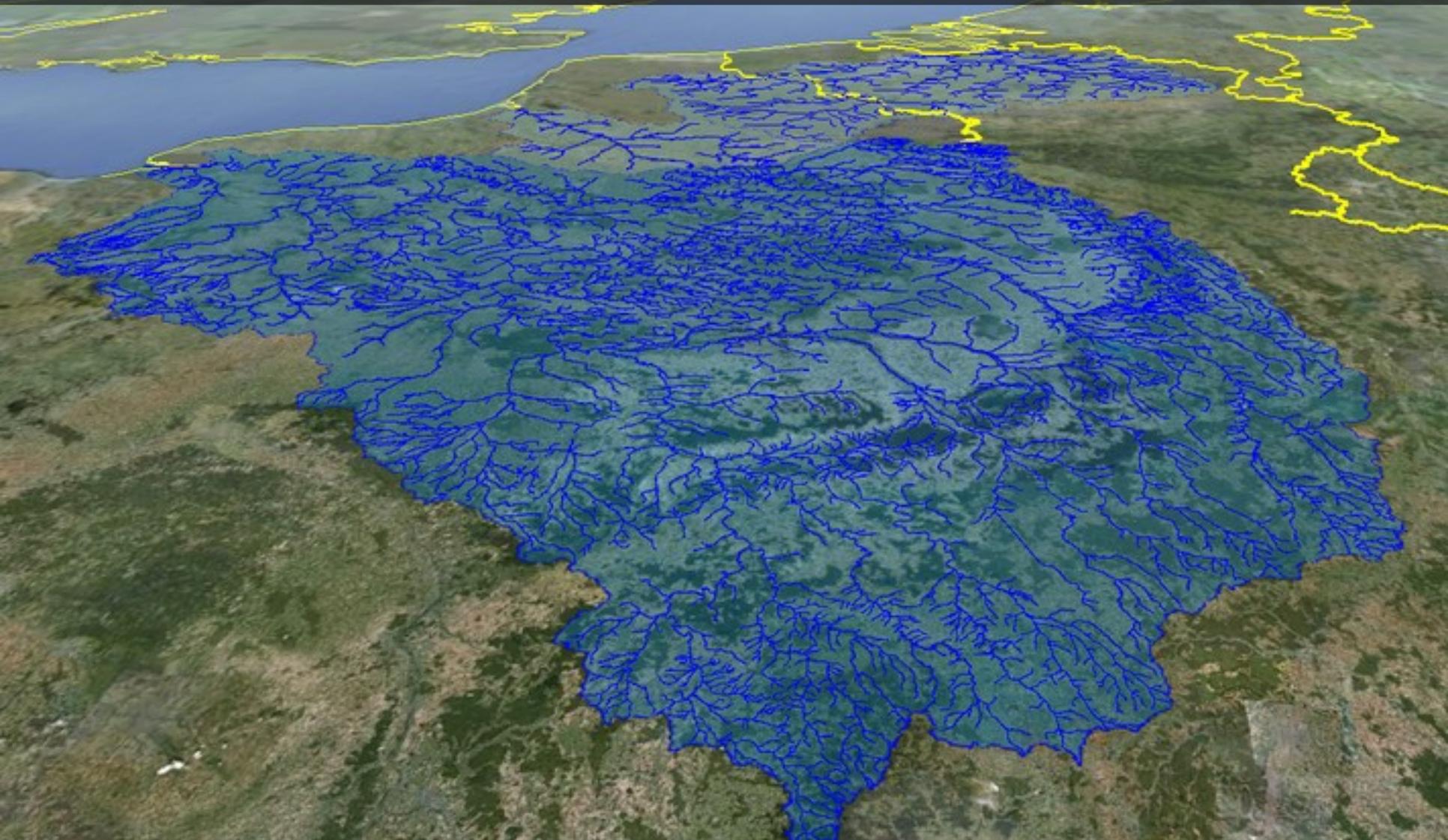


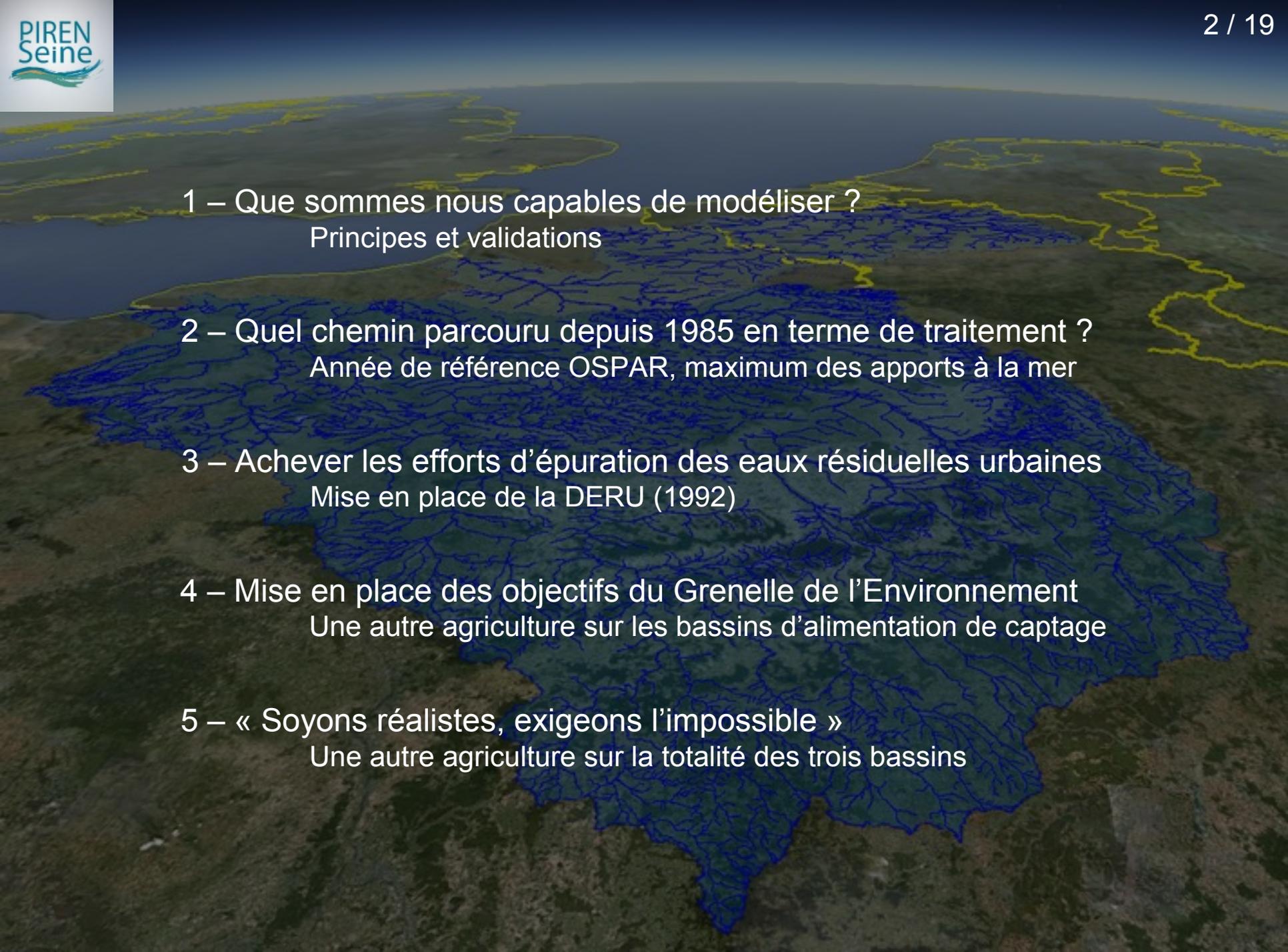


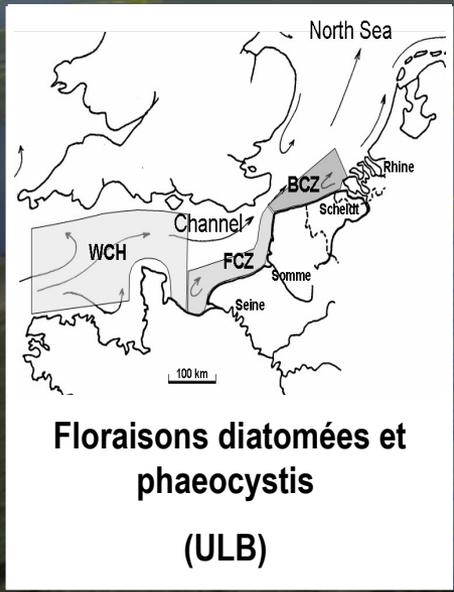
# Les apports de nutriments à la mer : de la Convention OSPAR au Grenelle de l'Environnement

PIREN 2011 - Paris, 7 - 8 - 9 février 2011



P.Passy, J. Garnier, G. Billen, M. Silvestre, S. Théry, C. Lancelot, V. Rousseau, N. Gypens

- 
- An aerial photograph of a river basin, likely the Seine basin, with a dense network of blue lines representing the river system overlaid on a topographic map. The terrain is shown in shades of green and brown, indicating vegetation and elevation. The river network flows from the interior towards the coast.
- 1 – Que sommes nous capables de modéliser ?  
Principes et validations
  - 2 – Quel chemin parcouru depuis 1985 en terme de traitement ?  
Année de référence OSPAR, maximum des apports à la mer
  - 3 – Achever les efforts d'épuration des eaux résiduelles urbaines  
Mise en place de la DERU (1992)
  - 4 – Mise en place des objectifs du Grenelle de l'Environnement  
Une autre agriculture sur les bassins d'alimentation de captage
  - 5 – « Soyons réalistes, exigeons l'impossible »  
Une autre agriculture sur la totalité des trois bassins



Floraisons diatomées et phaeocystis (ULB)

**Modèle écologique RS-MIRO**

**MIRO**



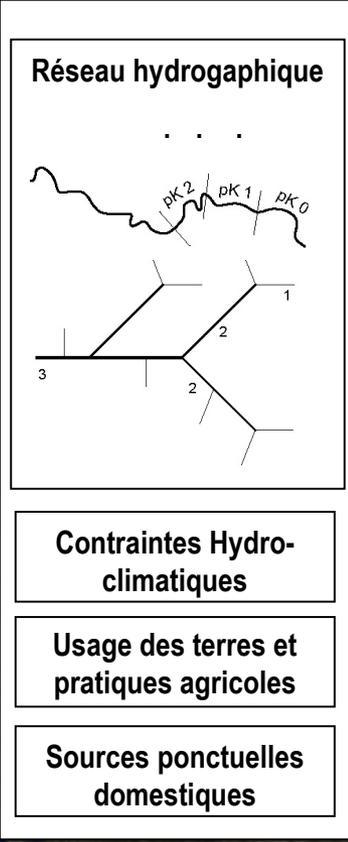
Qualité de l'eau dans le réseau hydrographique

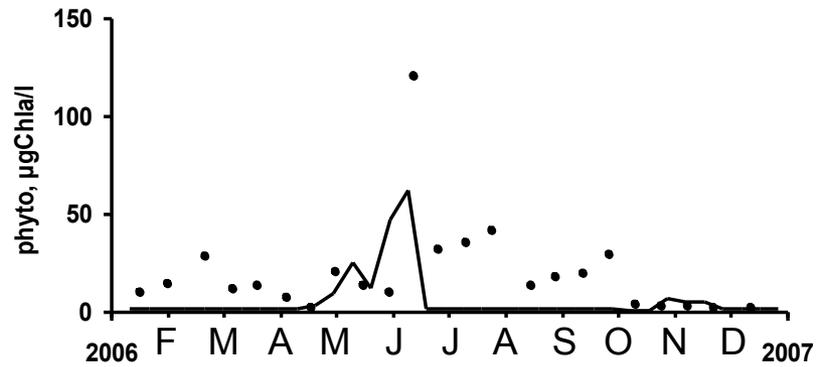
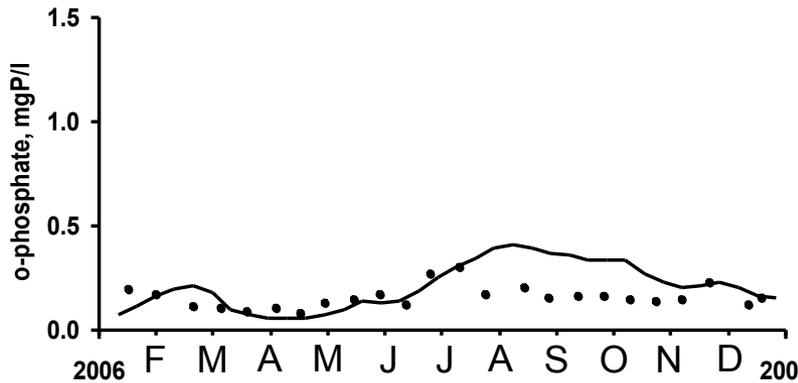
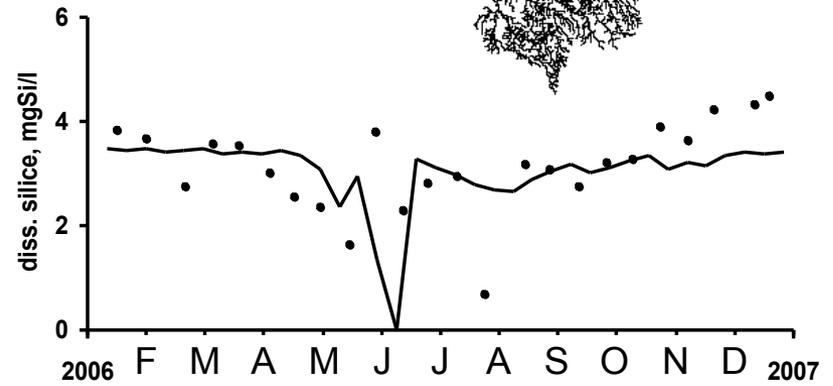
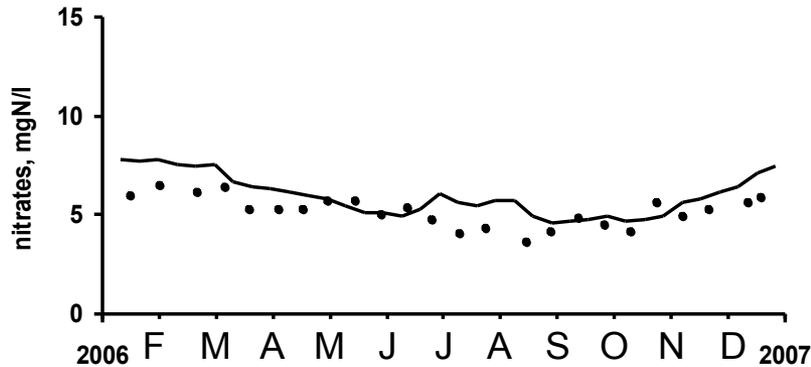
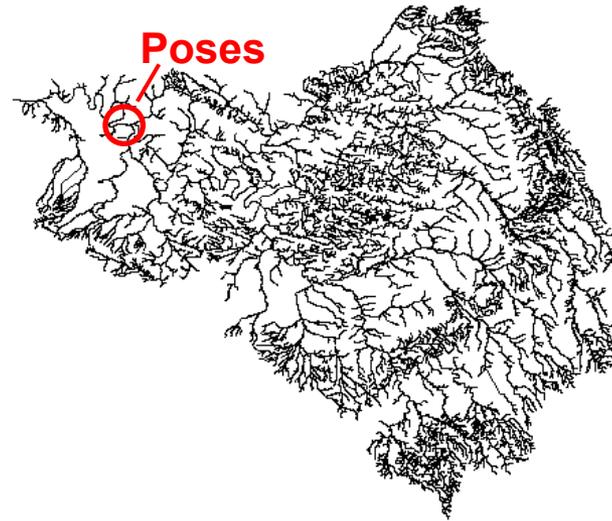
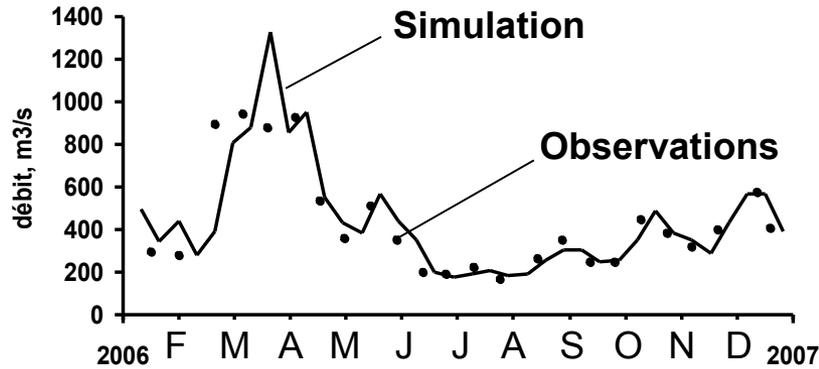
Flux N, P, Si des fleuves à la mer -> ICEP

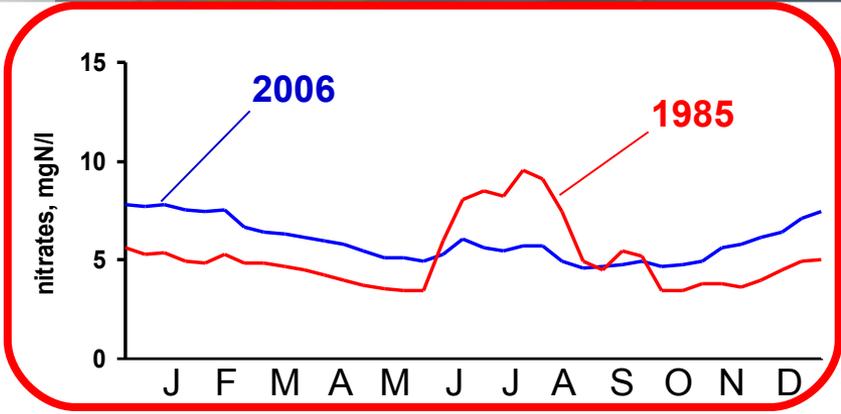
Représentation des processus écologiques dans les systèmes aquatiques

**Modèle Senèque-Riverstrahler**

**RIVE**

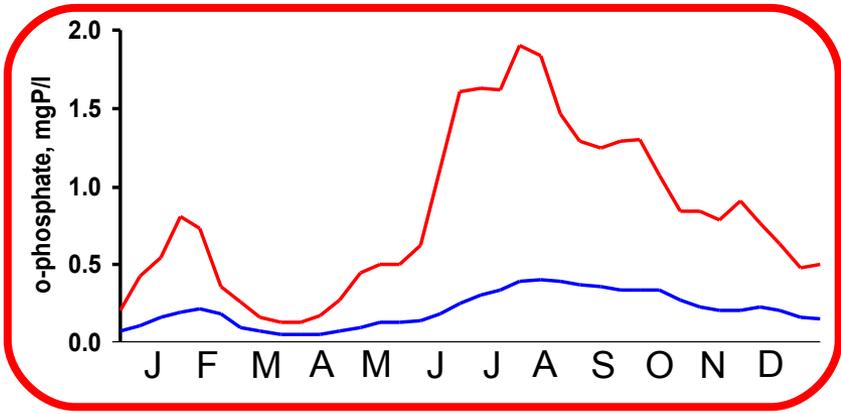




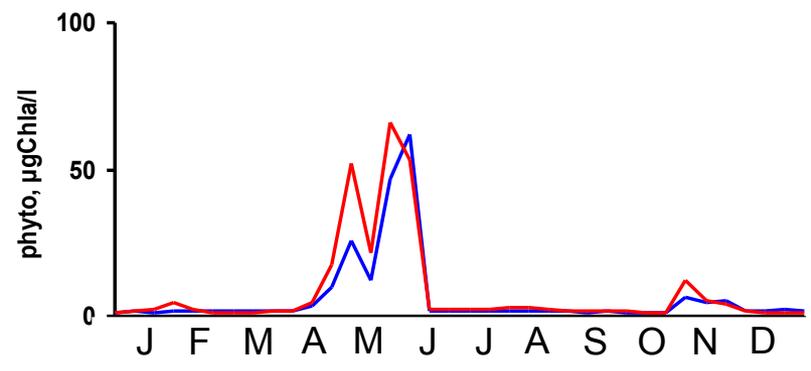
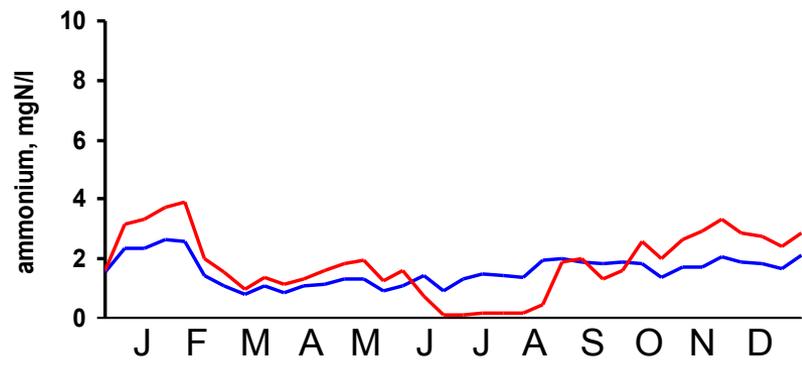
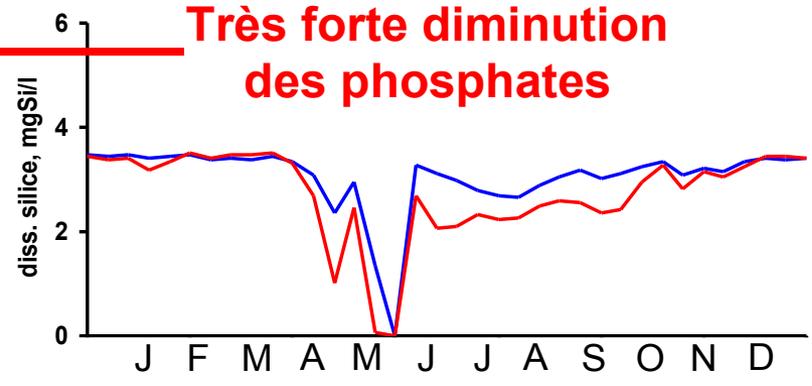


**Augmentation des nitrates**

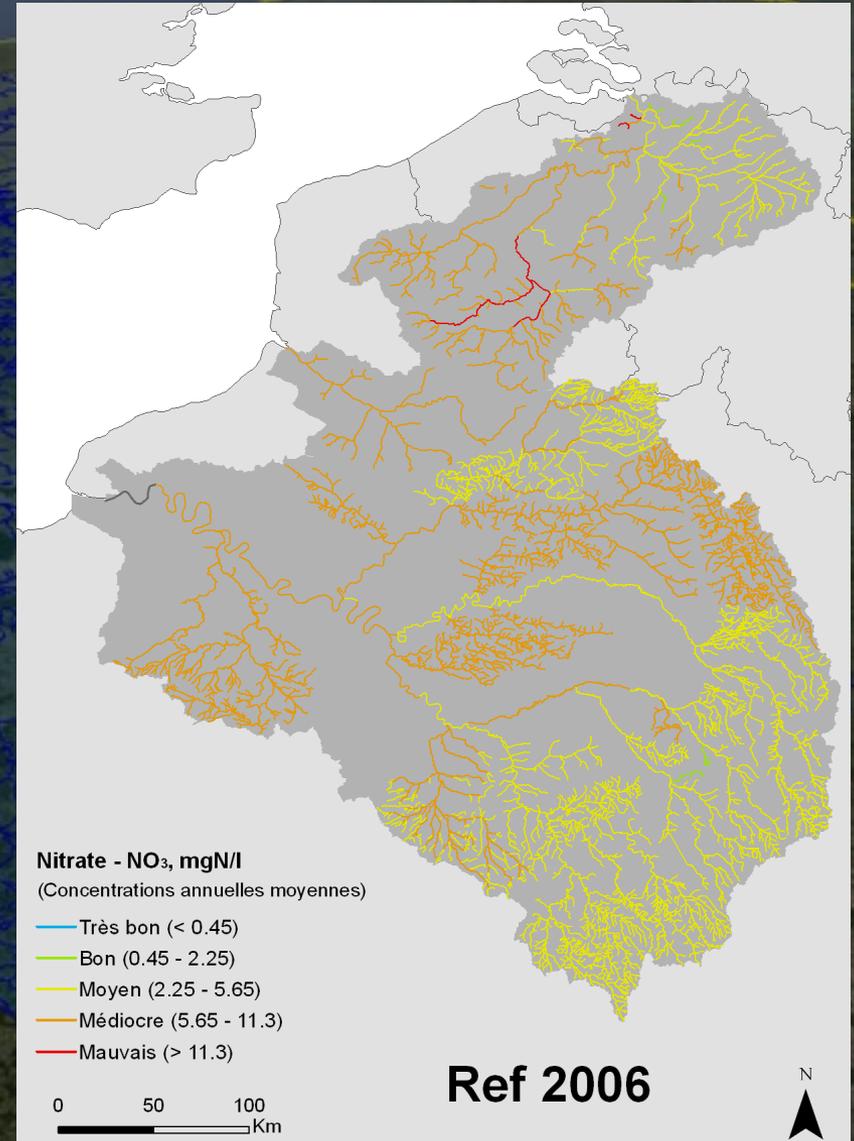
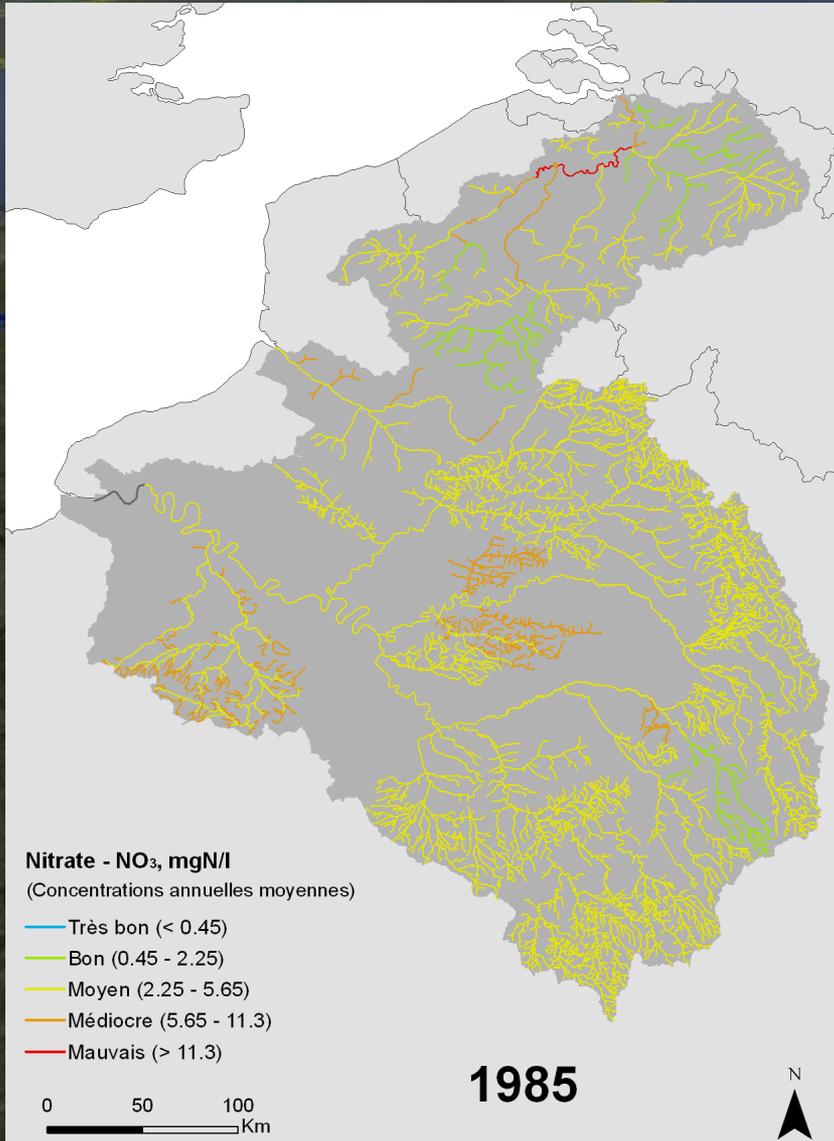
**Comparaison  
1985 - 2006**



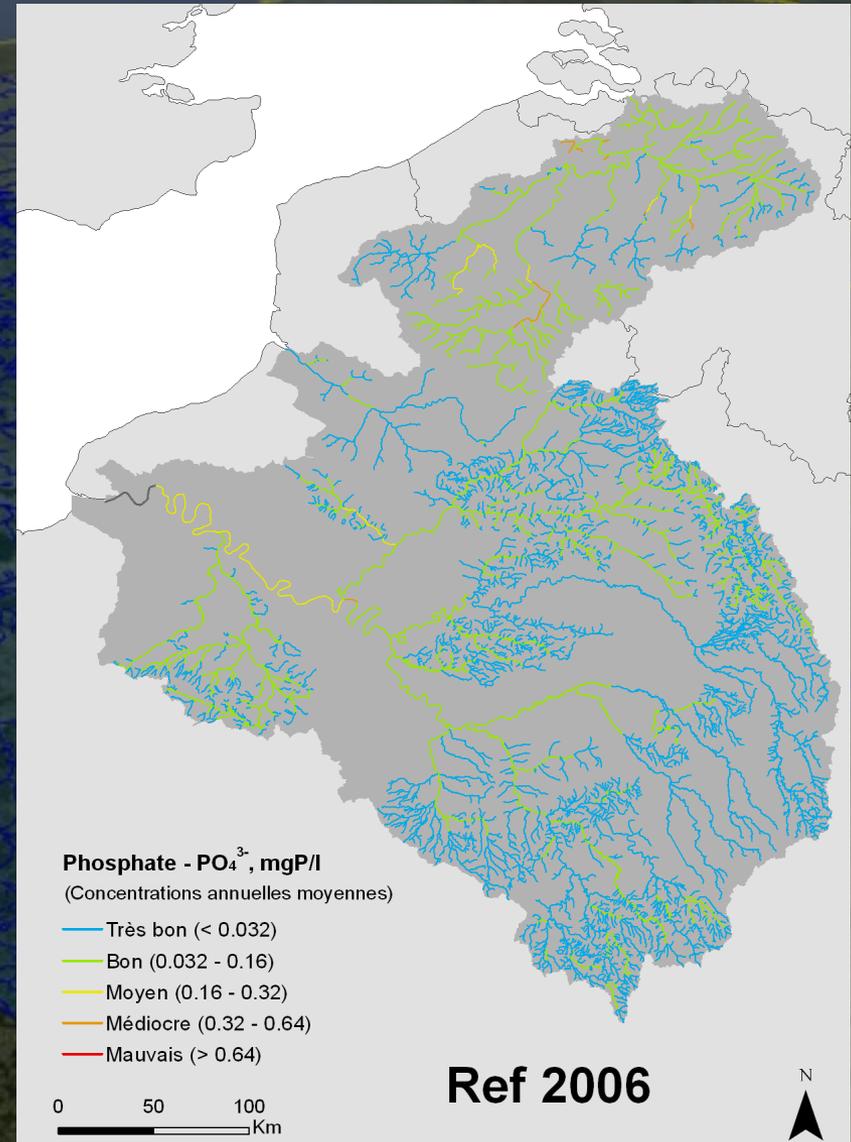
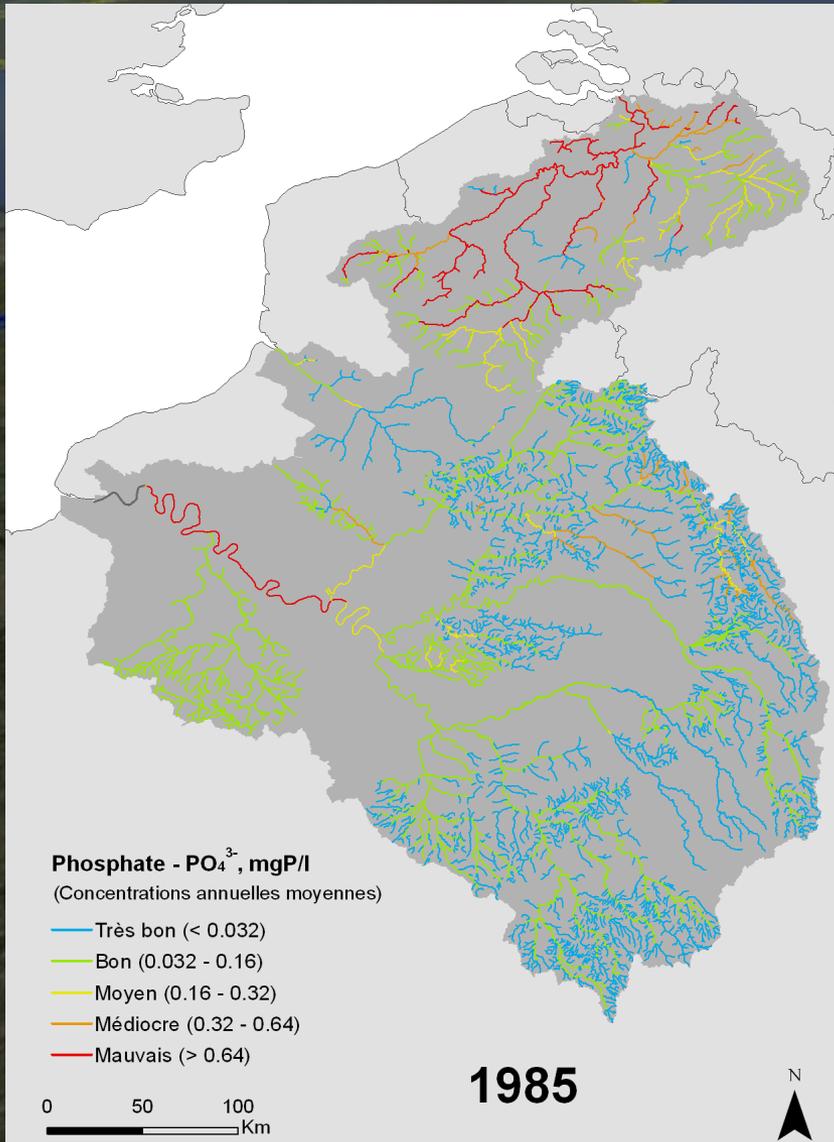
**Très forte diminution  
des phosphates**

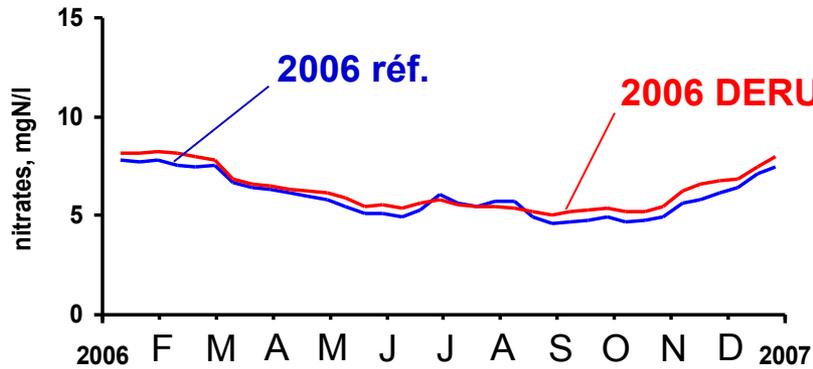


## Évolution entre 1985 et 2006 vis-à-vis des **nitrates** dans le réseau hydrographique

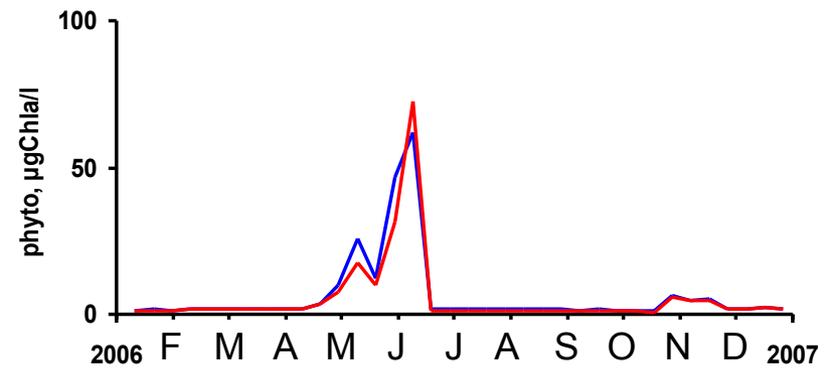
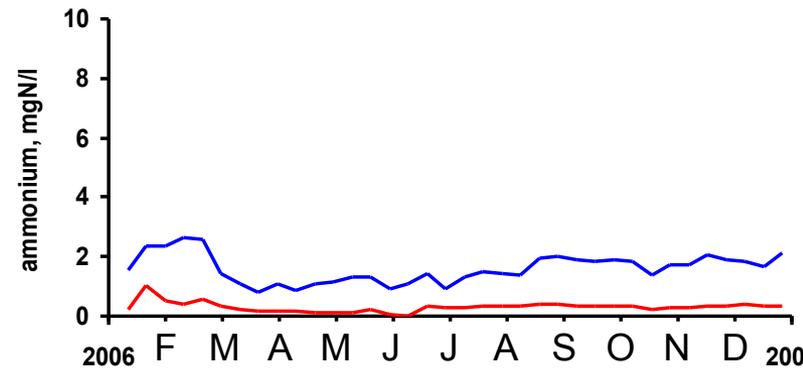
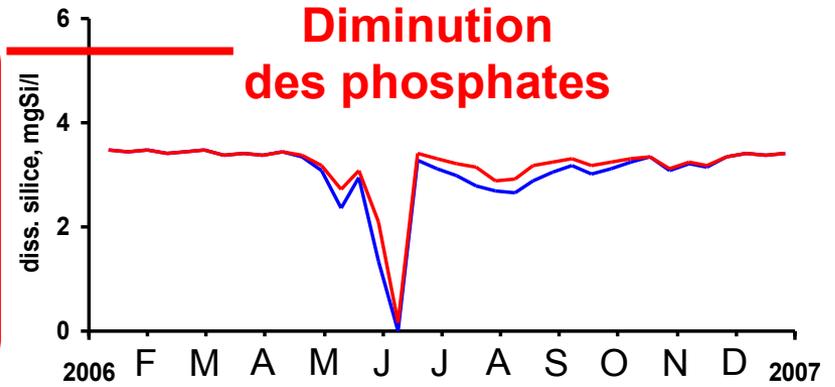
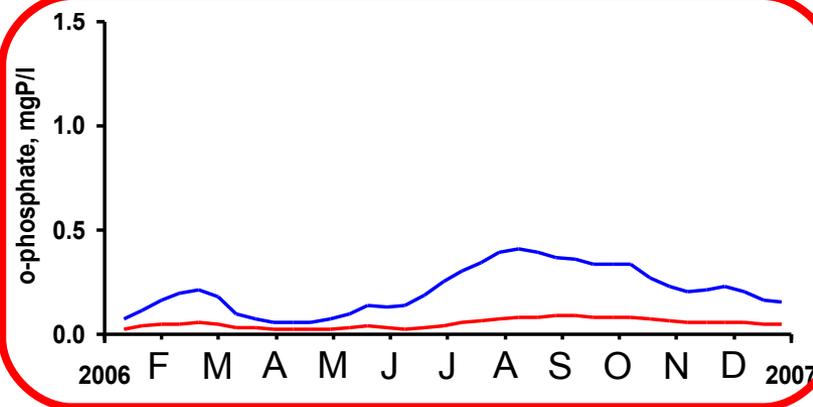


## Évolution entre 1985 et 2006 vis-à-vis des **phosphates** dans le réseau hydrographique

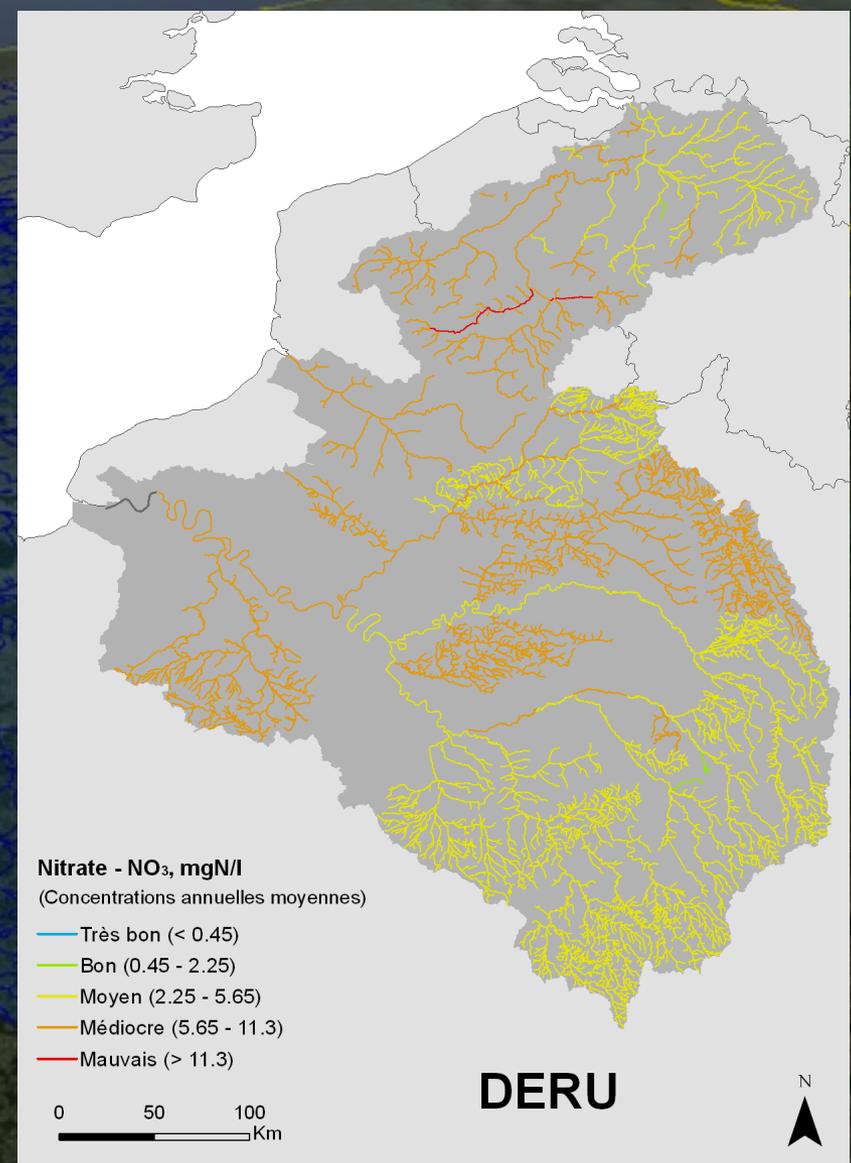
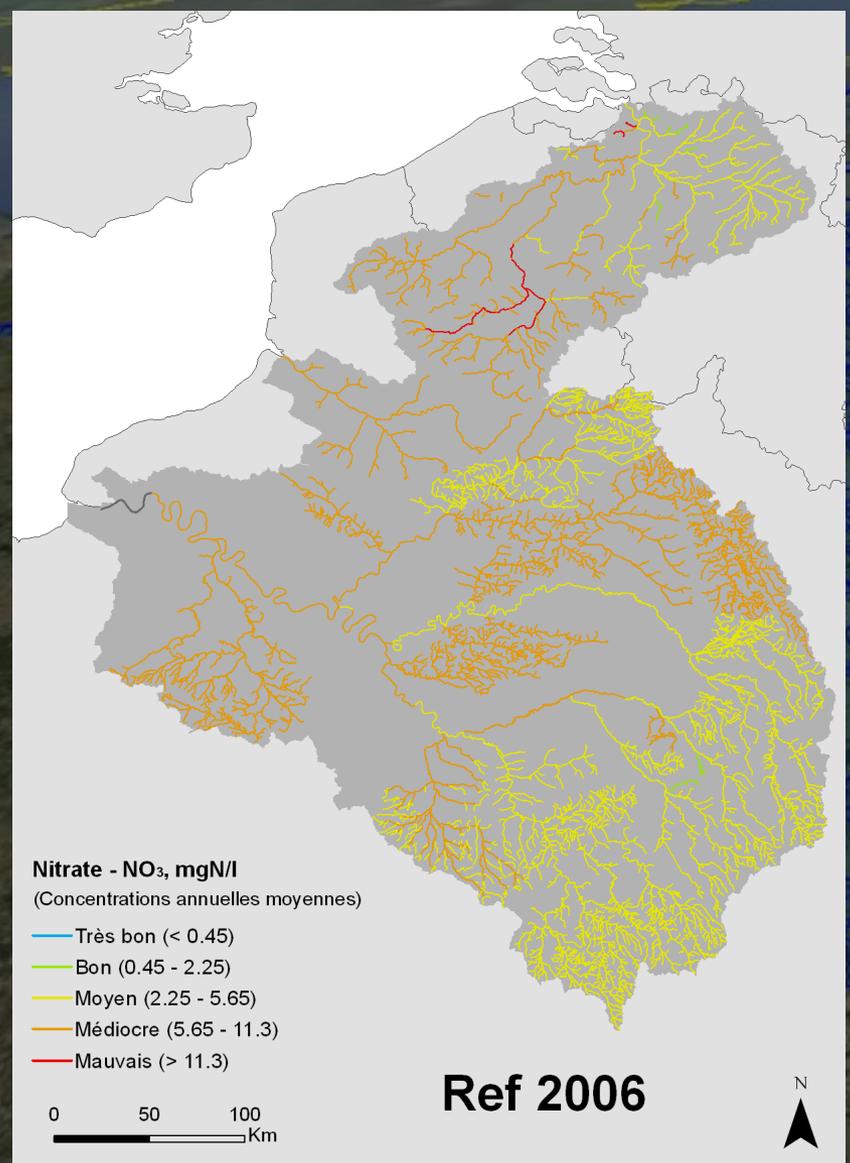




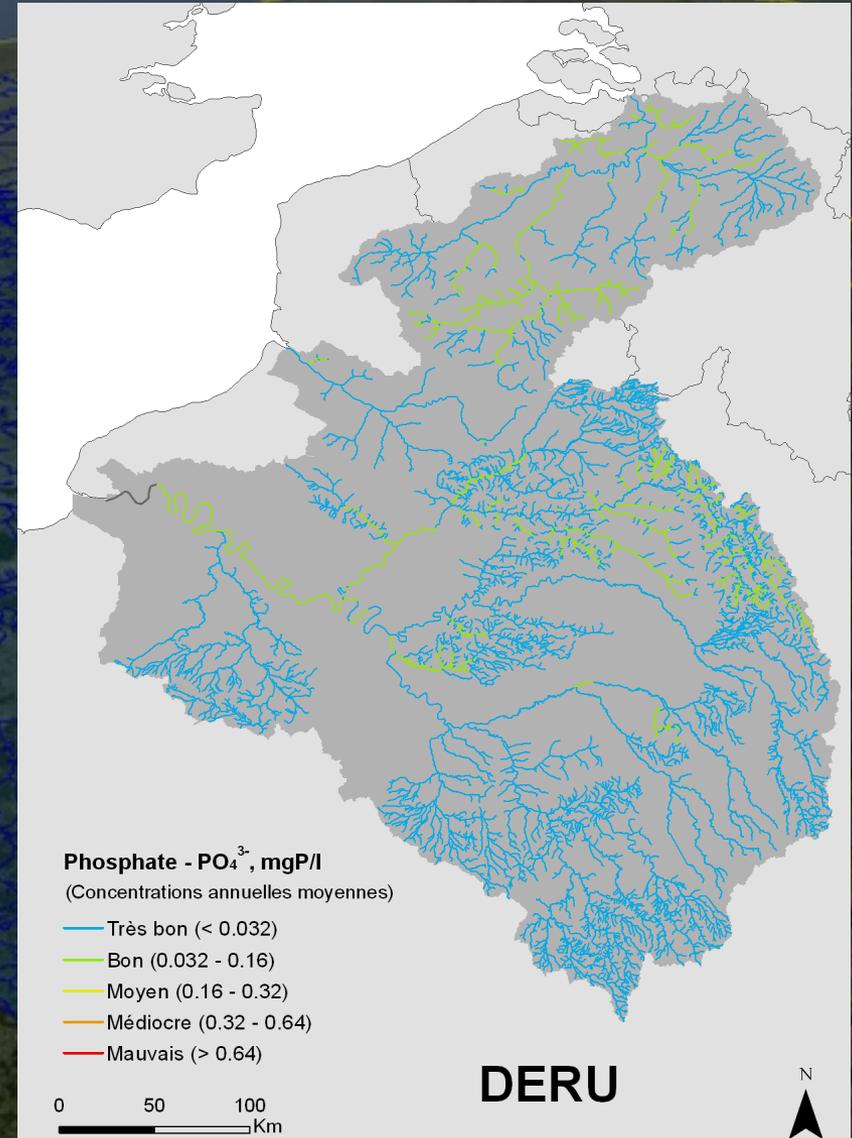
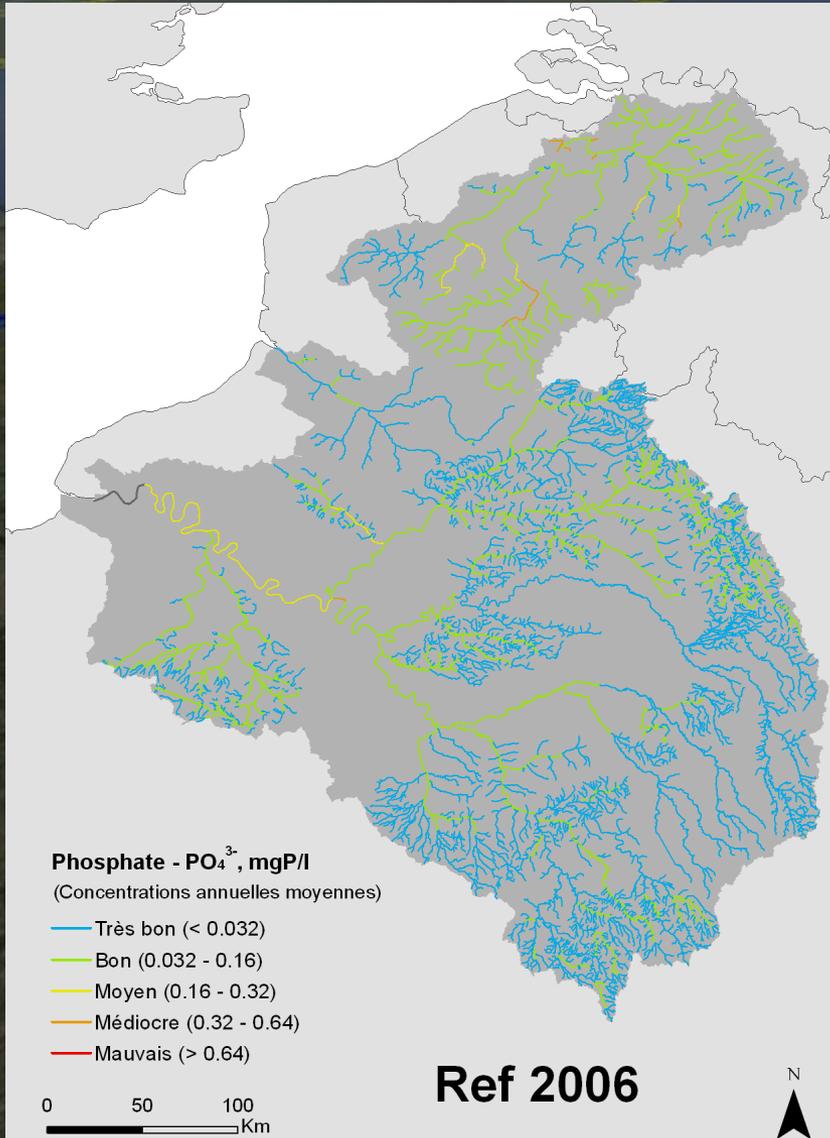
**Les effets de la mise en place de la DERU à Poses**



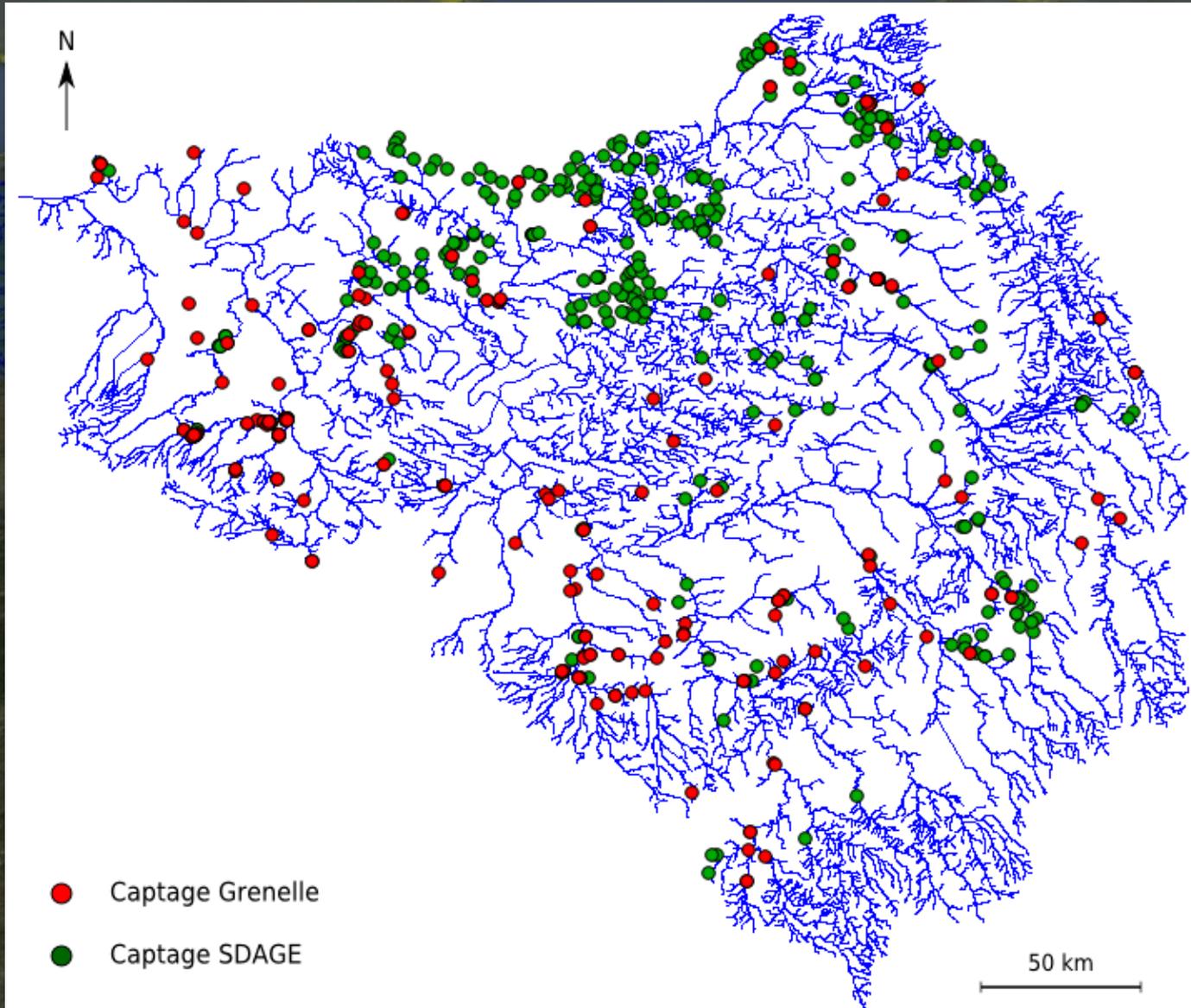
## Les effets de la mise en place de la DERU vis-à-vis des **nitrates** dans le réseau hydrographique



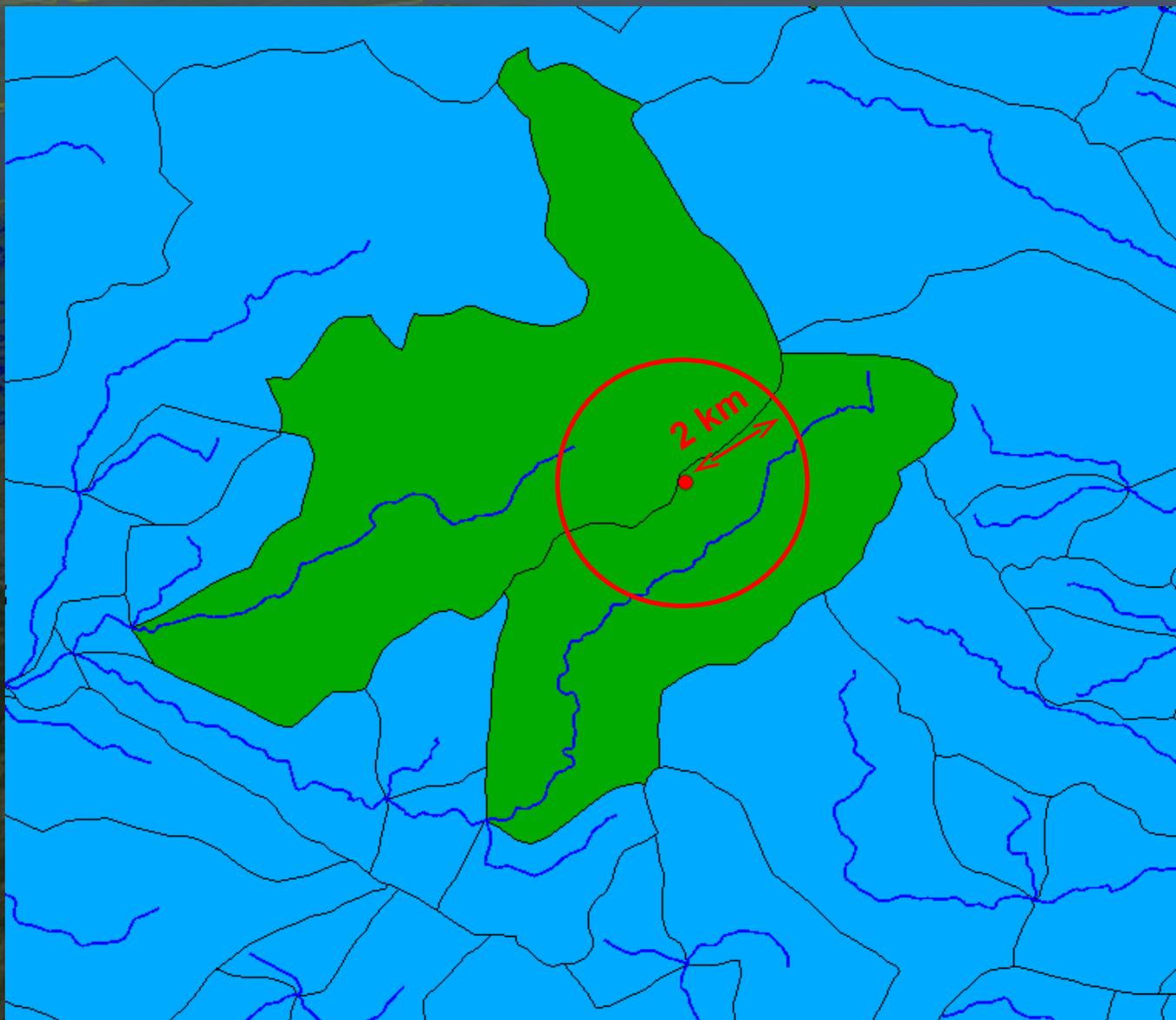
## Les effets de la mise en place de la DERU vis-à-vis des **phosphates** dans le réseau hydrographique



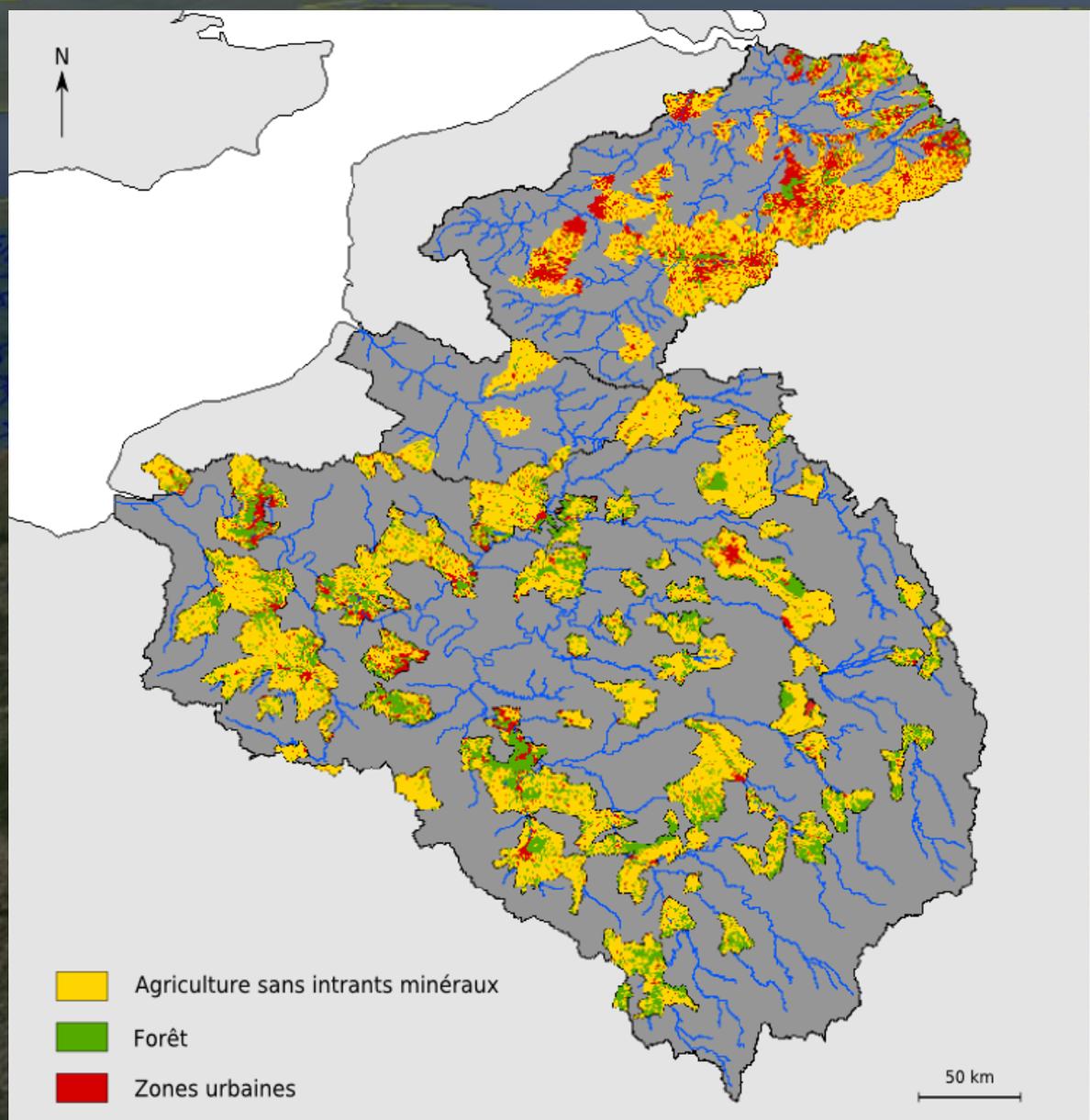
## Les bassins d'alimentation de captage : une information encore fragmentaire

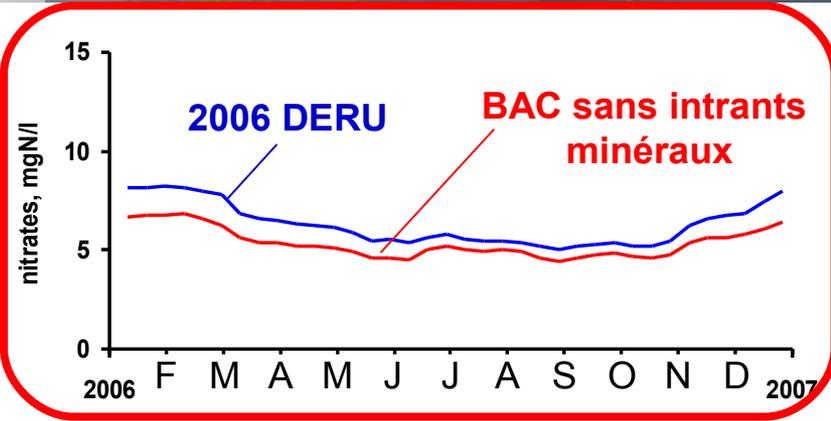


Quels bassins d'alimentation de captage retenir ?

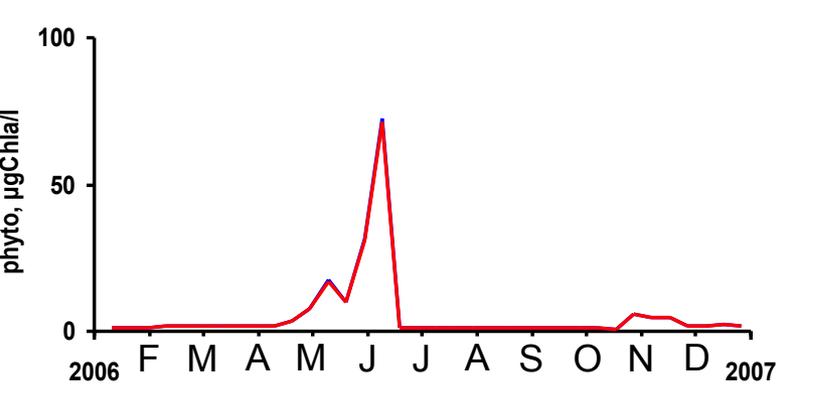
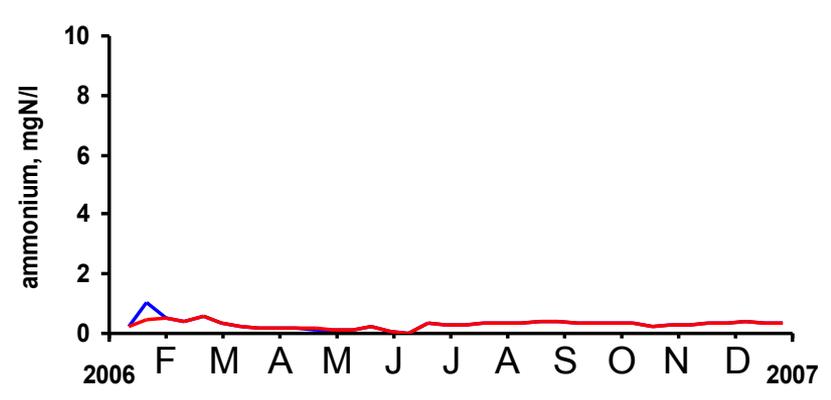
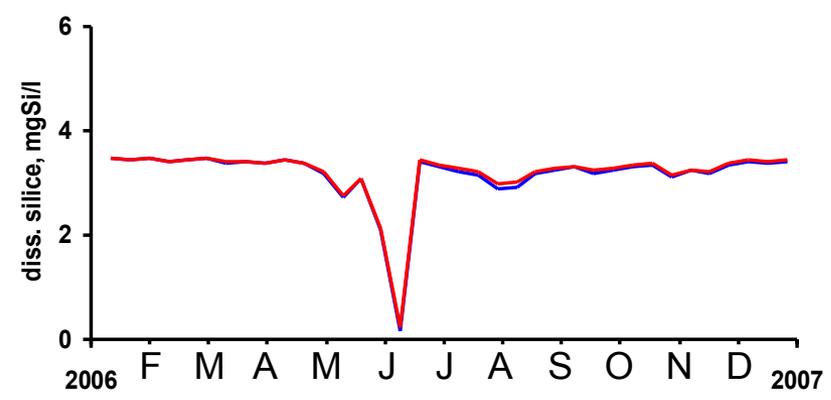
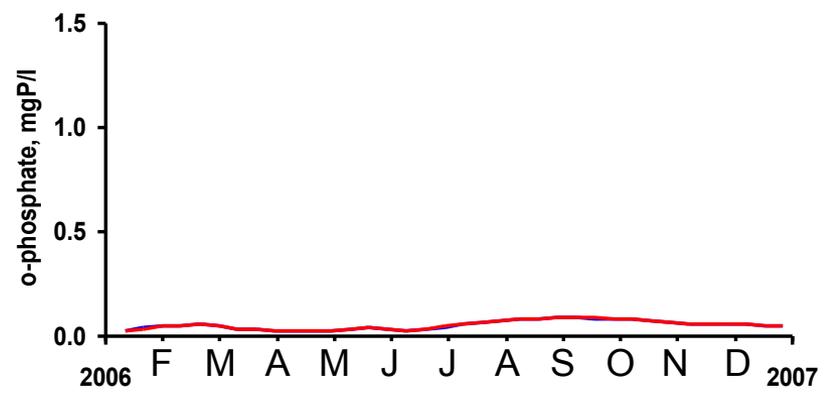


## 30 % du bassin en aire d'alimentation de captage

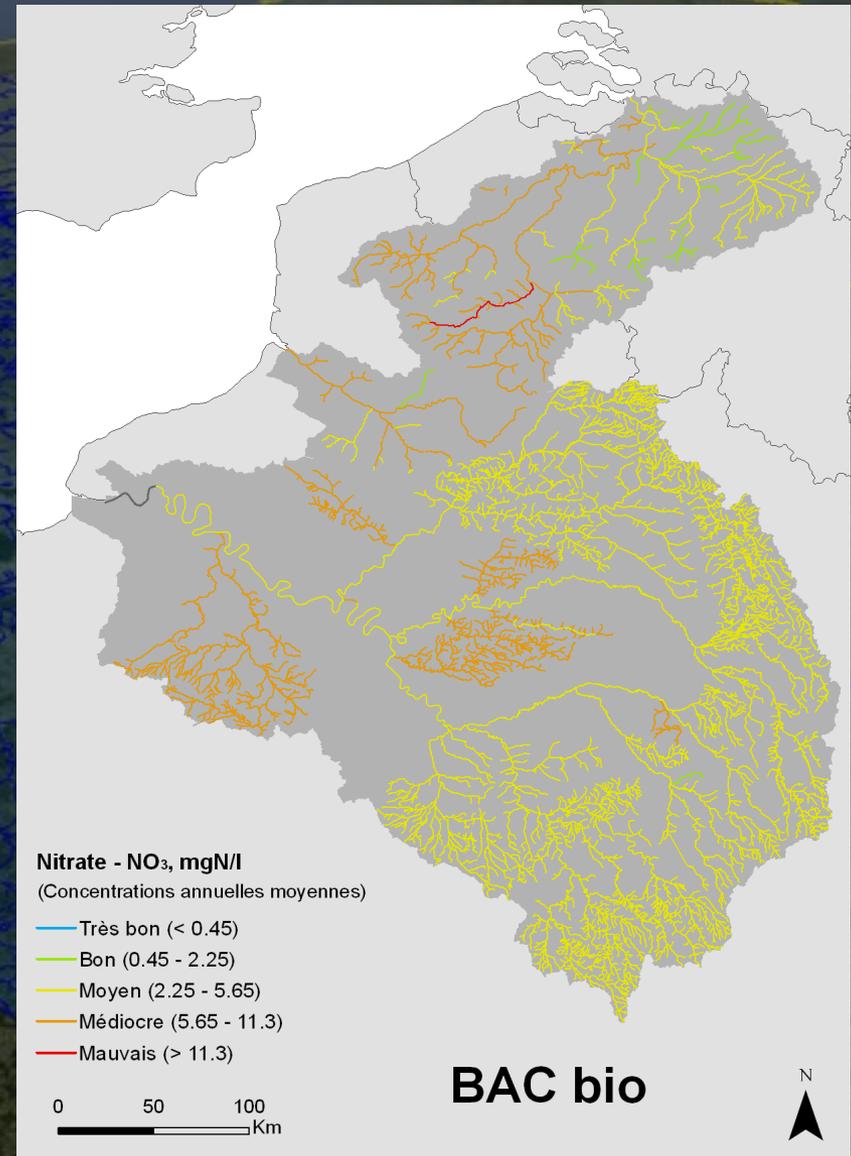
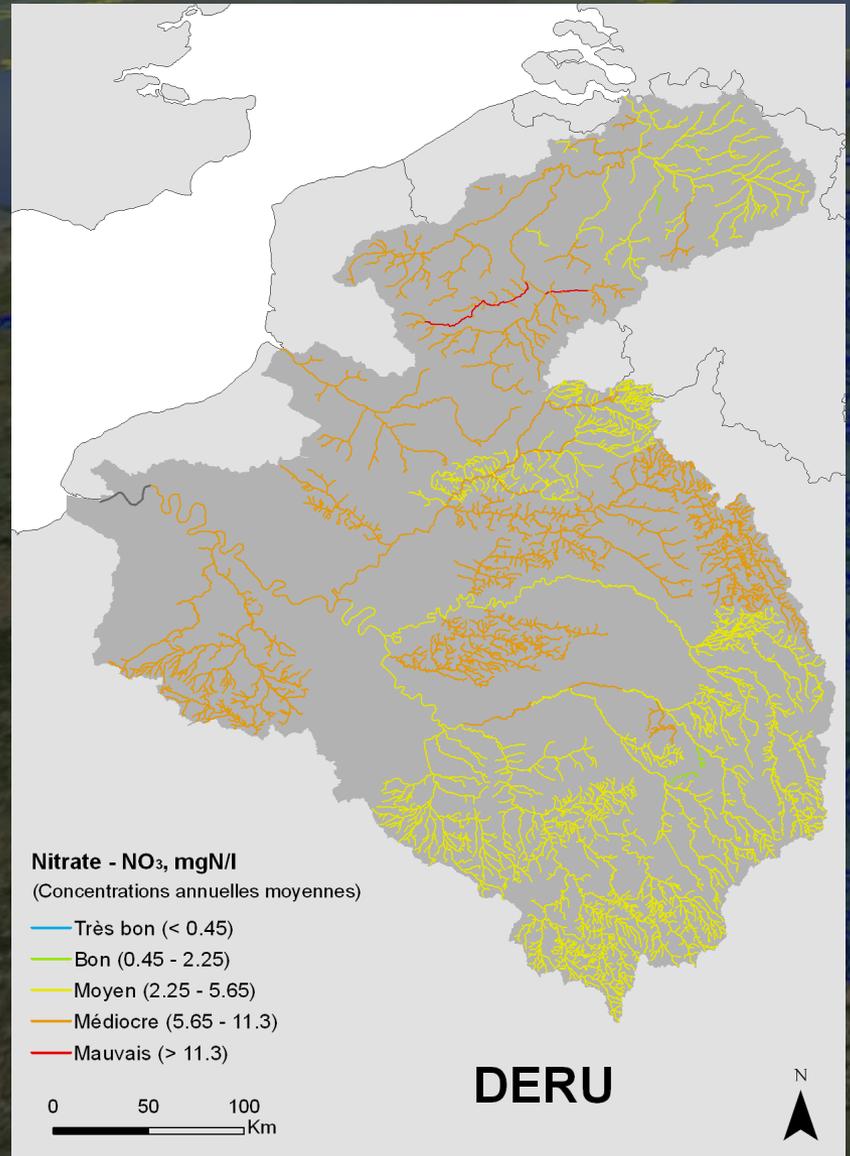




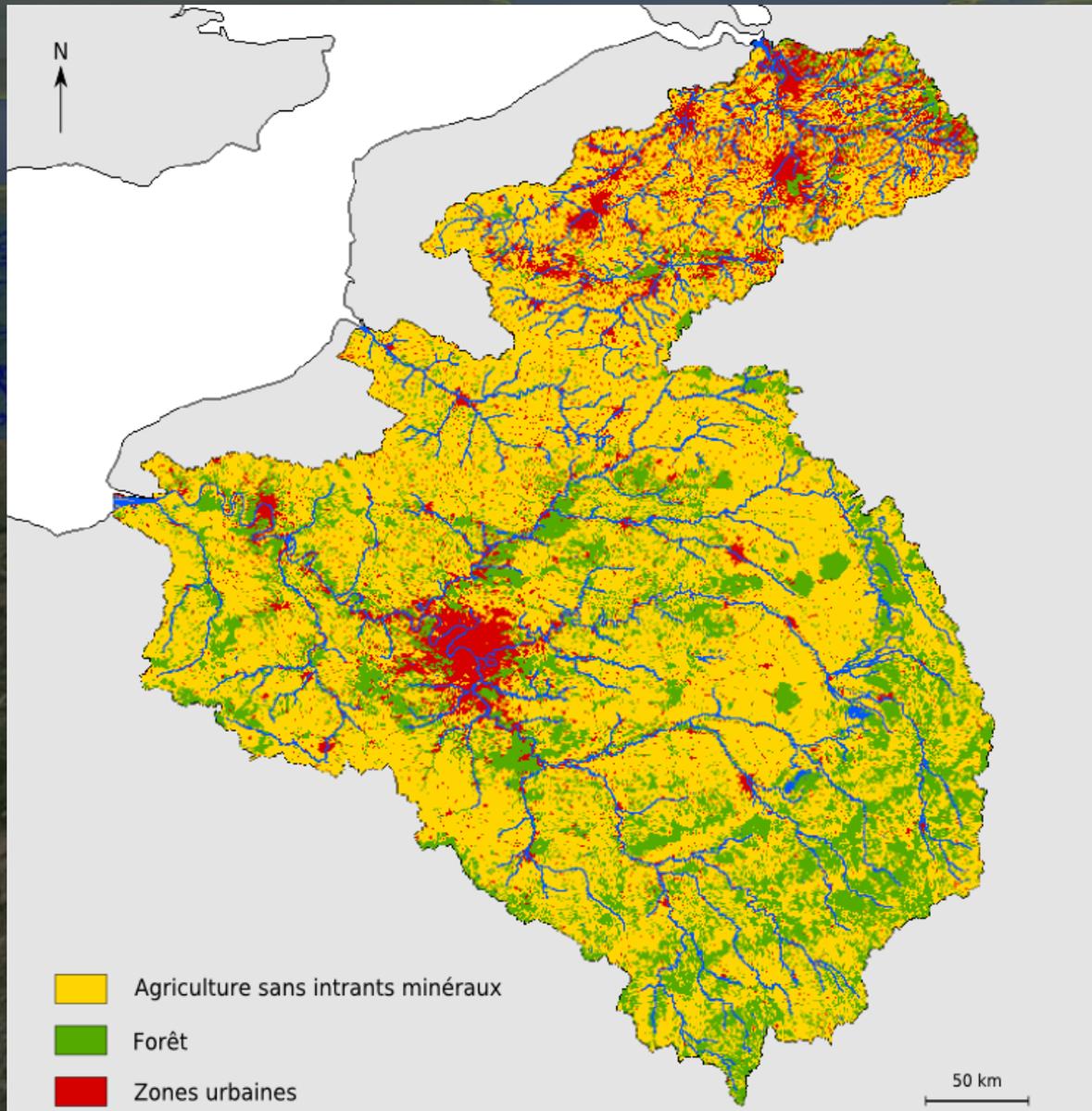
**Diminution des nitrates**  
**Les effets de la mise en place du Grenelle à Poses**

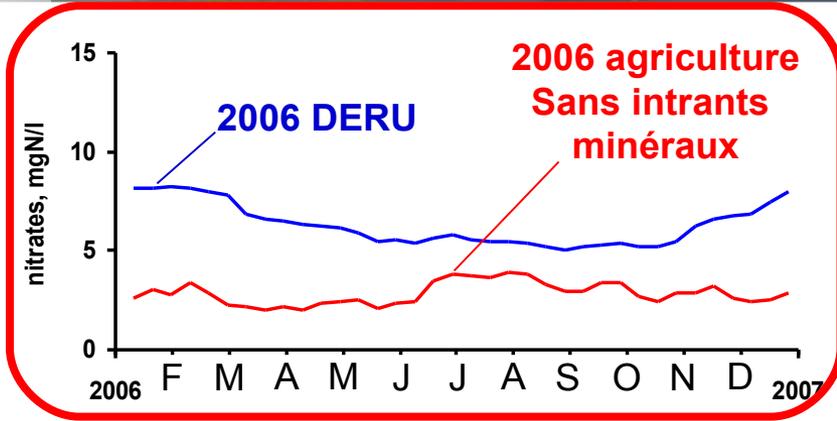


## Les effets de la mise en place d'une agriculture sans intrants minéraux sur les BAC vis-à-vis des **nitrate**s dans le réseau hydrographique



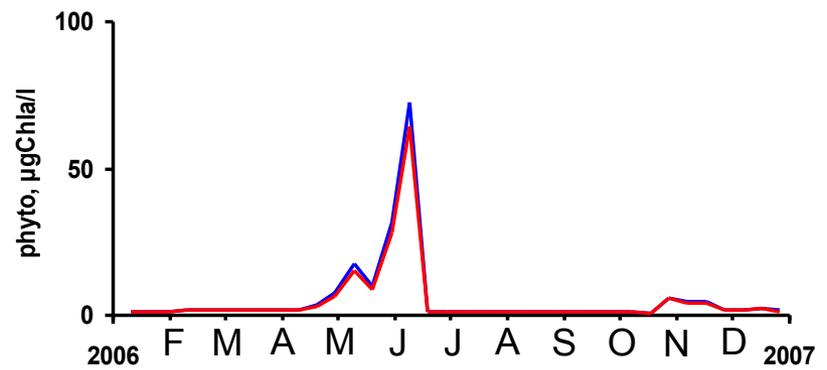
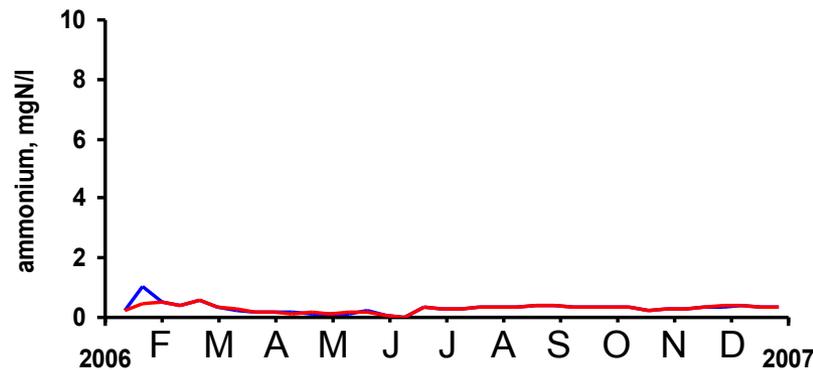
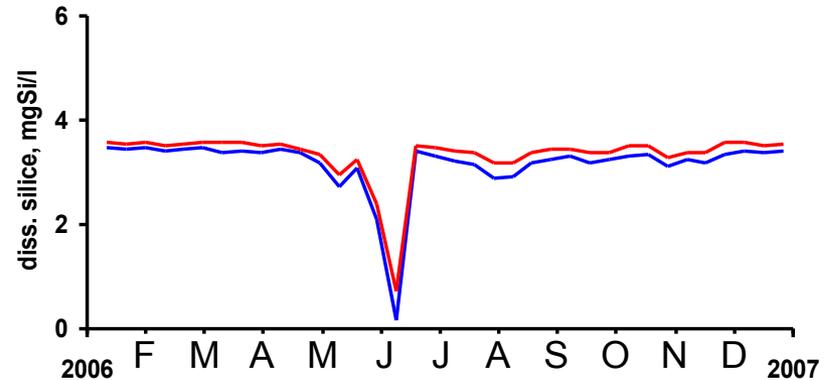
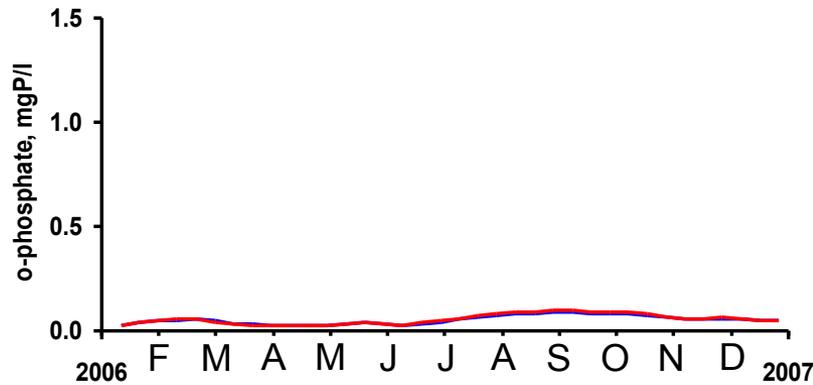
Une agriculture sans intrants minéraux  
sur la totalité du bassin



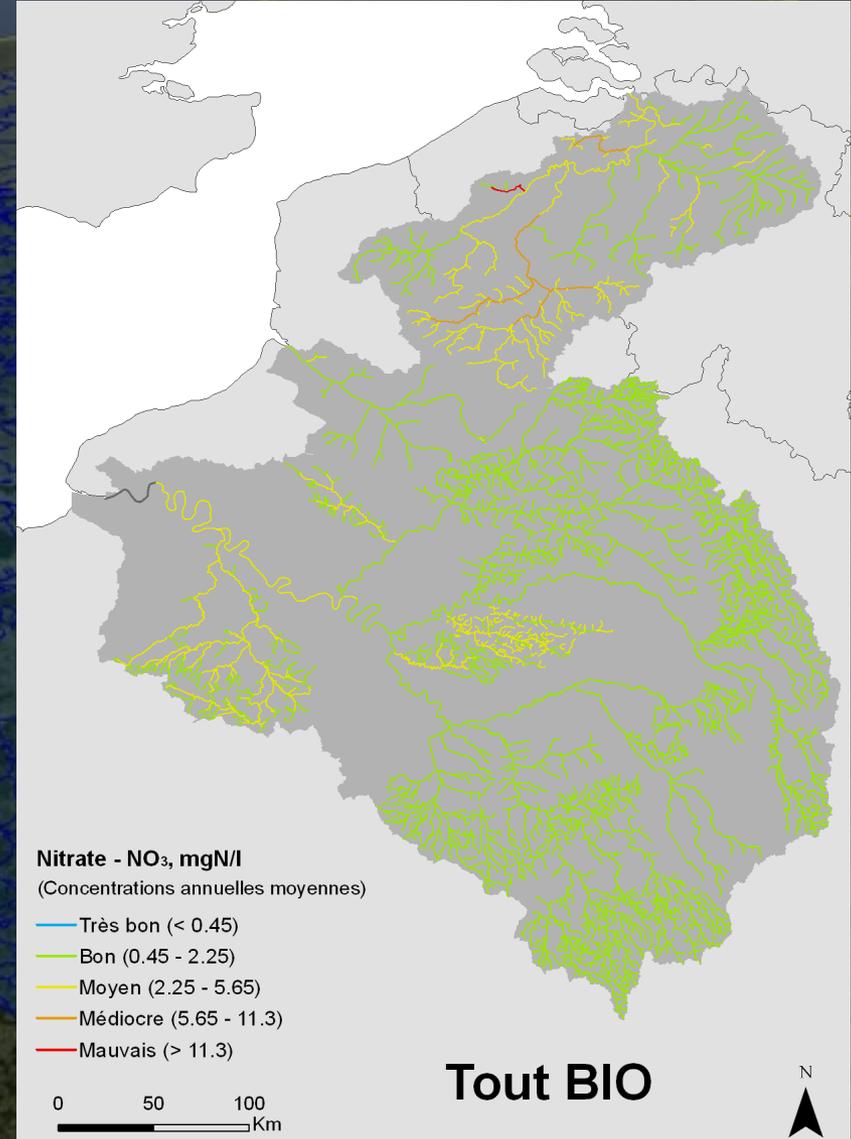
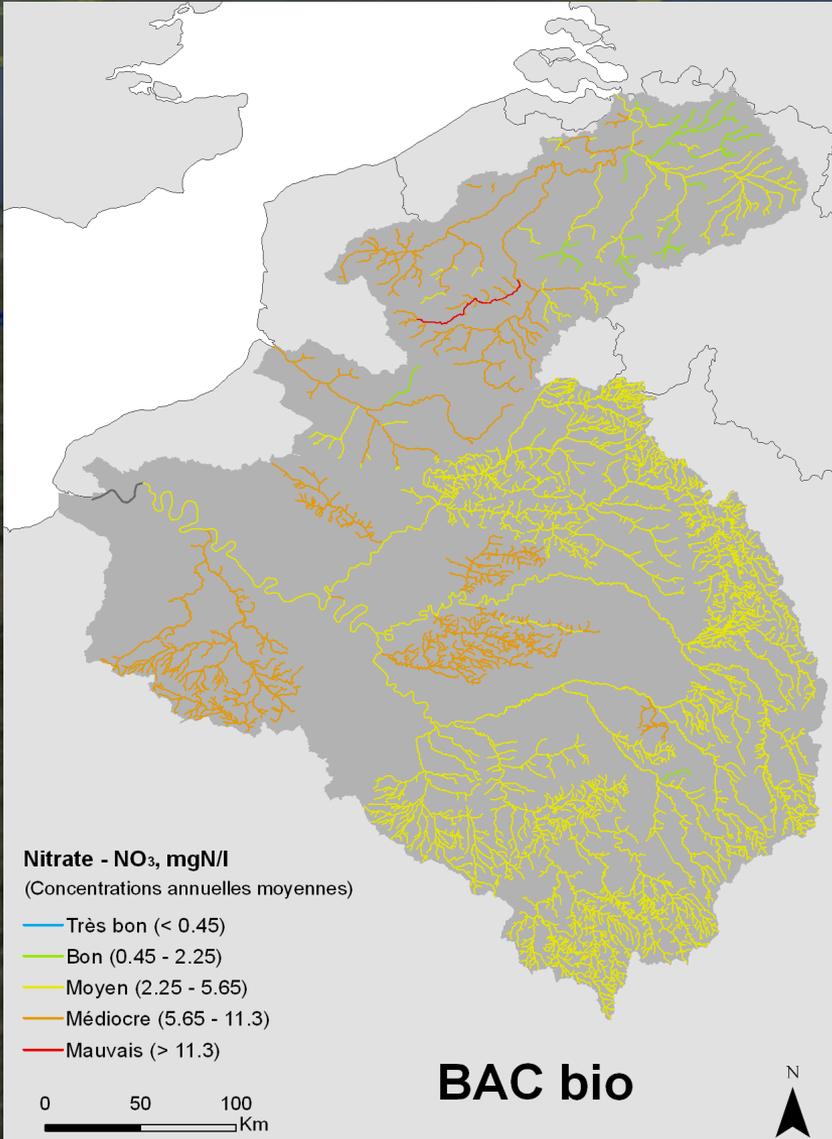


## Forte diminution des nitrates

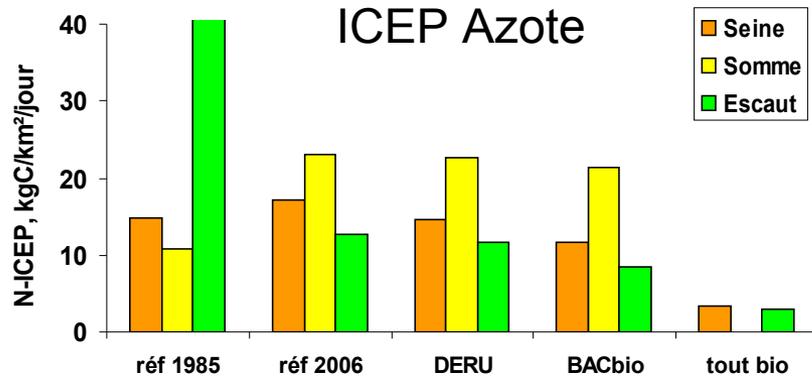
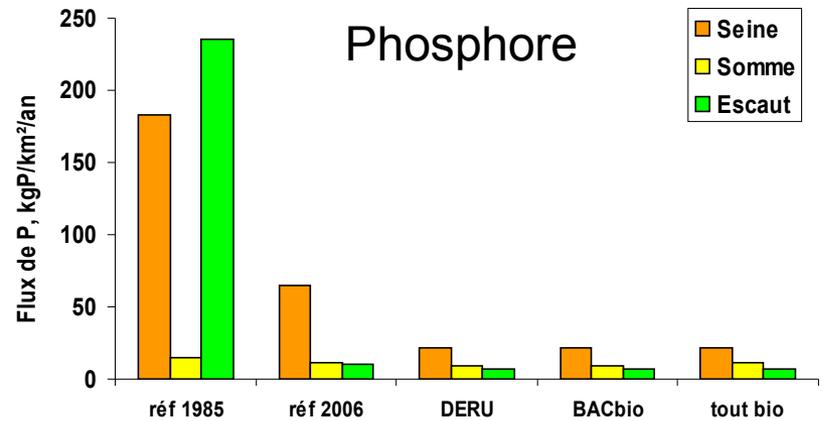
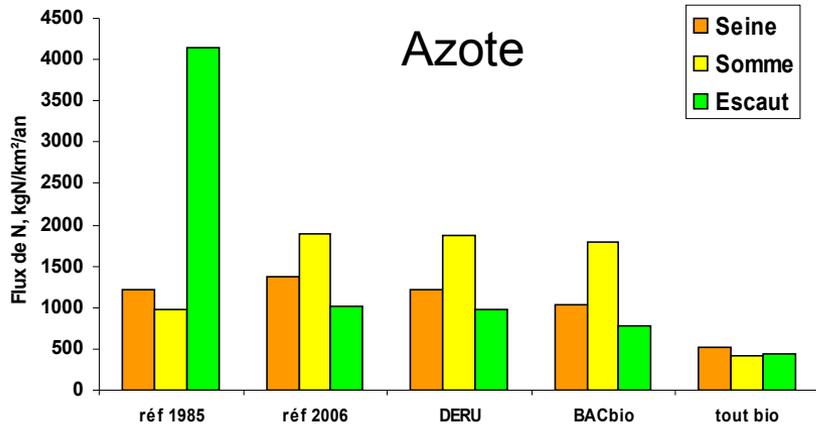
Les effets de la mise en place d'une agriculture sans Intrants minéraux sur tout le Bassin à Poses



## Les effets de la mise en place d'une agriculture sans intrants minéraux vis-à-vis des **nitrate**s dans le réseau hydrographique



## En termes de nutriments délivrés à la mer



**Phosphore** → **Problème (quasiment) résolu**

**Nitrates** → **Encore de (très) gros efforts**

# Quelques questions ?

