# Dam removal and aquatic ecosystem restoration: a food web perspective

## *Focus on Sélune River in the presence of dams*

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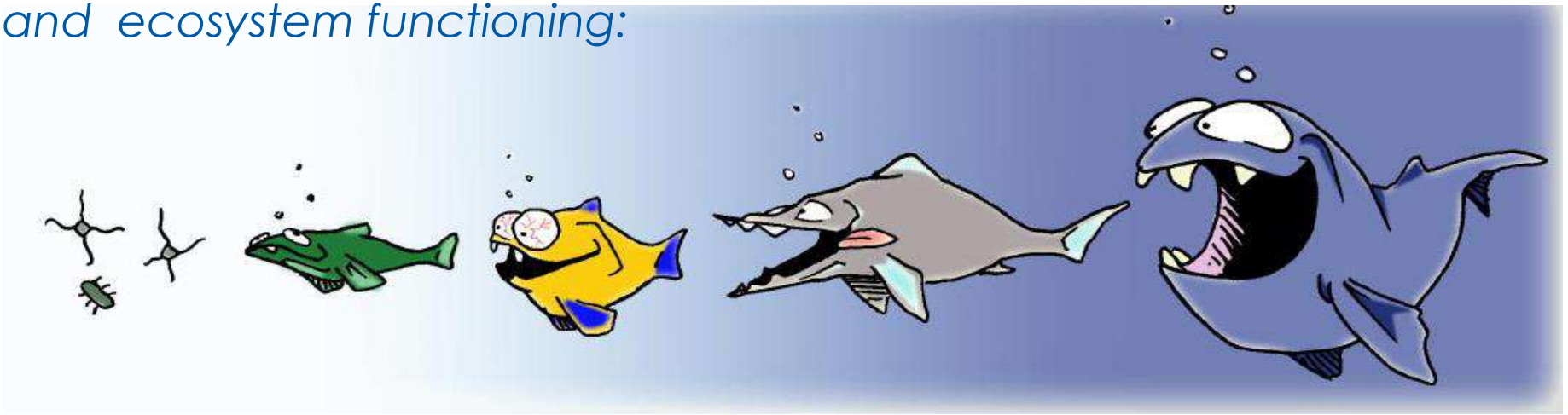
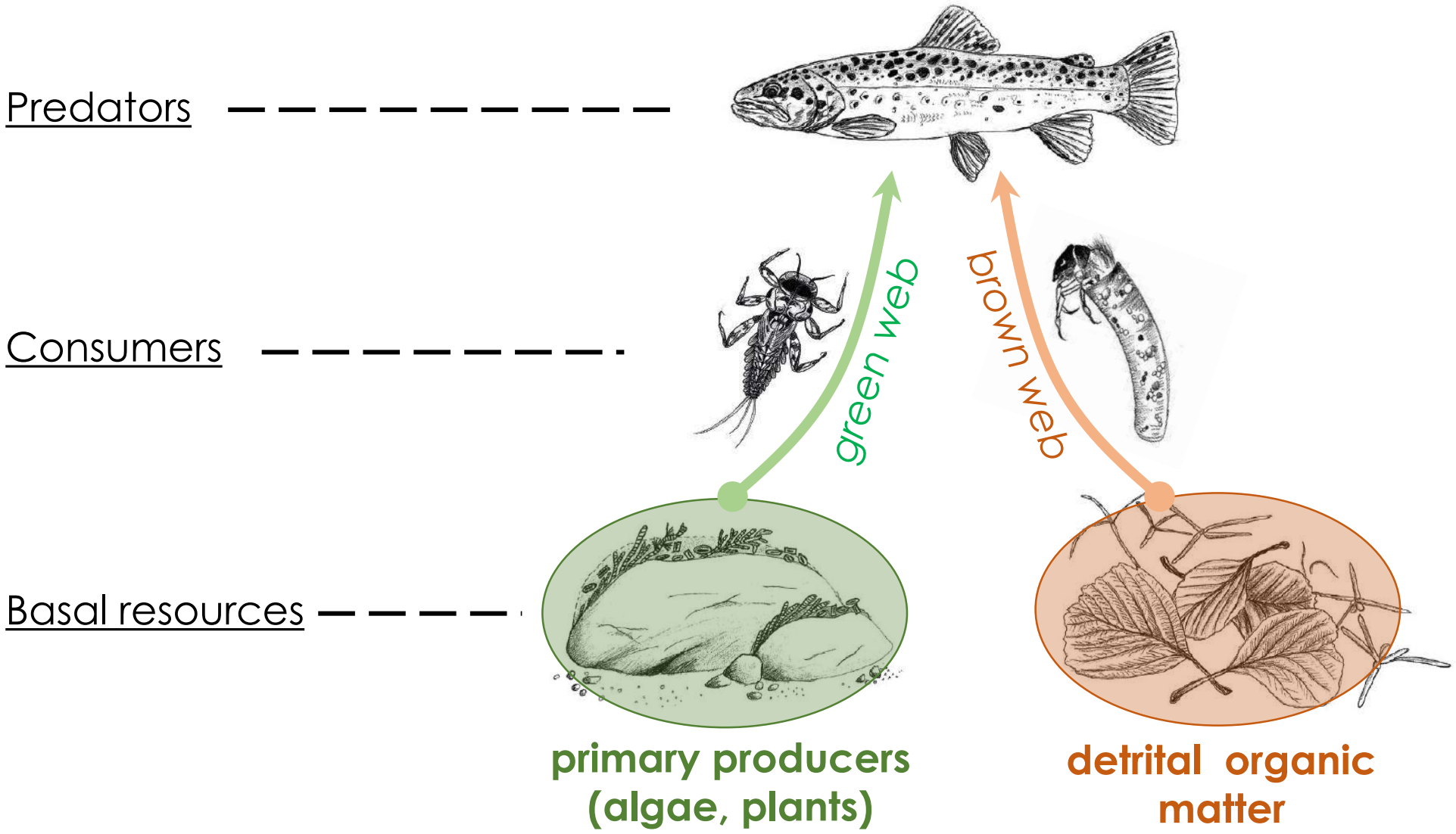
# Focus on trophic interactions, **WHY**?

***BECAUSE*** *every living organism feed on something!*

→ *trophic interactions are the basics of biotic community composition and ecosystem functioning:*

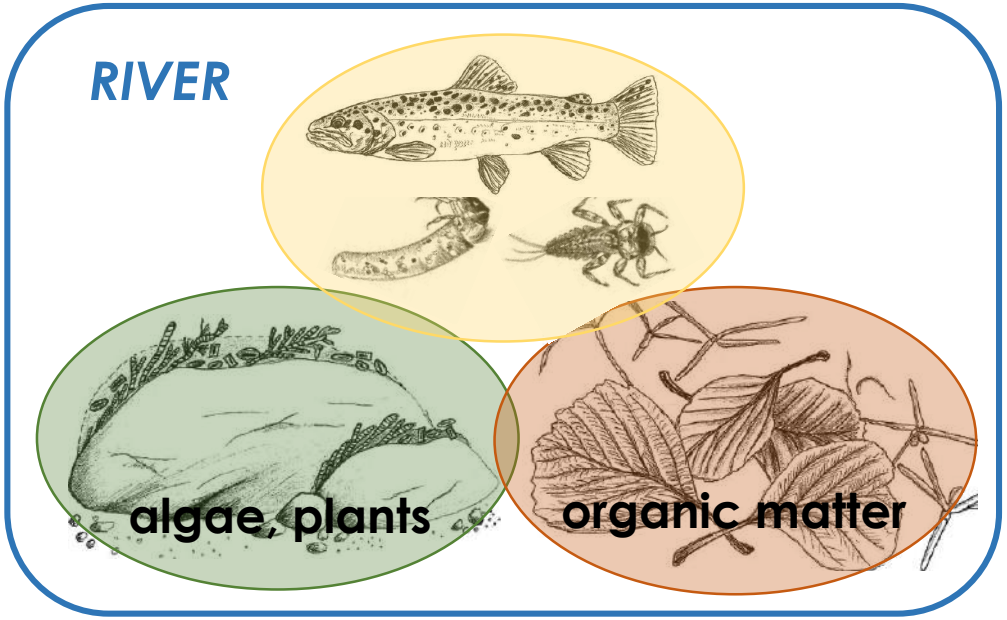


# River ecology, basic concept #1: food web



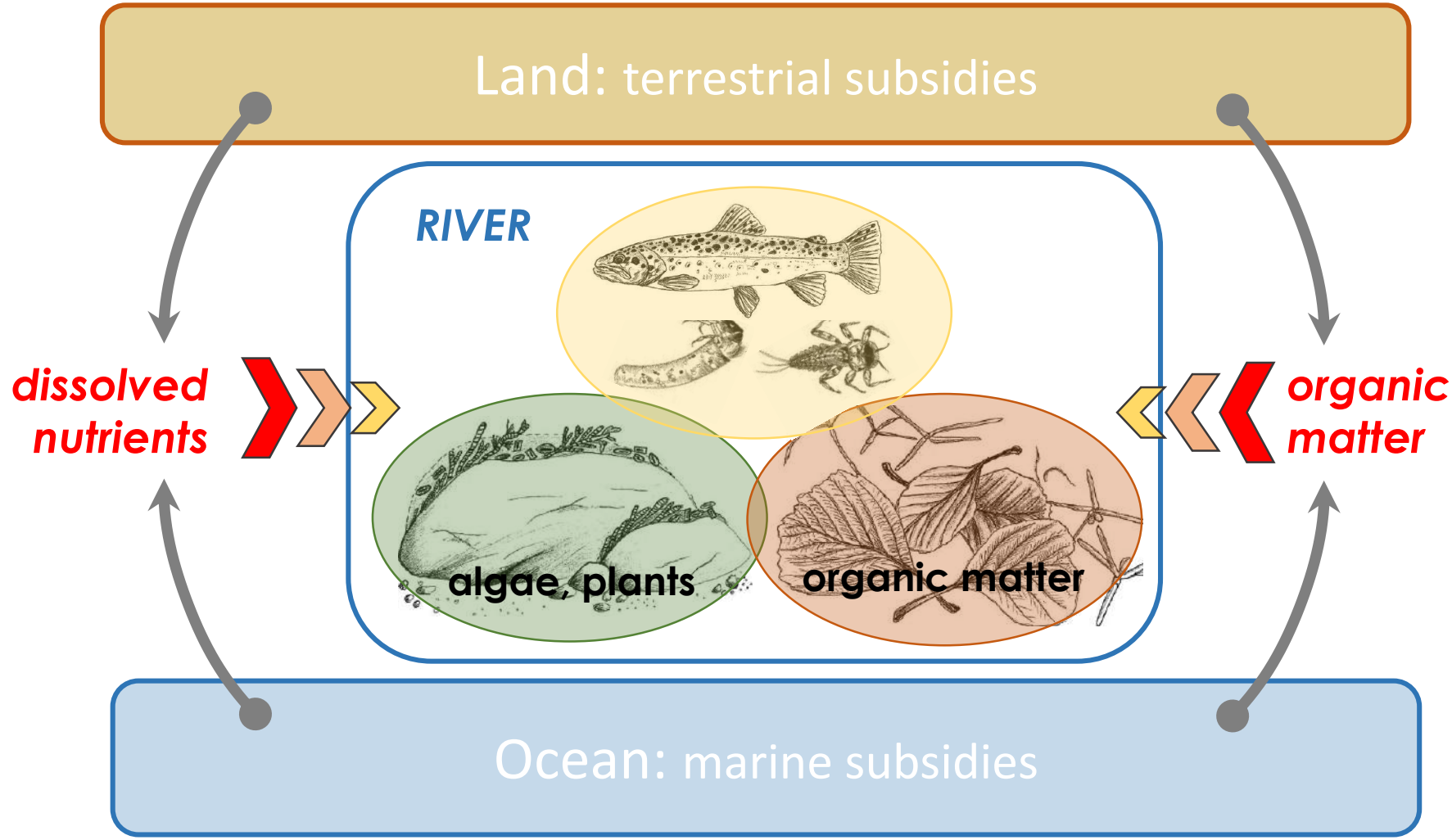
# River ecology, basic concept #2: connexion between systems

Land: terrestrial subsidies




Ocean: marine subsidies

# River ecology, basic concept #2: connexion between systems



# River ecology, basic concept #3: connectivity

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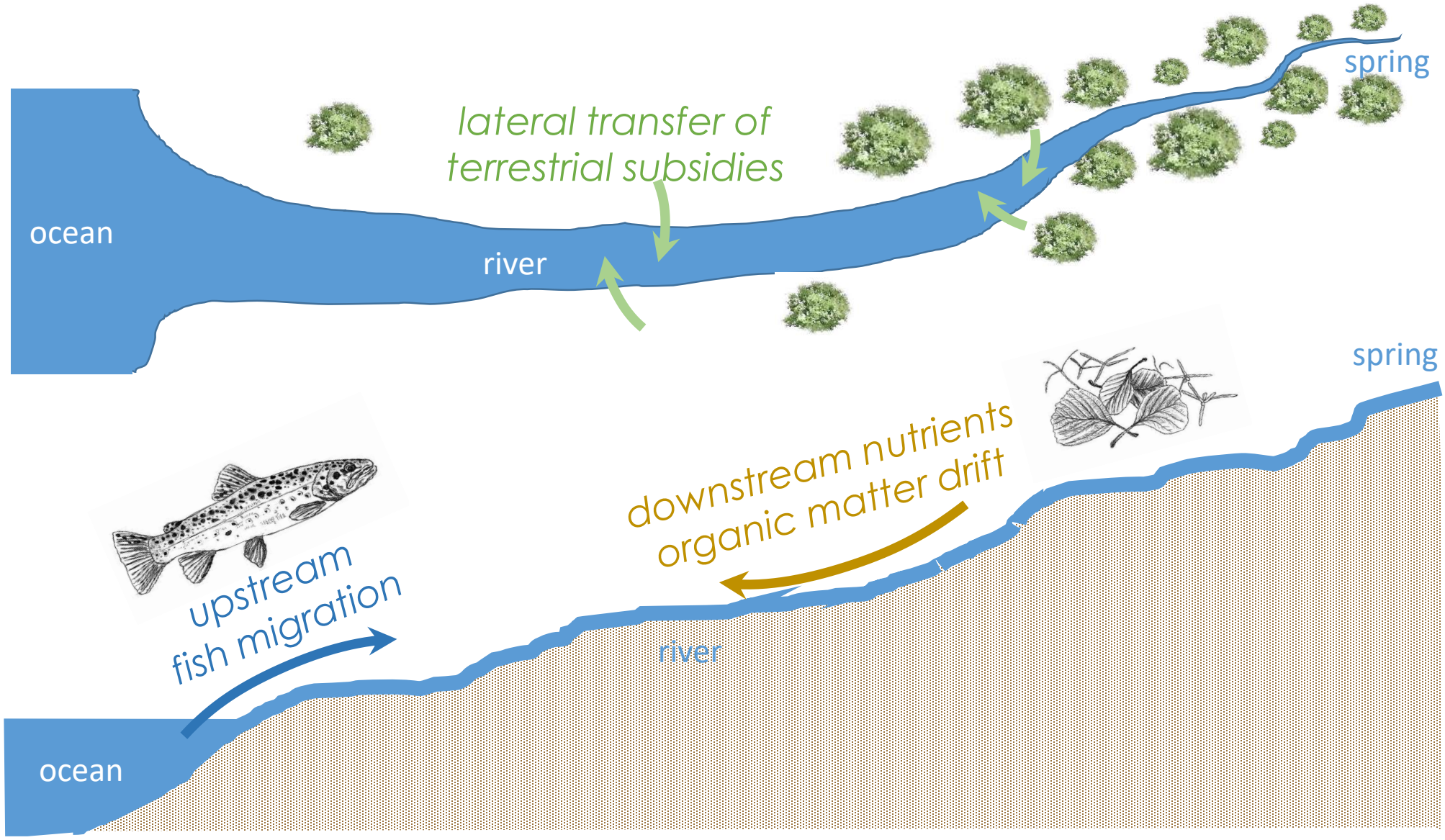
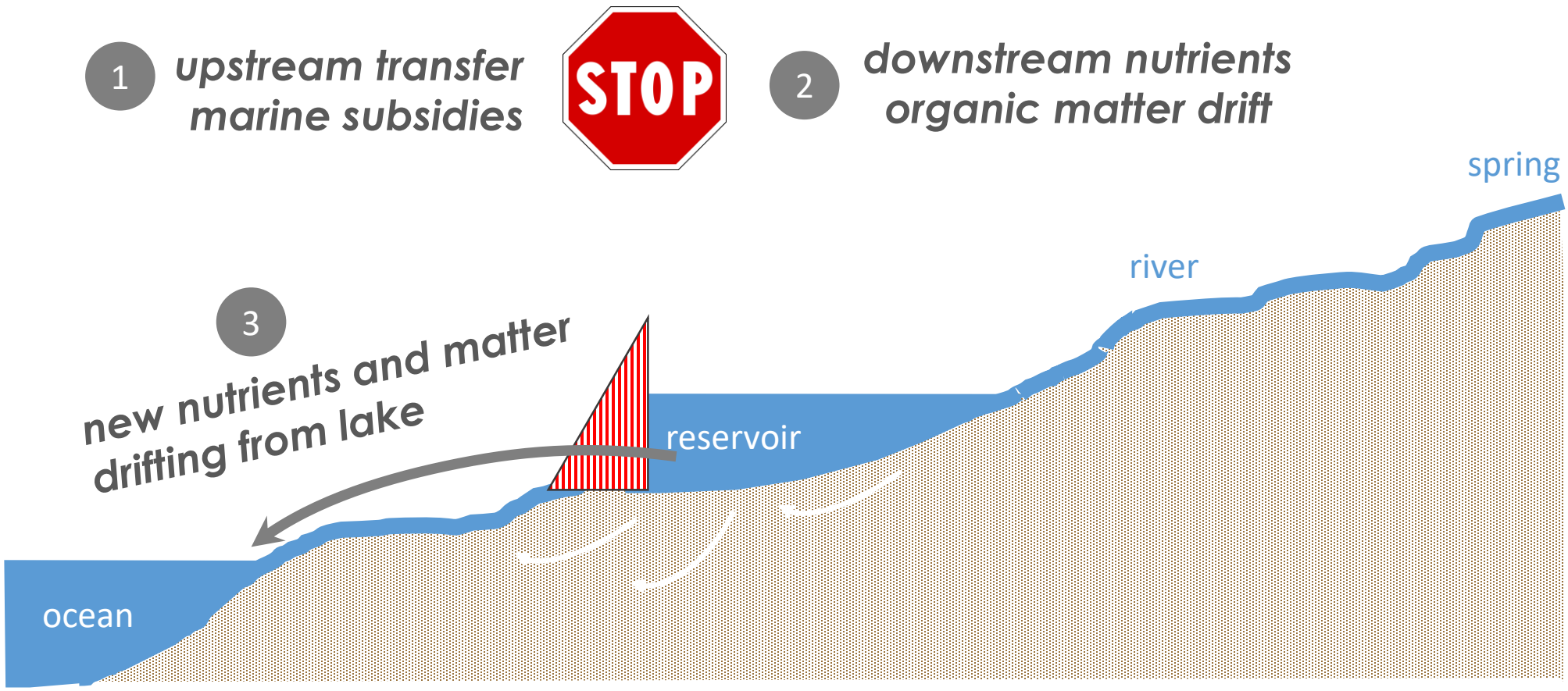
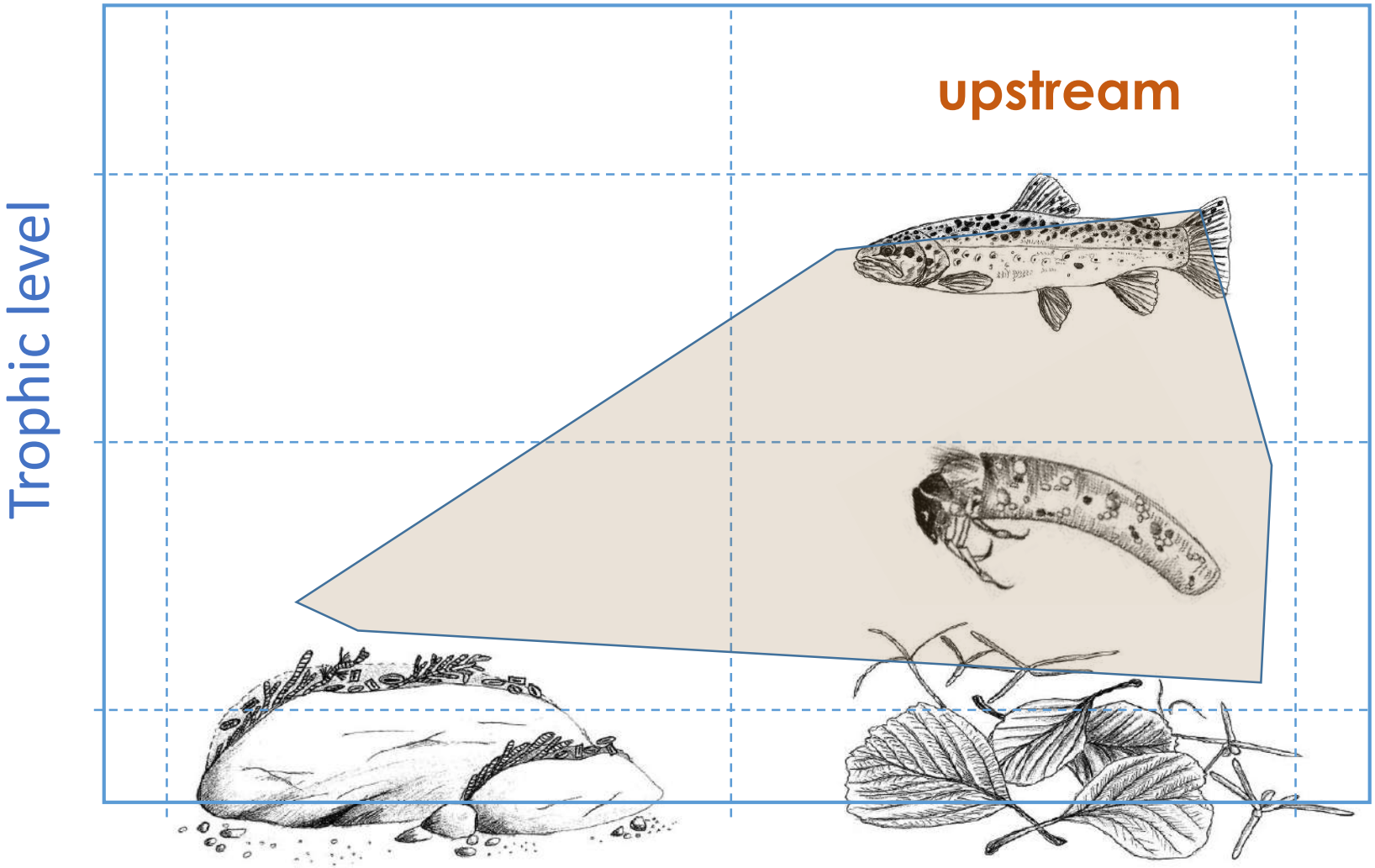


# Expected effects of dam on ecosystem functioning
## (a non exhaustive list)



# Result #1: sediment retention in lakes alters river food web



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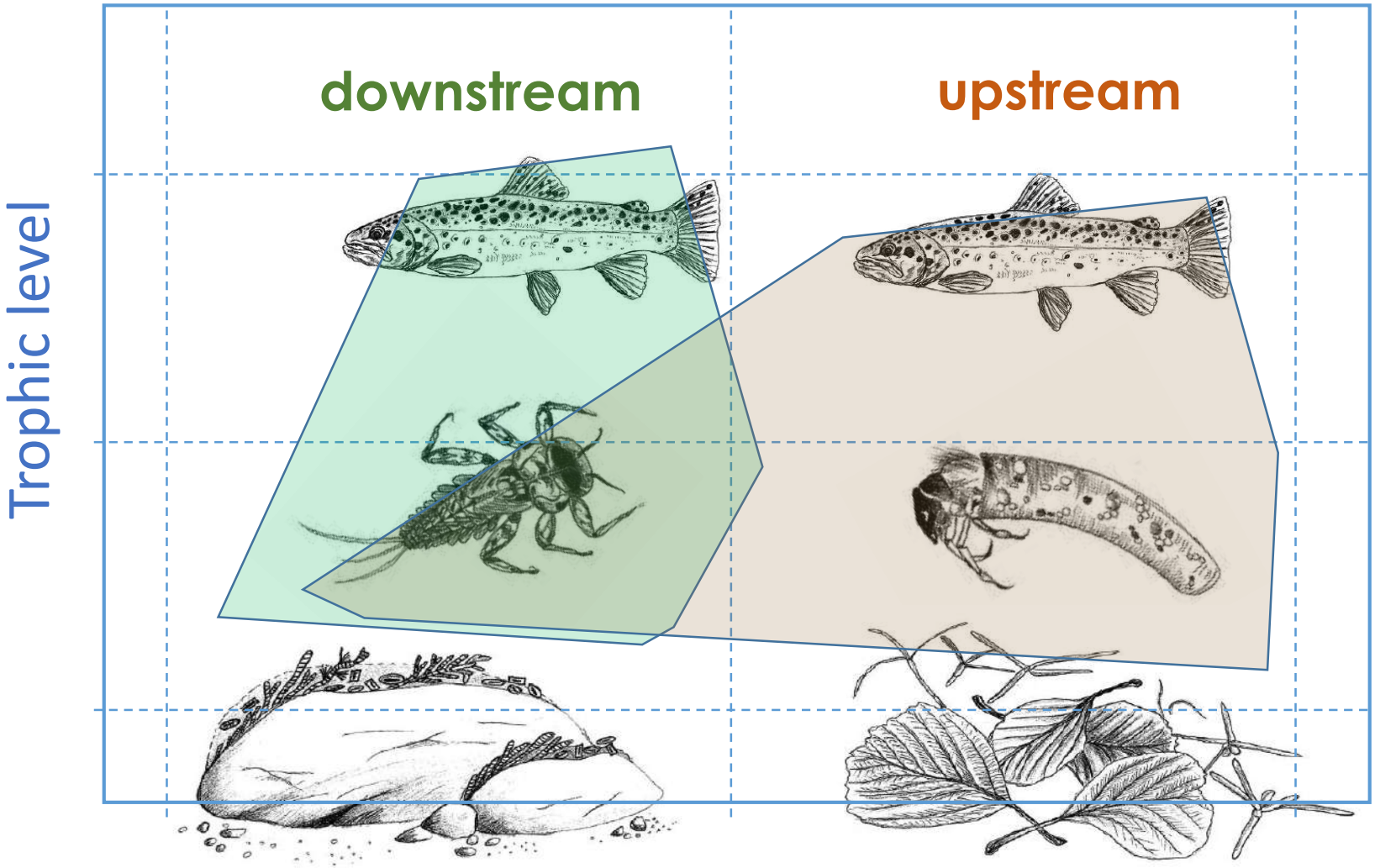
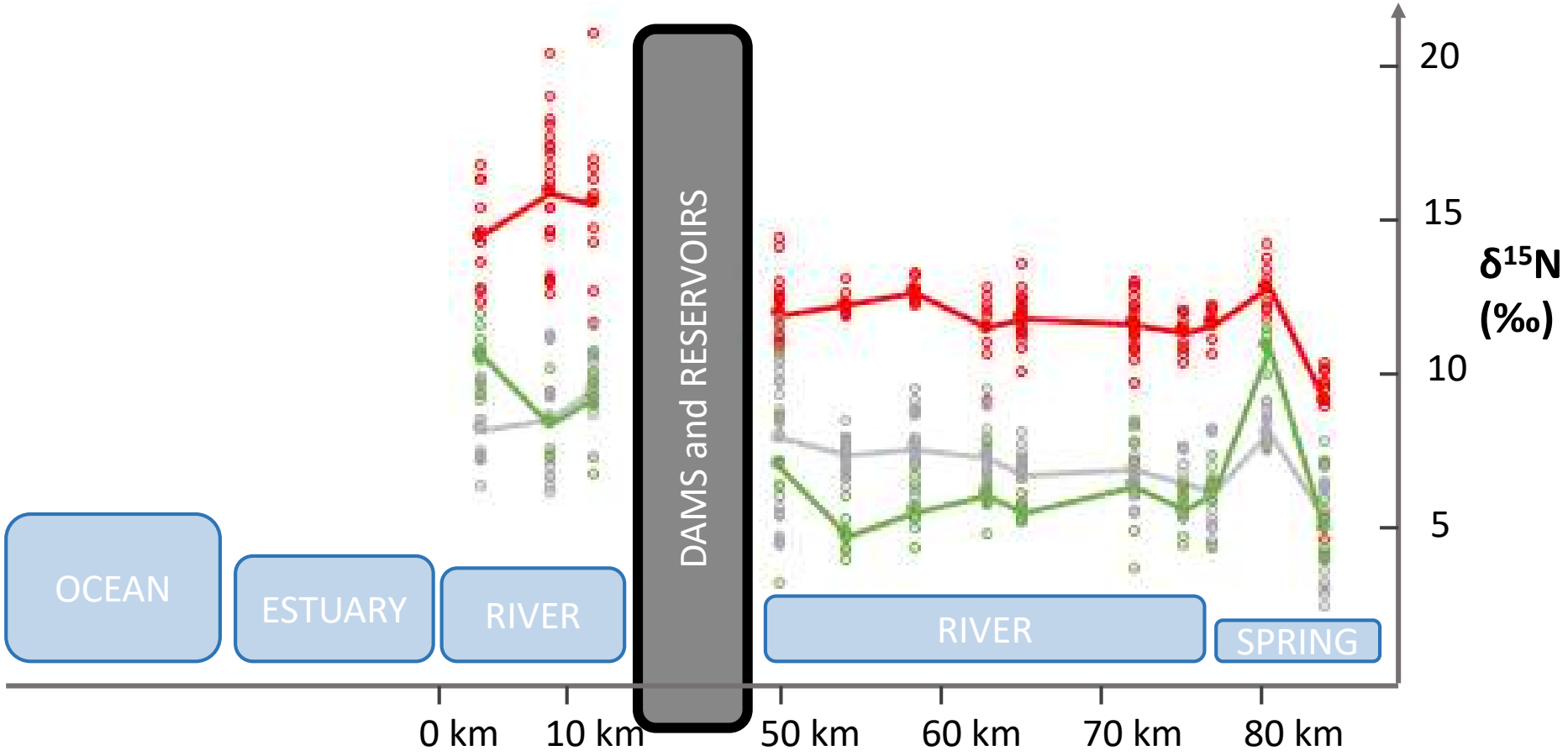


# Result #2: dams stop upstream transfer of marine nutrients

***Stable isotope analysis (nitrogen, $\delta^{15}N$) in aquatic organisms***



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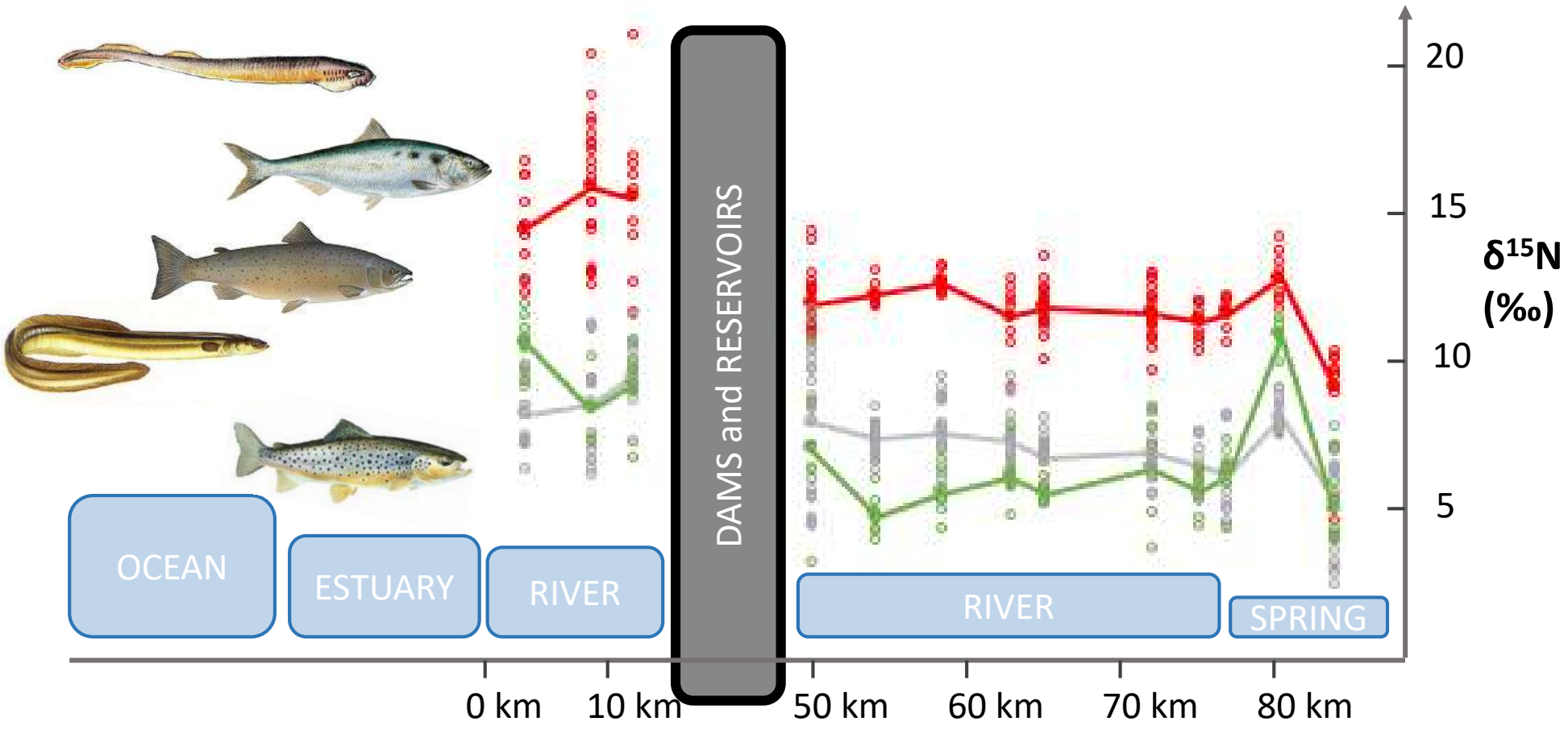
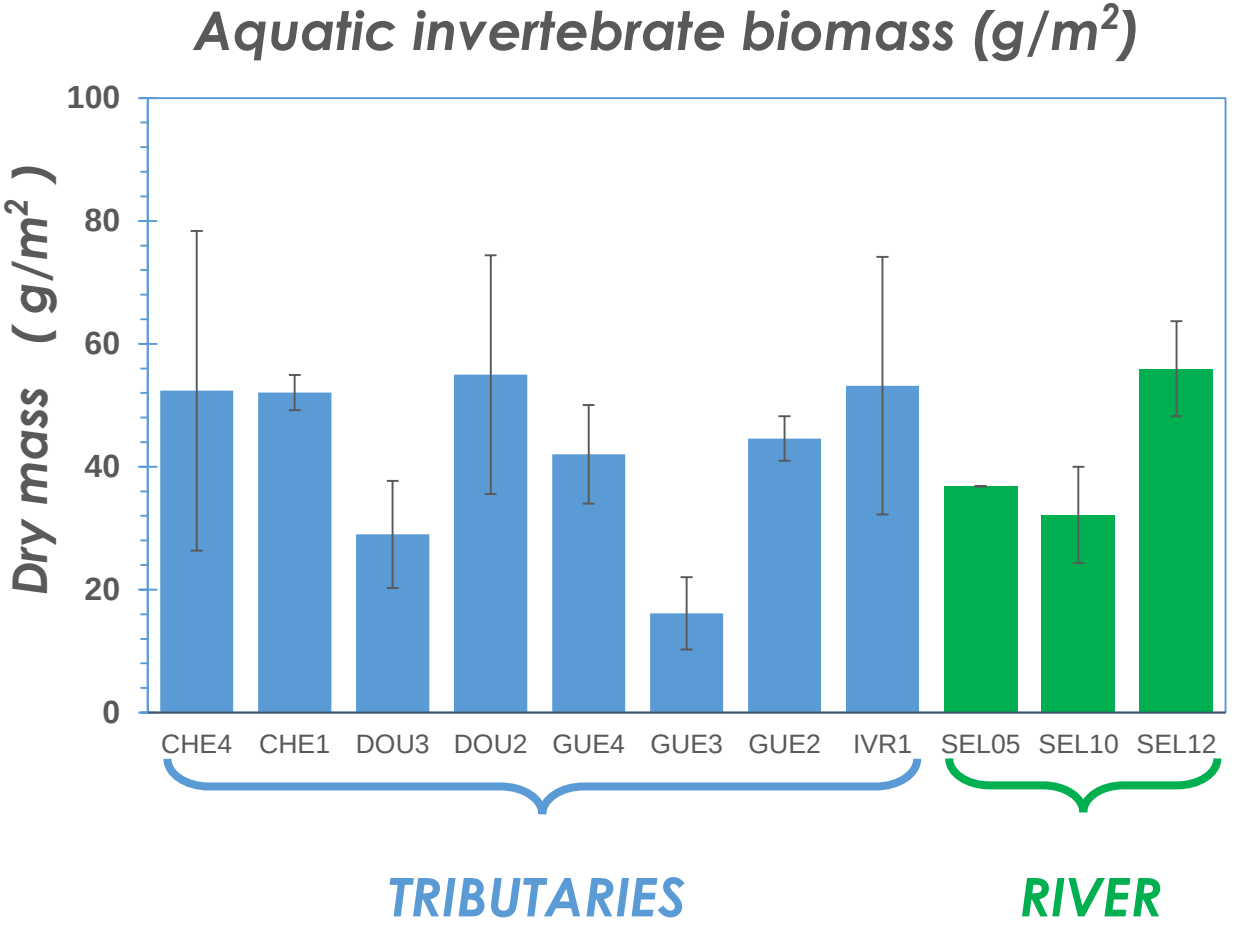
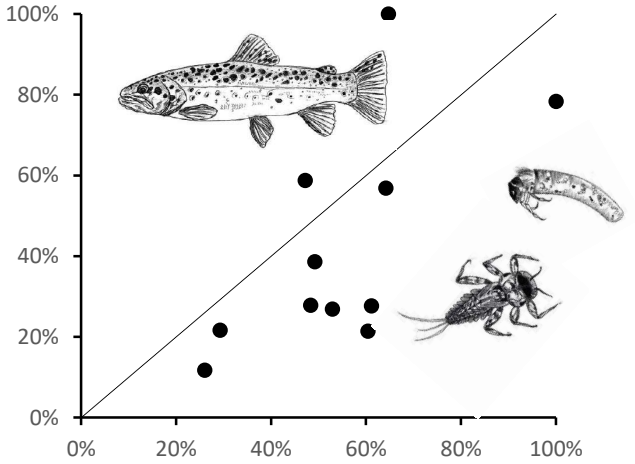


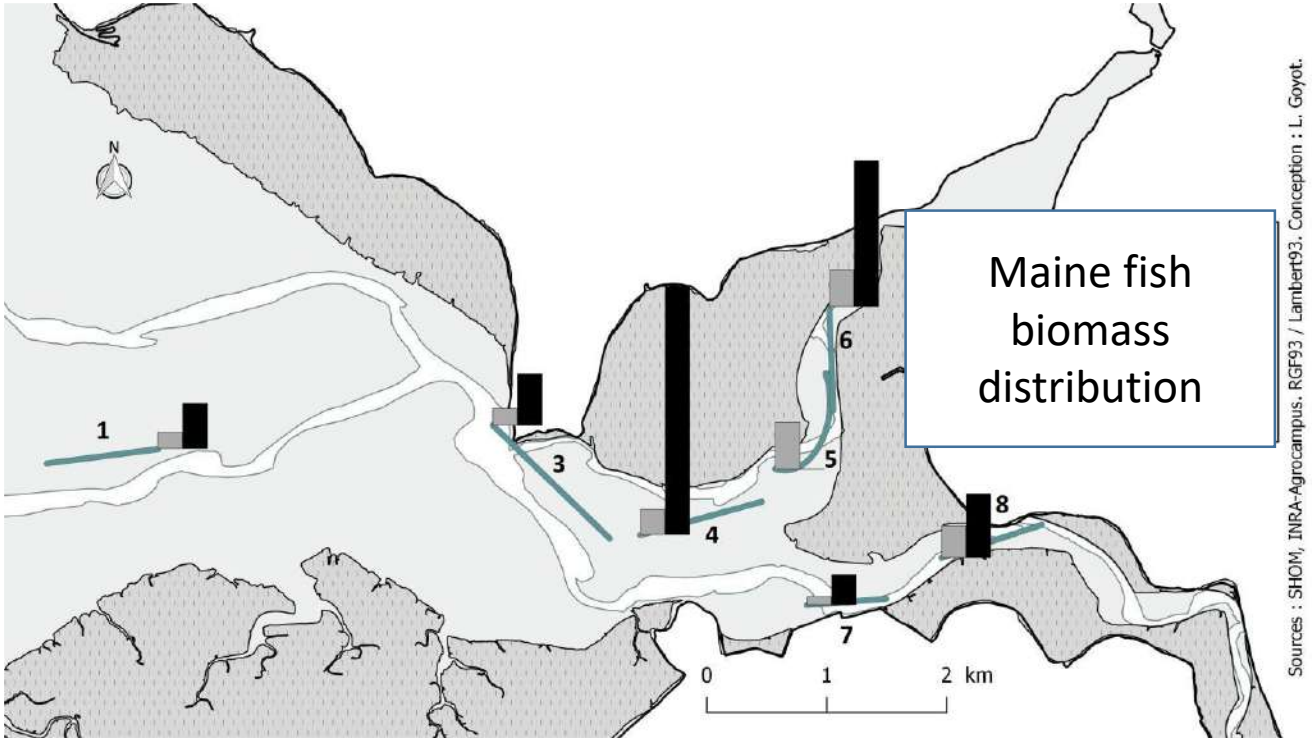
# Result #3: trophic conditions are promising for migratory fish



# Result #4: some specific concerns and alertness

Marine fish species nursery grounds
*Dicentrarchus labrax*



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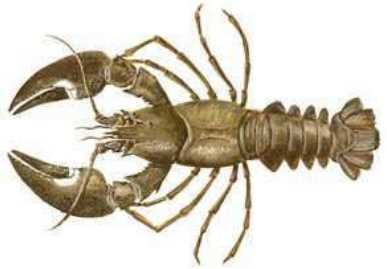
## Marine fish species nursery grounds

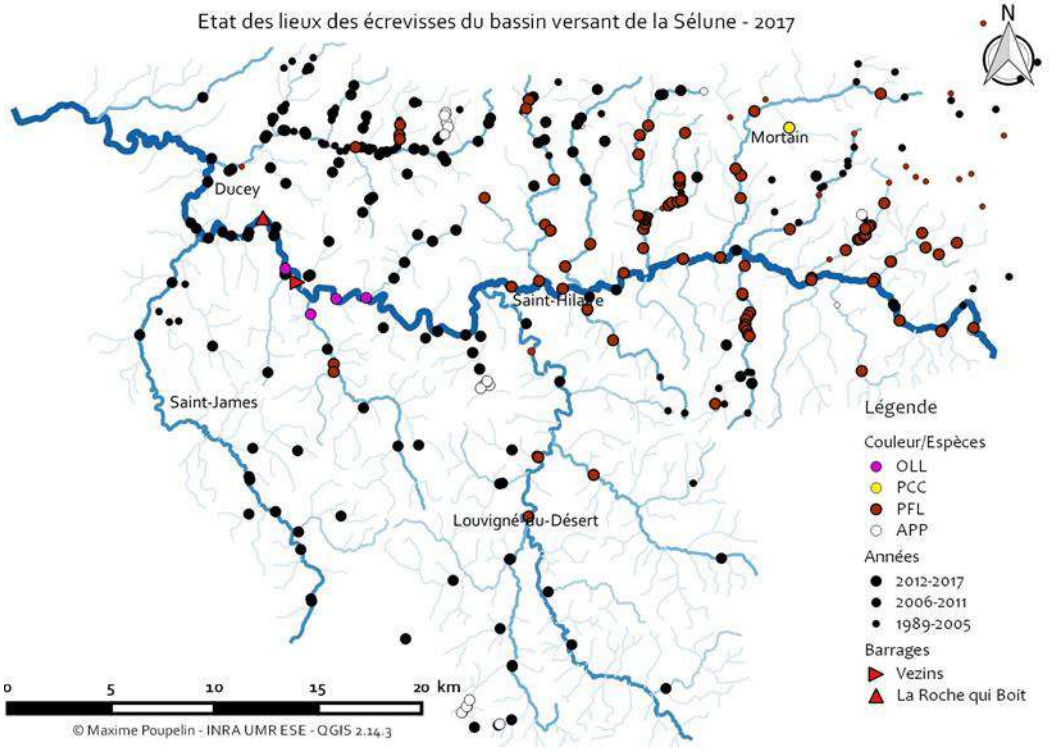
*Dicentrarchus labrax*



## Signal crayfish colonization

*Pacifastacus leniusculus*





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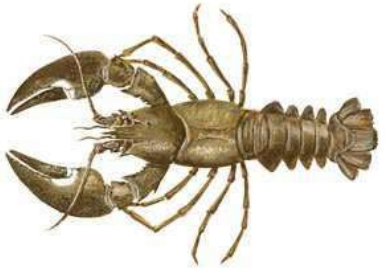
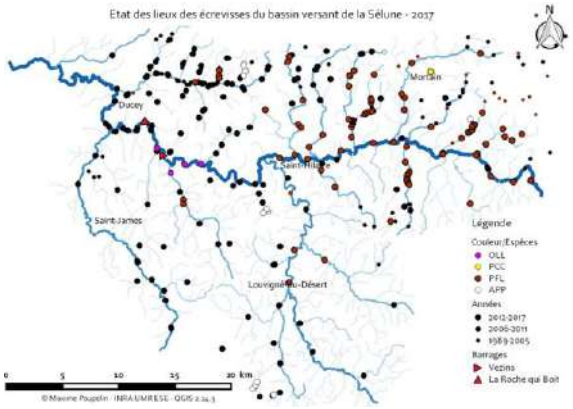
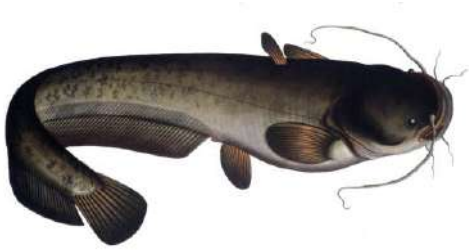
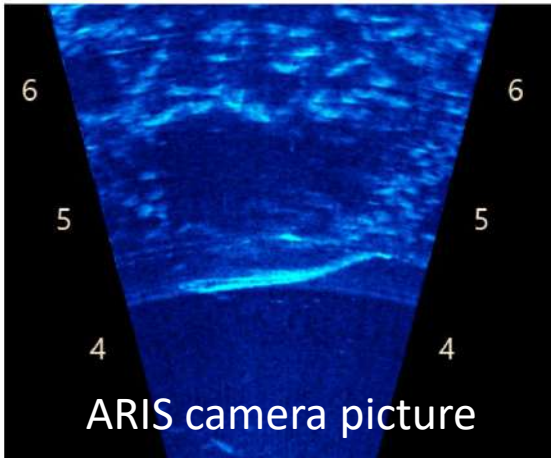





## European catfish population growing
*Silurus glanis*





→ **describe new ecological equilibriums**
**dynamic of restoration**
**role / benefit to diadromous fishes**
**adverse effect of invasive species**


Alexandrine


Stéphane


Maxime

## Acknowledgments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Jean-Marc


Christophe


Eric


Dominique