
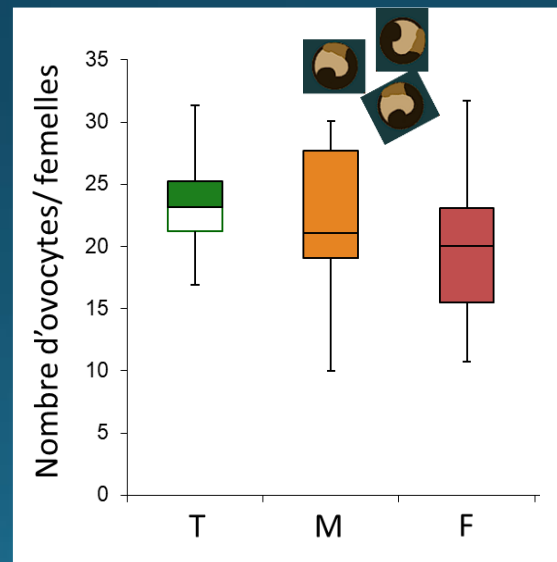
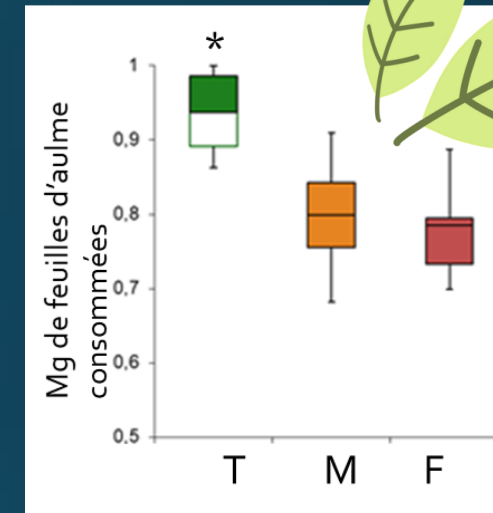
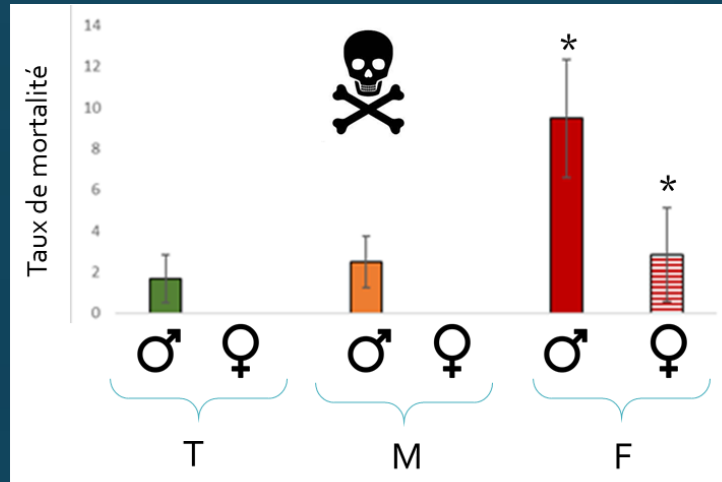


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Taille



Alexis Golven M1

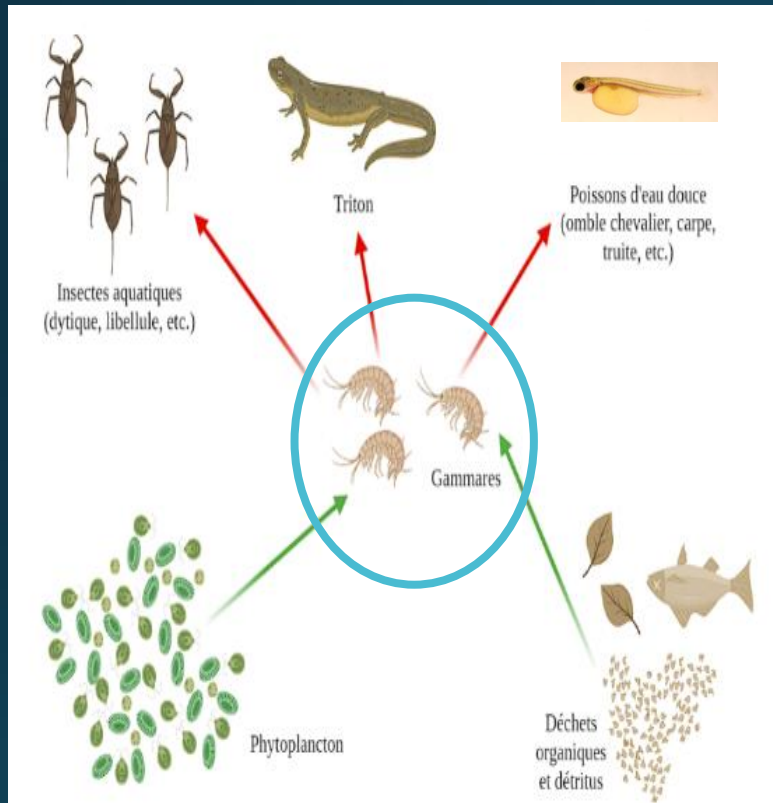
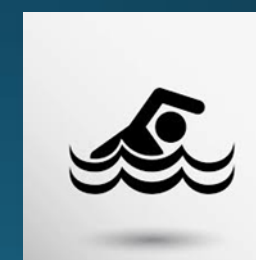
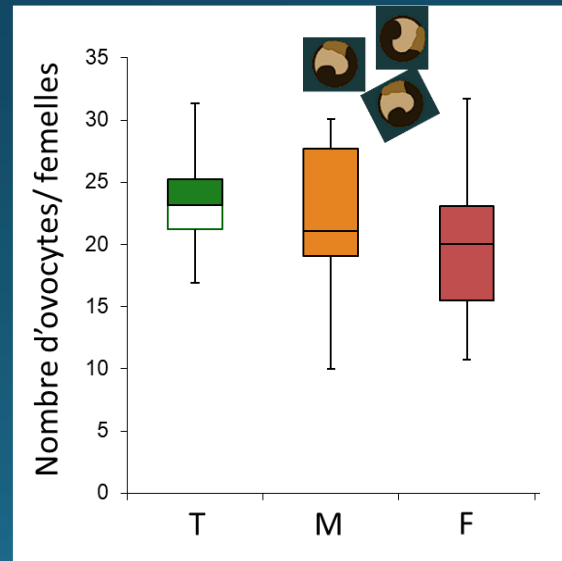
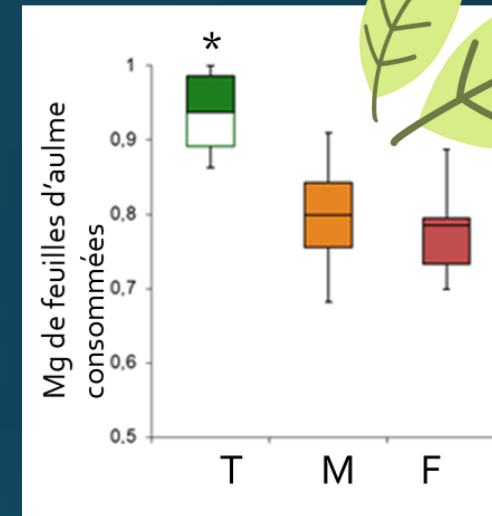
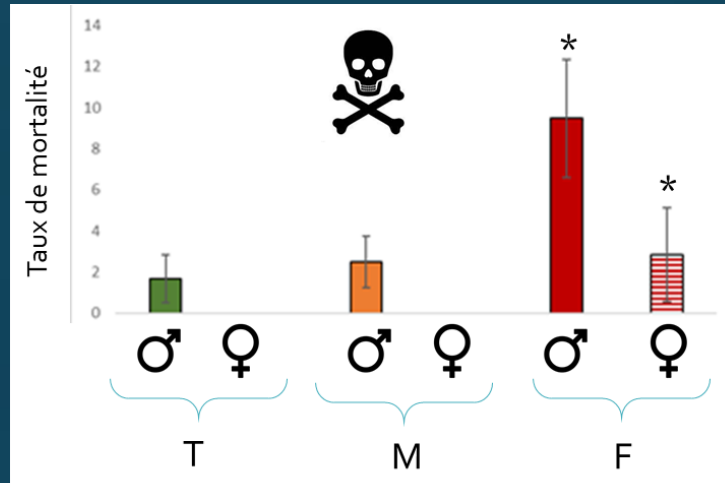


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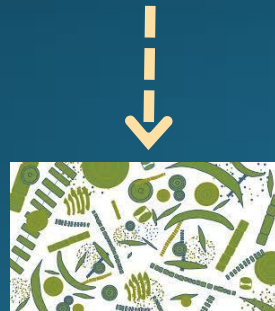
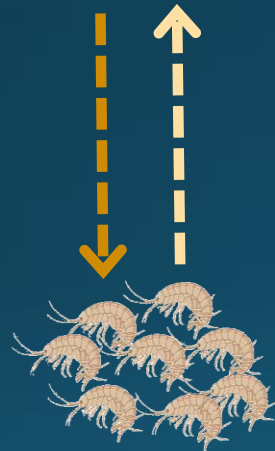
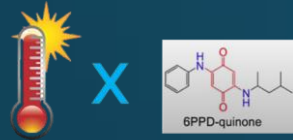
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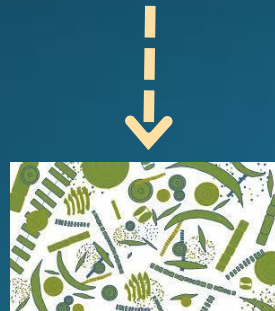
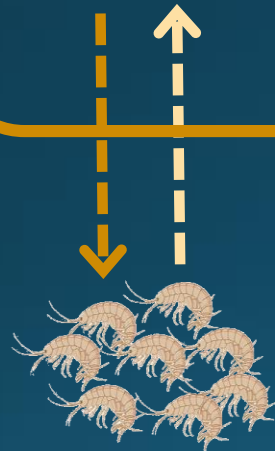
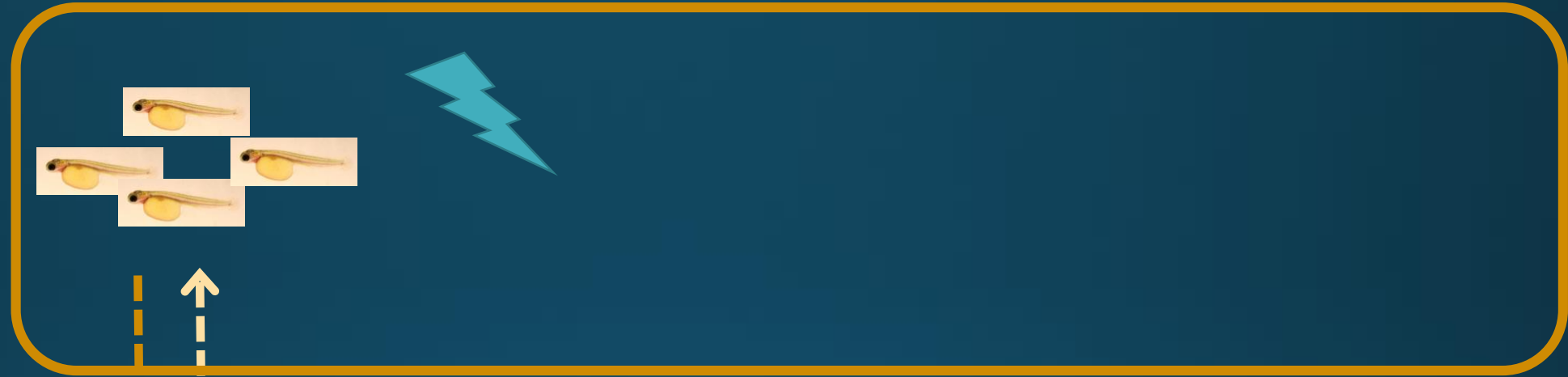
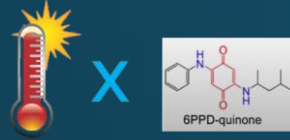


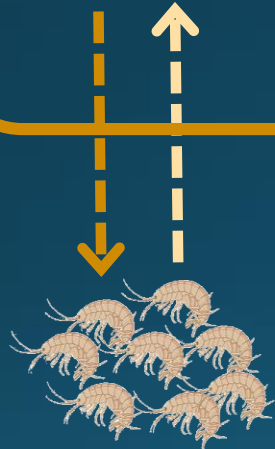
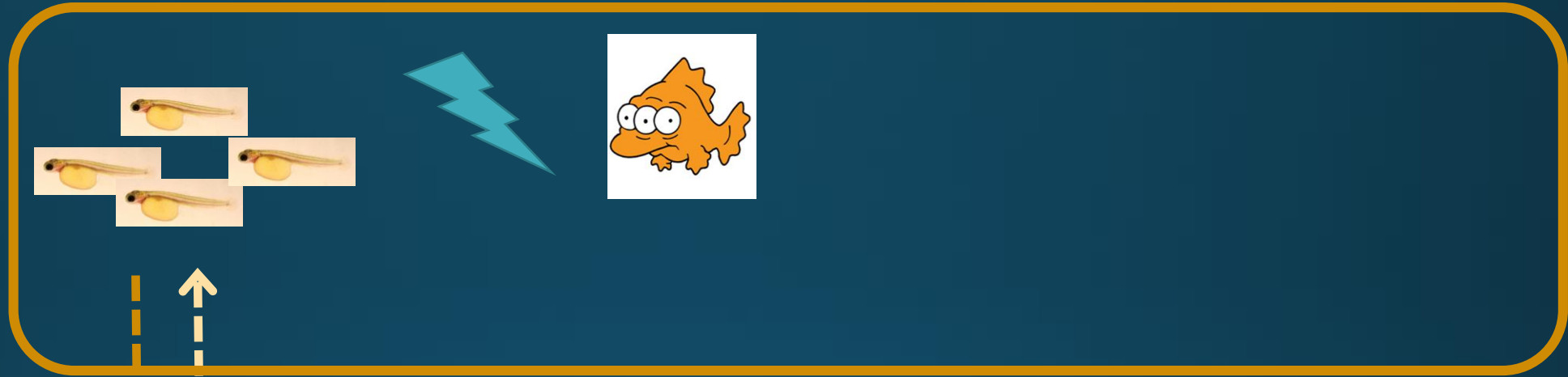
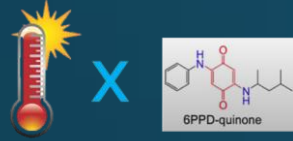
Diminution de l'activité à 1,5 µg/L

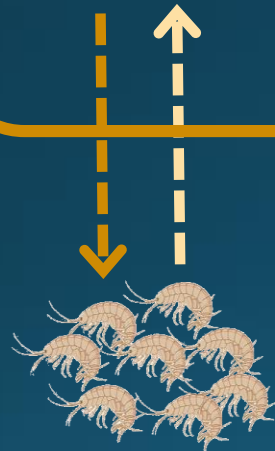
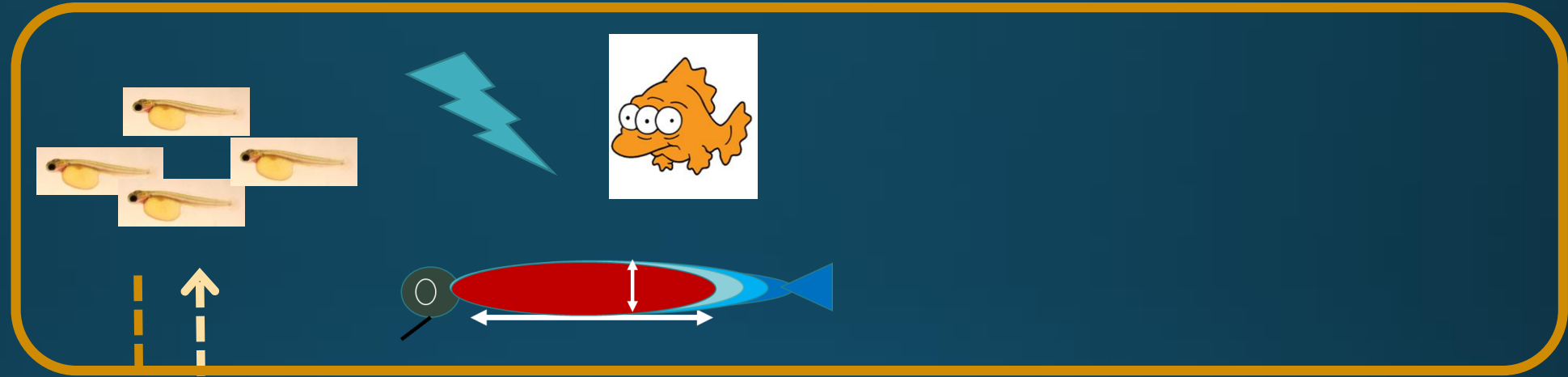
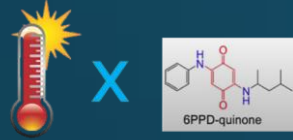


Regroupement des gammares à 1,5 µg/L









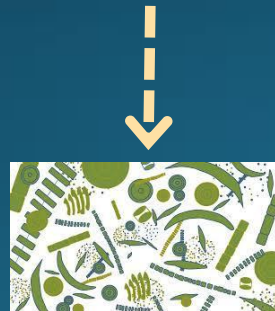
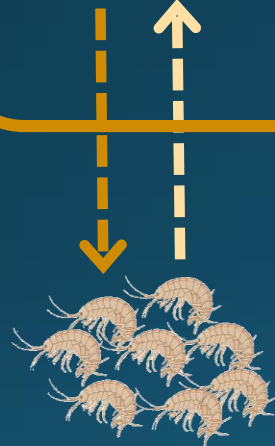
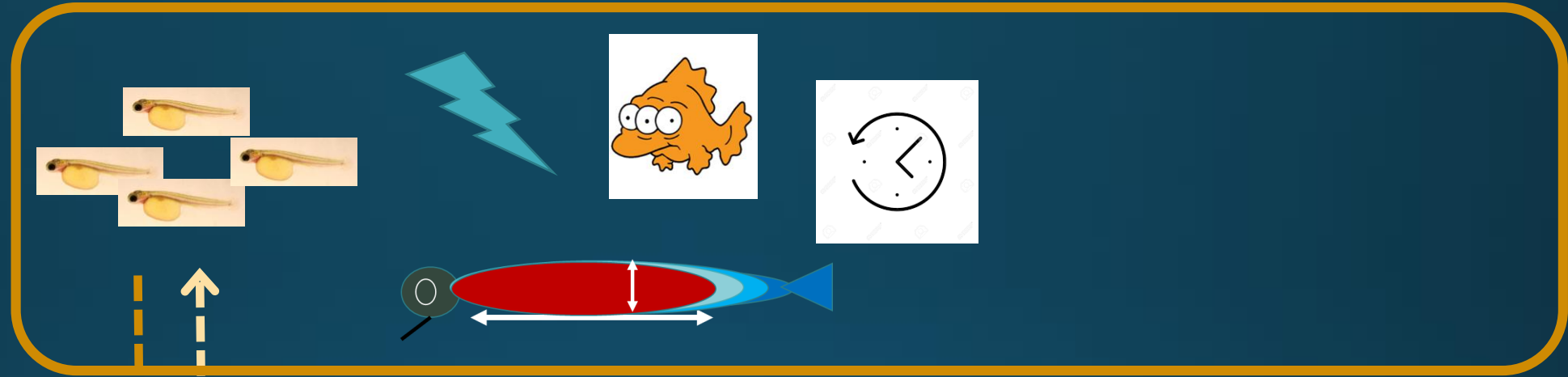
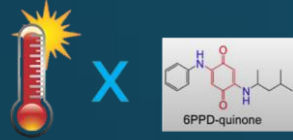
Contexte

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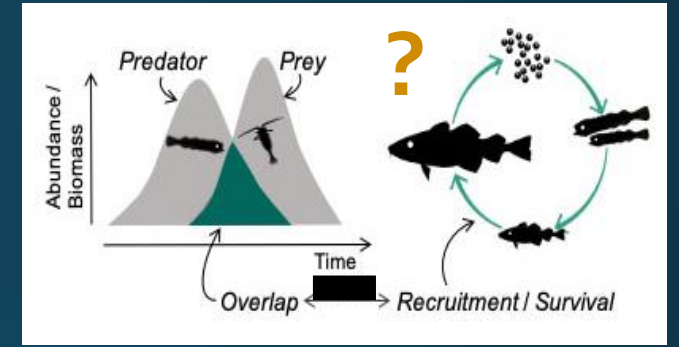
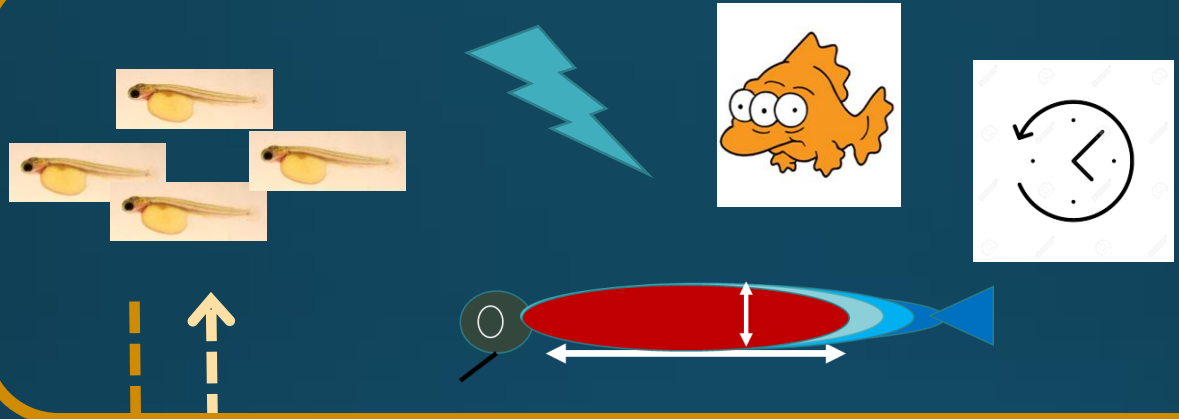
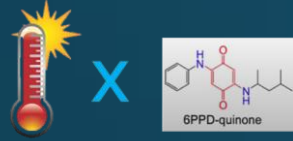
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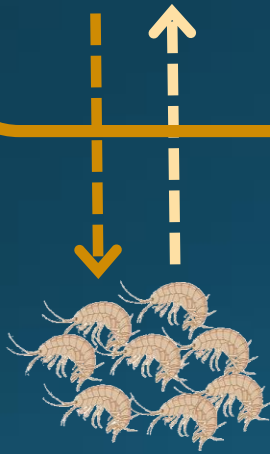
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By Sofia Ferreira

PNR? Match-mismatch ?



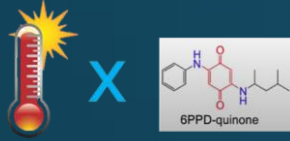
Contexte

Objectif

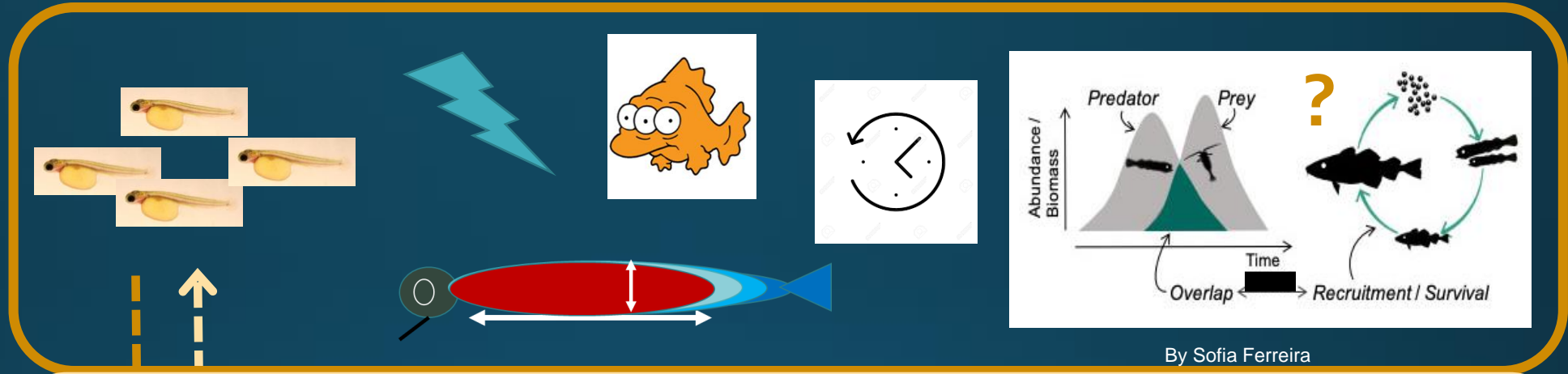
Matériel & méthode

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PNR? Match-mismatch ?



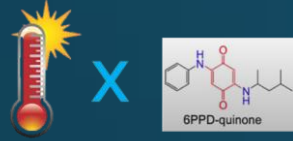
Contexte

Objectif

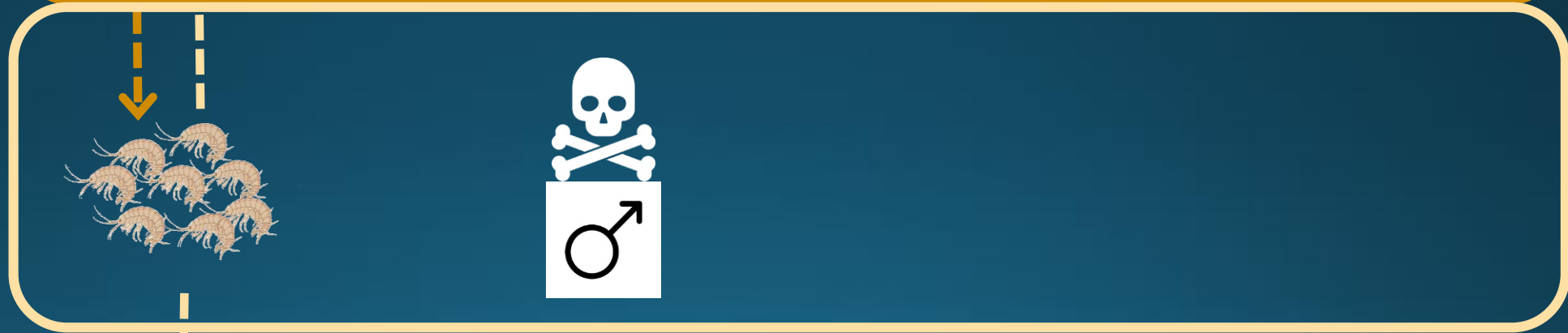
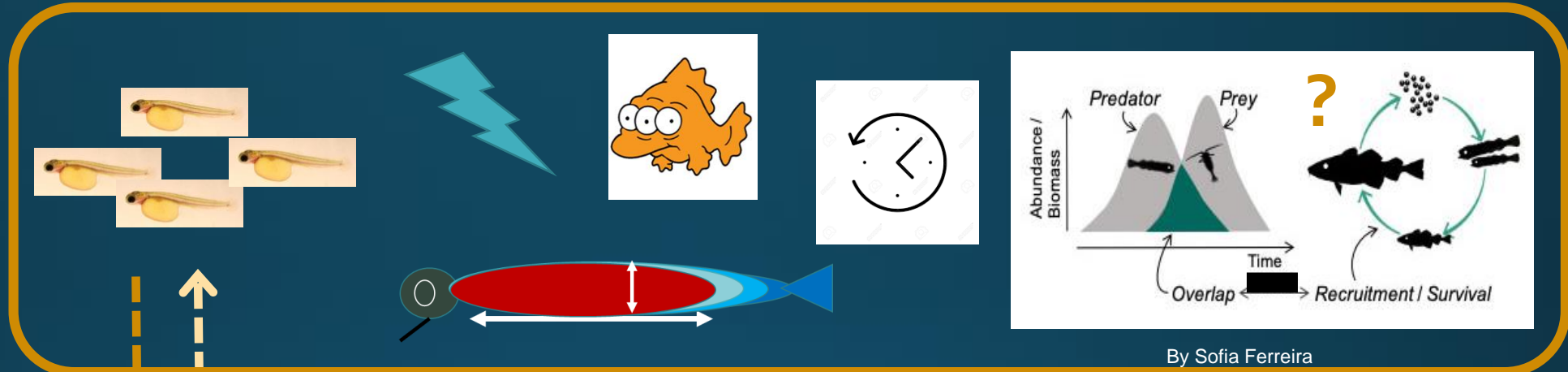
Matériel & méthode

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PNR? Match-mismatch ?



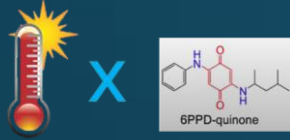
Contexte

Objectif

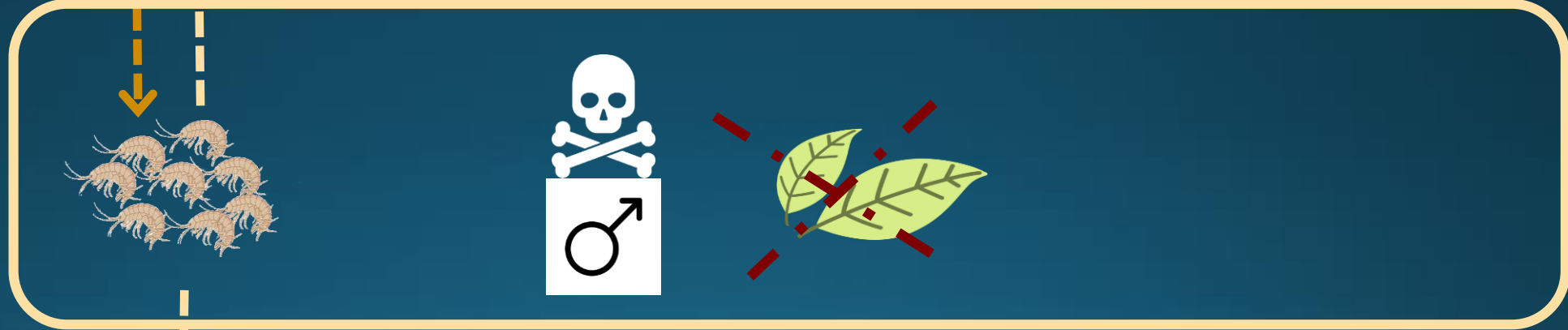
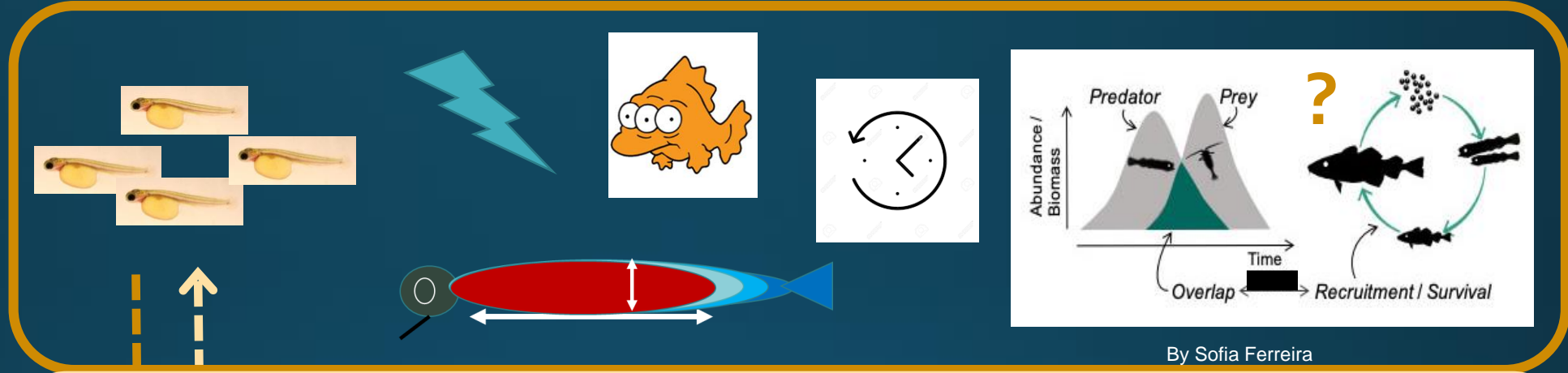
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PNR? Match-mismatch ?



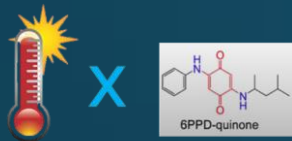
Contexte



Objectif

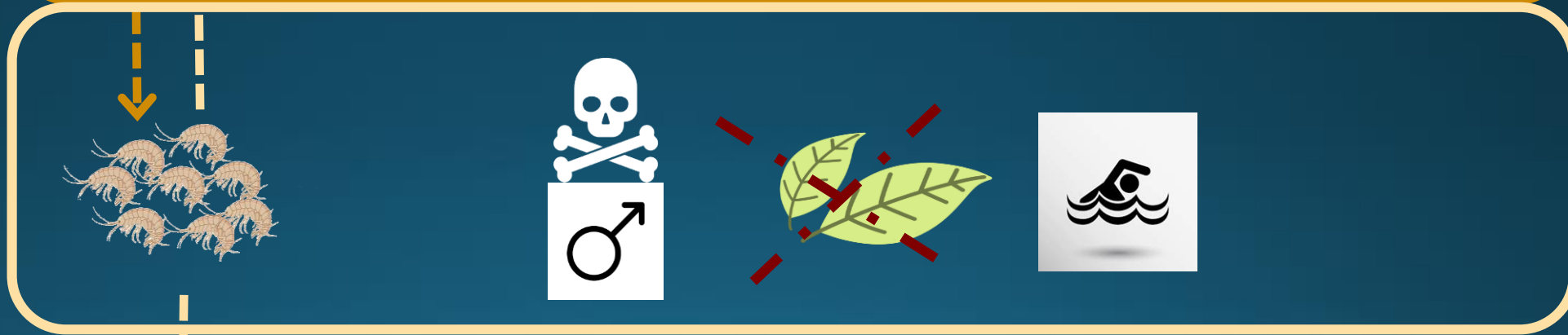
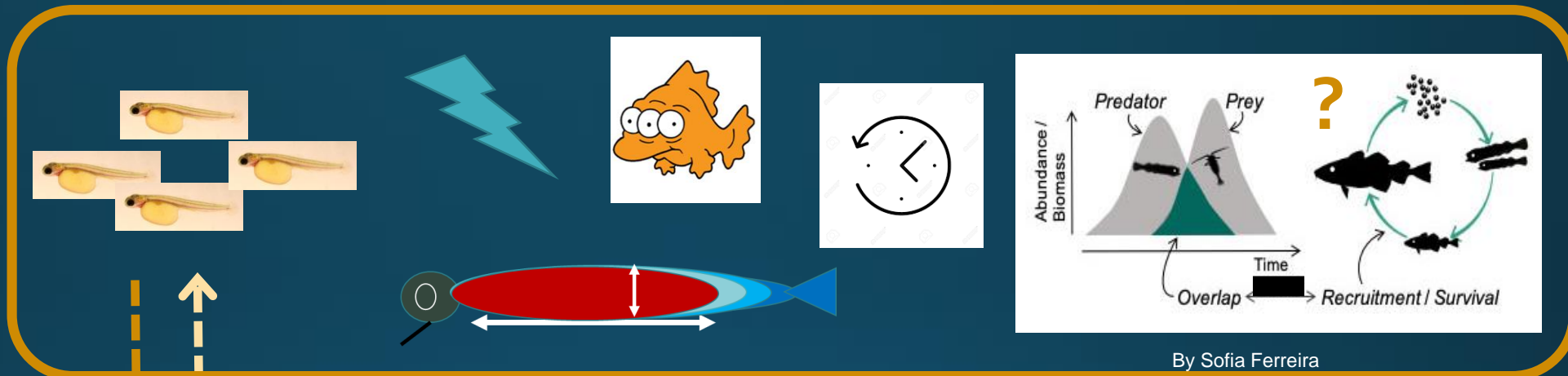
PNR? Match-mismatch ?

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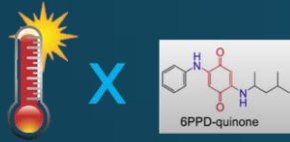
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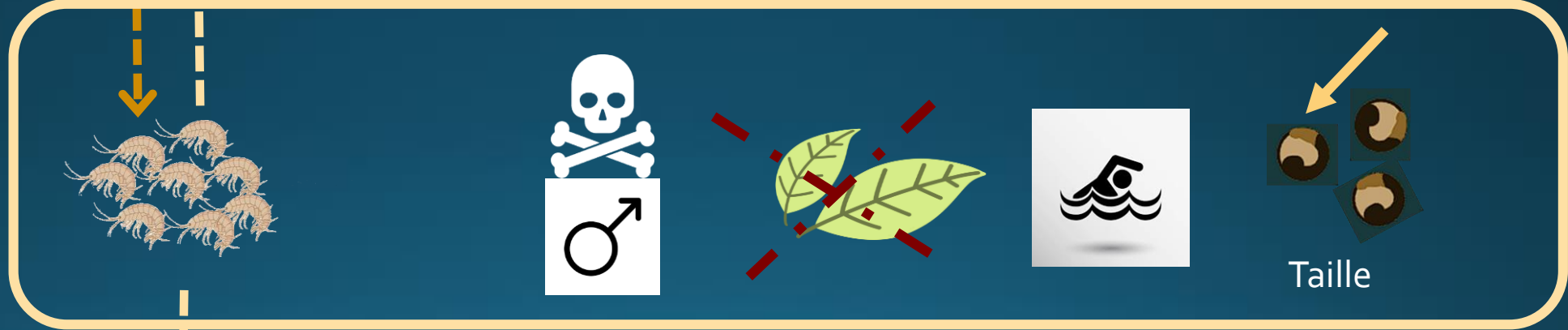
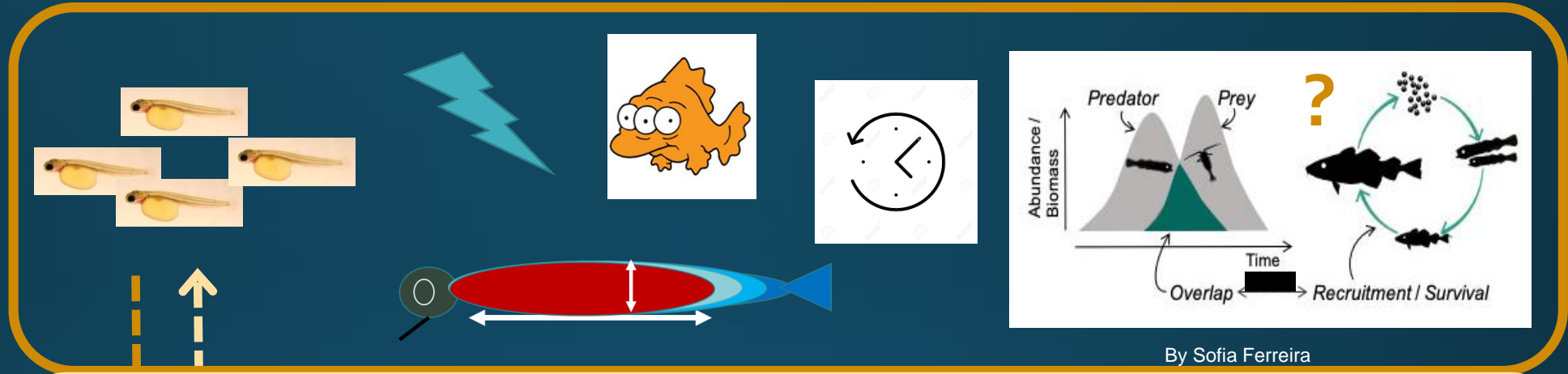
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PNR? Match-mismatch ?



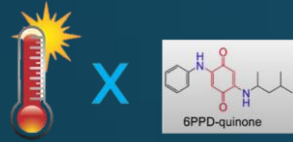
Contexte

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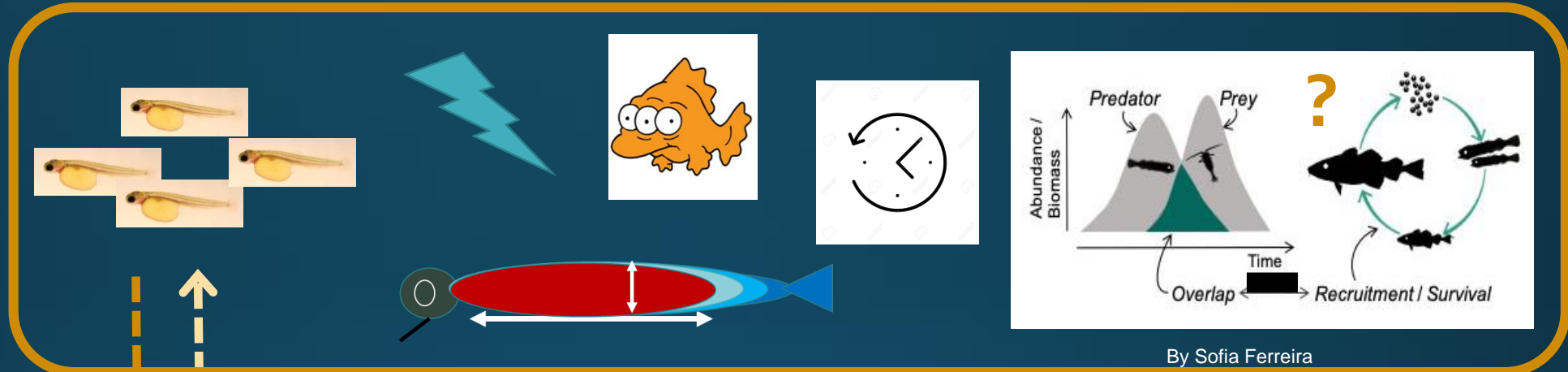
Matériel & méthode

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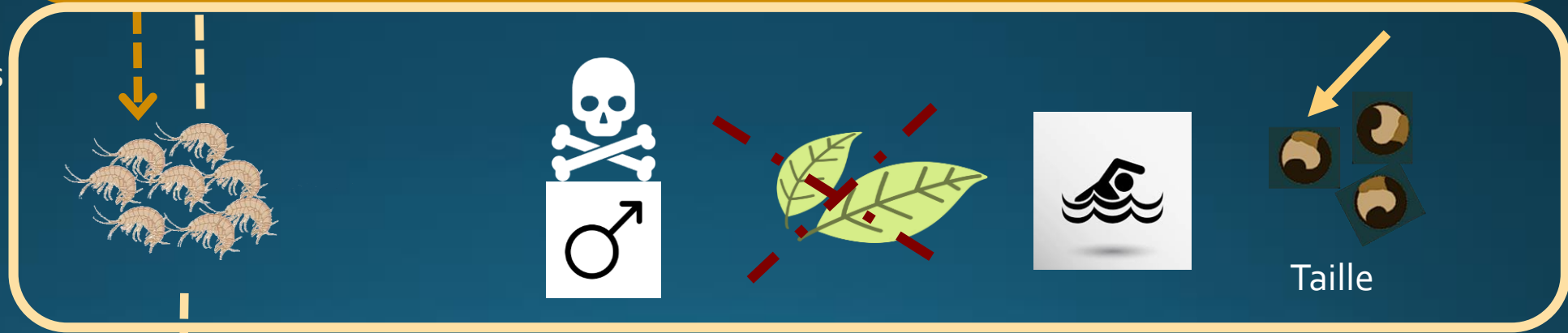
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PNR? Match-mismatch ?



Diminution nutrition des poissons et autres



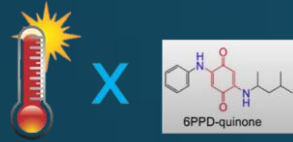
Contexte

Objectif

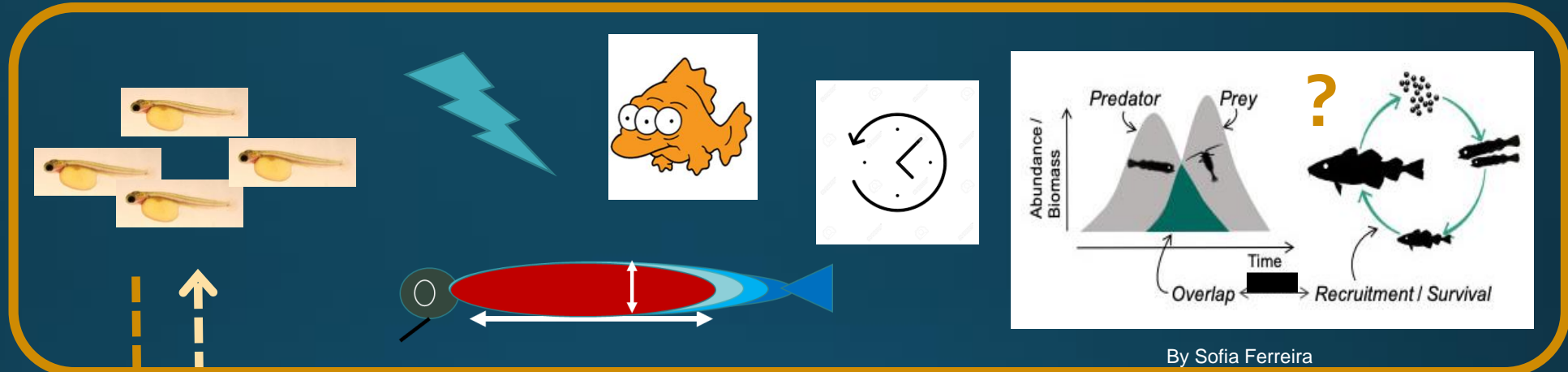
Matériel & méthode

Résultats & discussion

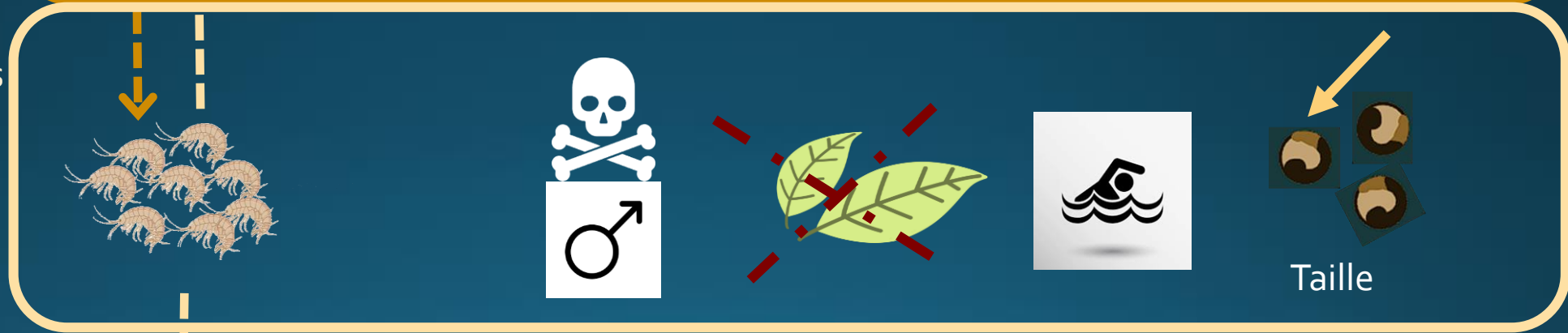
Conclusion



PNR? Match-mismatch ?



Diminution nutrition des poissons et autres



Diminution de la dégradation de la litière



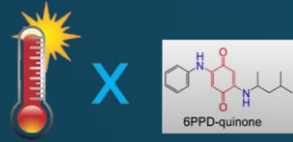
Contexte

Objectif

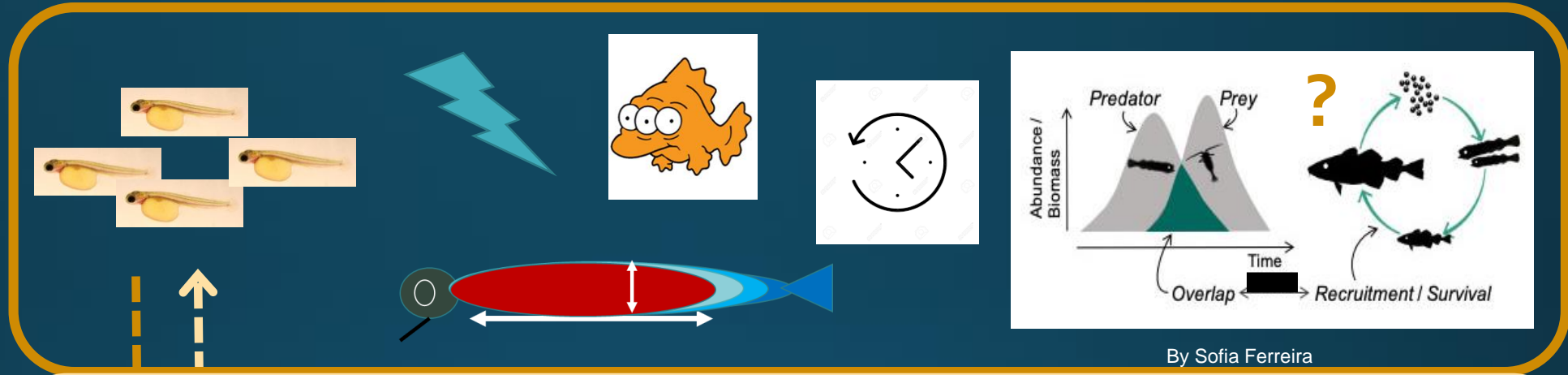
Matériel & méthode

Résultats & discussion

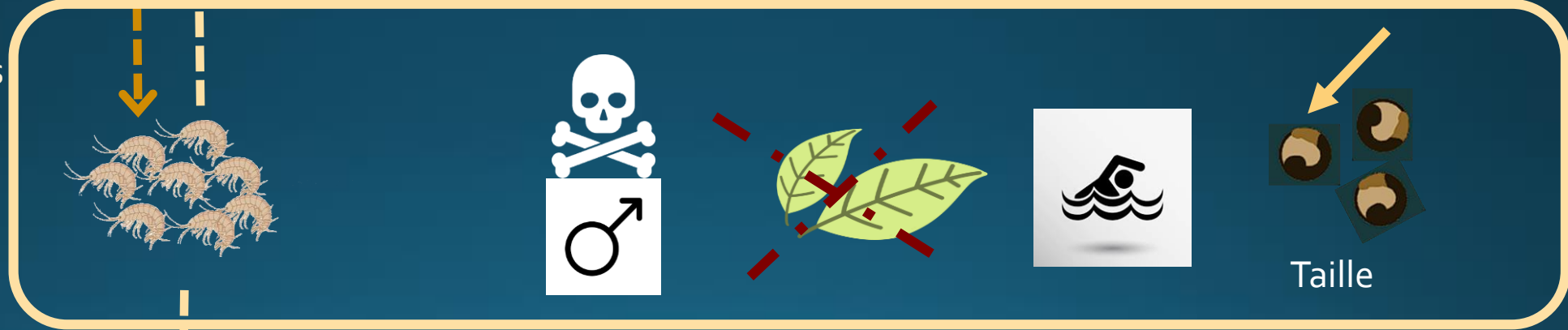
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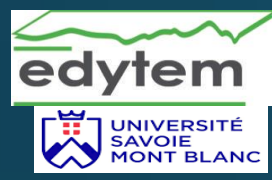
Diminution nutrition des poissons et autres



Diminution de la dégradation de la litière



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

