

Theoretical context

Amphipods from *Posidonia oceanica* meadows :

- Important component of the vagile fauna
- Potential importance in organic matter transfers from producers to higher level consumers

However, several major lacks of information...

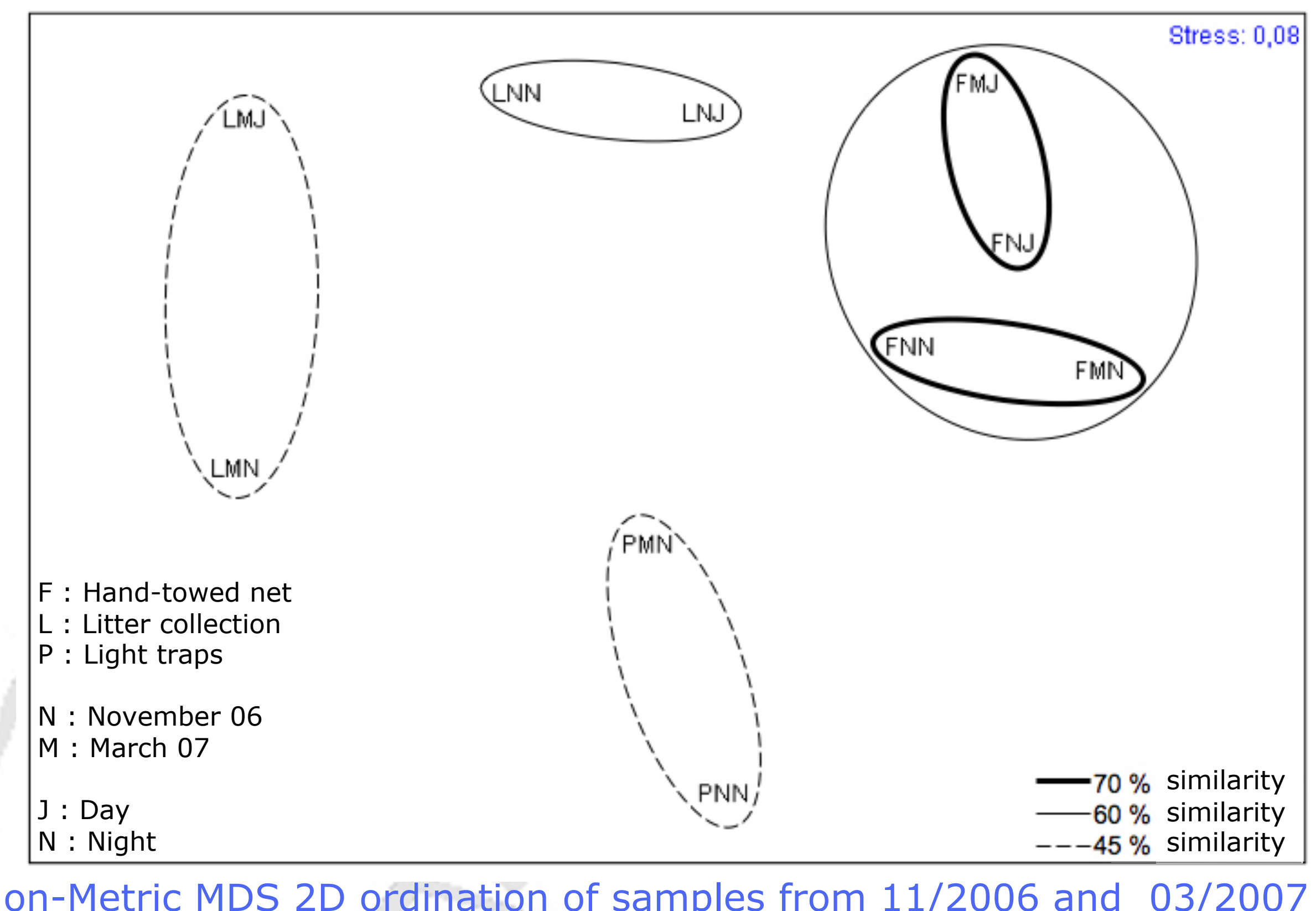
Task 1 : Community structure & temporal dynamics

Precise composition and temporal variation of the community ?

- *In situ* sampling using multiple methods (hand-towed net, litter collection, light traps)
- Temporal variation assessment at diel and seasonal scales

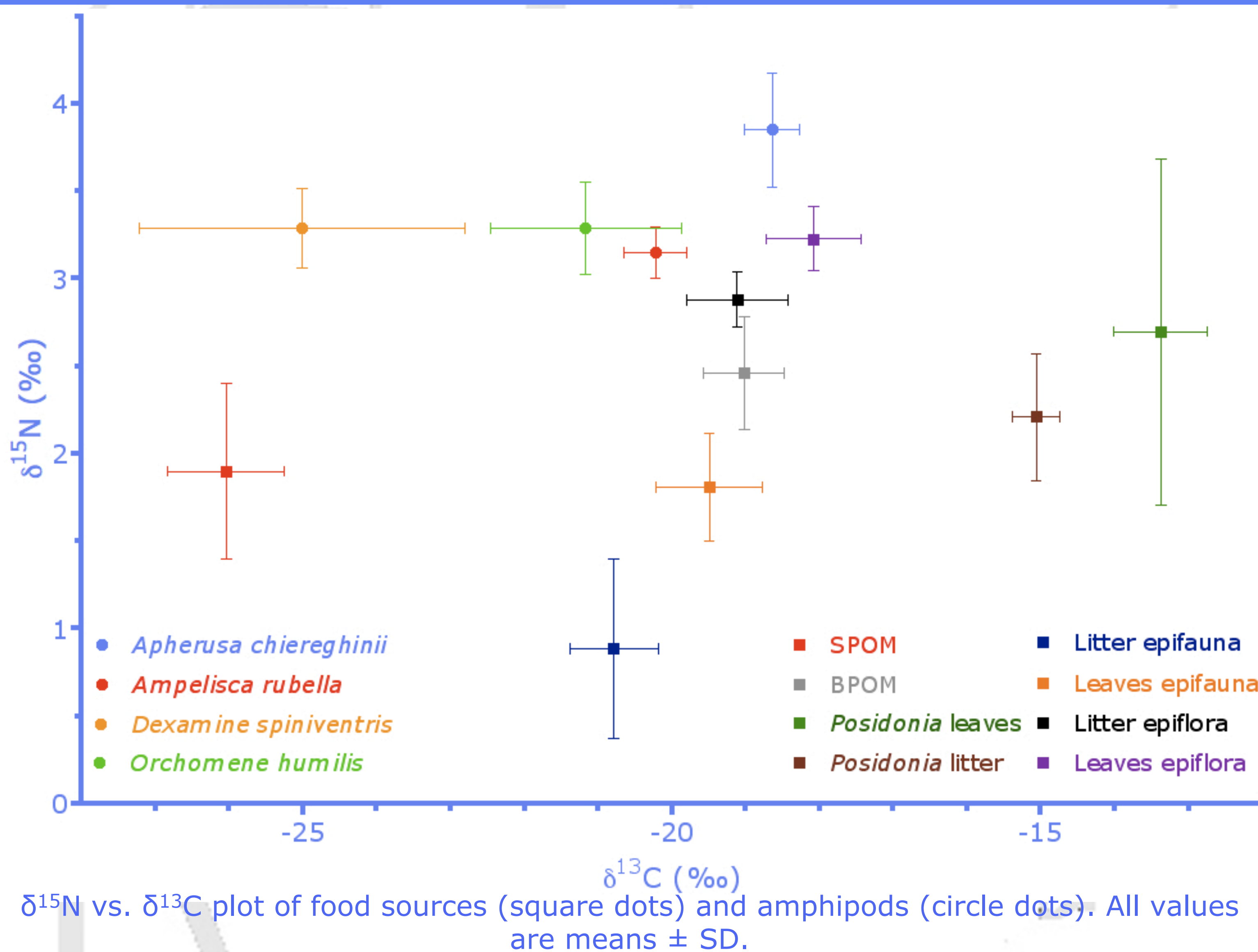
- Abundant and diverse community (> 50 sp.)
- Each sampling method = partial view of a complex community

Further reading : Michel, Lepoint, Dauby & Sturaro, 2009 : Sampling methods for amphipods from *Posidonia oceanica* meadows: a comparative study. *Crustaceana*, In press.



Non-Metric MDS 2D ordination of samples from 11/2006 and 03/2007

Task 2 : Interspecific trophic diversity



$\delta^{15}\text{N}$ vs. $\delta^{13}\text{C}$ plot of food sources (square dots) and amphipods (circle dots). All values are means \pm SD.

Feeding habits poorly known... Interspecific trophic diversity ?

→ Sampling of amphipods and food sources

Observation of gut contents (optical microscopy)

Use of trophic markers (stable isotopes, fatty acids)

Accurate overview of the amphipods' diet

→ Most species seem to be (at least partially) epiphyte grazers

→ However, interspecific differences exist, and some species rely on alternative food sources.

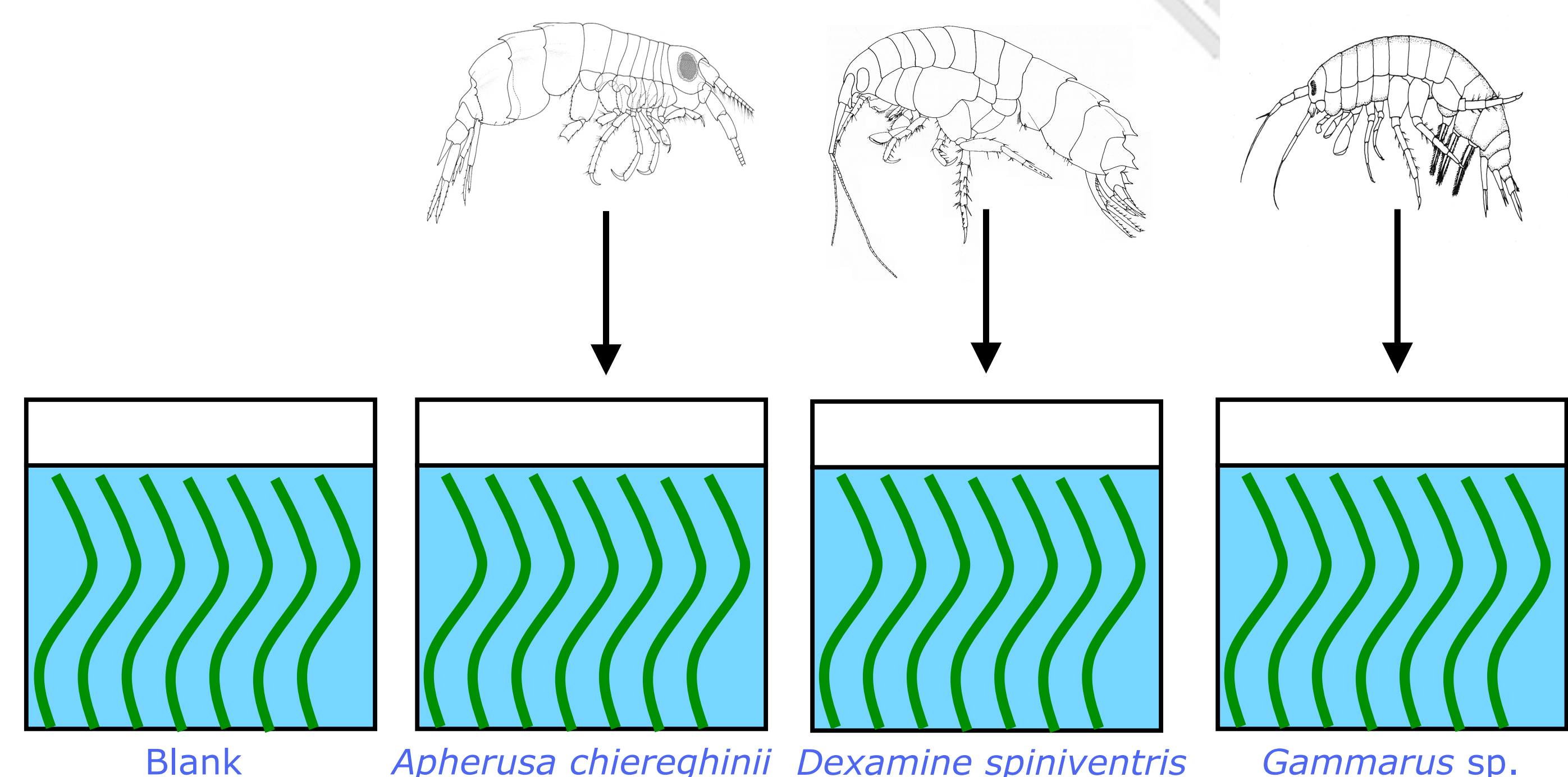
Further reading : <http://hdl.handle.net/2268/6001> & <http://hdl.handle.net/2268/7658>

Task 3 : Impact of amphipod feeding activity on ecosystem functioning

How does amphipod grazing (cf. task 2) influence the dynamics of the epiphytic community ?

→ *In vitro* & *in situ* experiments, using microcosms
After 2-4 weeks :

1. Quantify impact of amphipod feeding on *Posidonia* leaves and/or epiphytes biomass
2. Quantify epiphyte assimilation by grazers, and secondary production
3. Highlight interspecific differences.



Conclusions & expectations

By associating *in situ* sampling with *in vitro* experiments, and by combining traditional and innovating techniques, we aim to

- Enhance the knowledge of the structure of this community, and of its trophic diversity
- Put the data obtained back into a wider frame, *i.e.* the *P. oceanica* meadow ecosystem functioning.

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