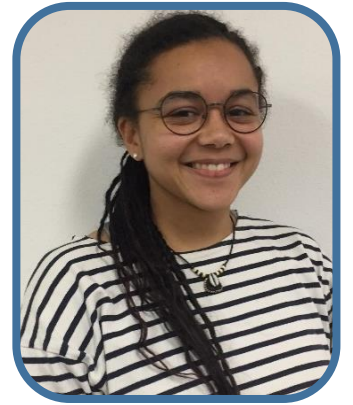


Impact of climate change on carbon cycle in small ponds

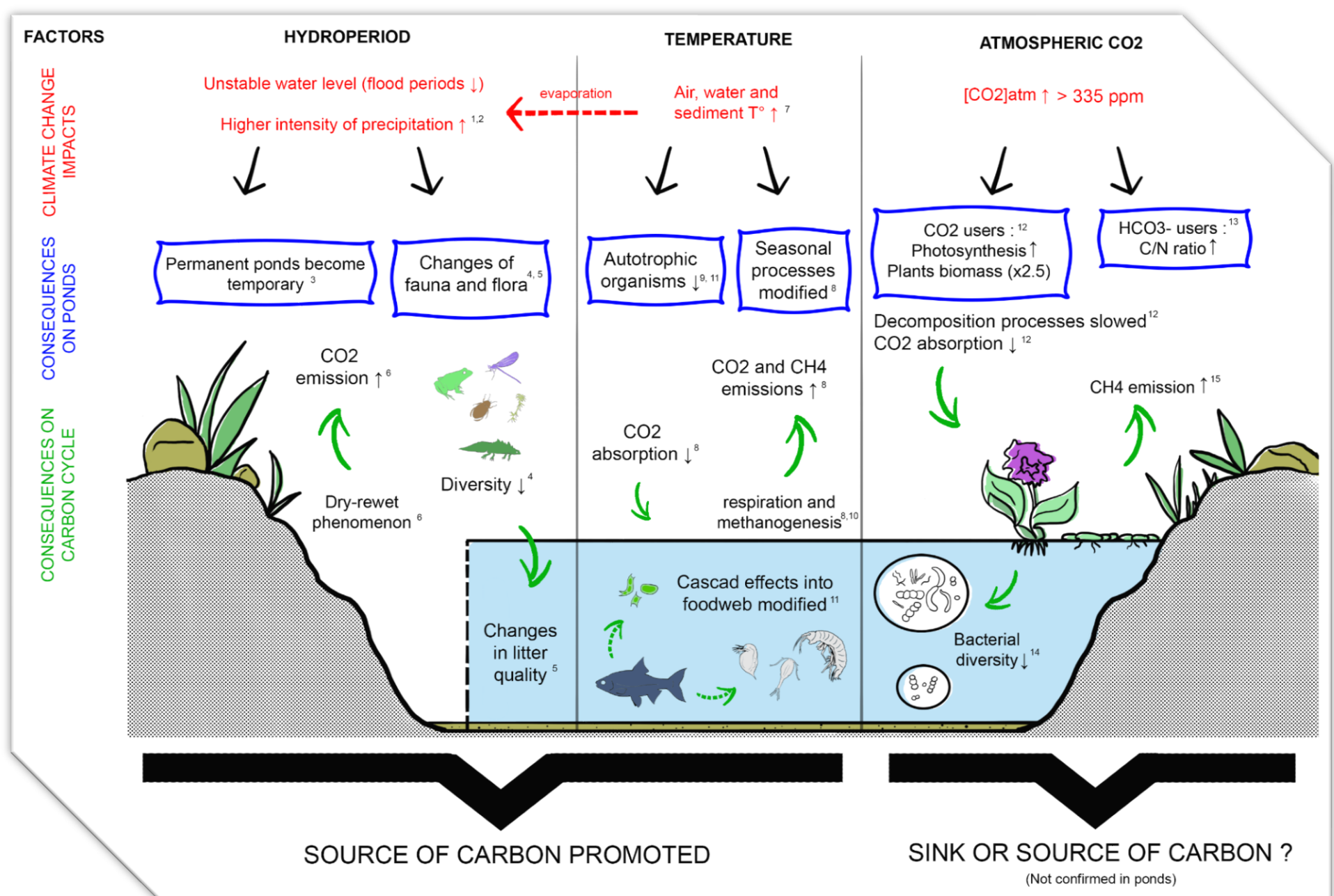


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Scientific issue : How climate change affects the different parameters structuring ponds and what are the implications for carbon fluxes ?



- ❖ Ponds represent 15.1% of total CO₂ emissions from lentic systems and are not taken account in models.
- ❖ Carbon cycle in ponds are poorly studied compared to other aquatic systems such as lakes and they are mostly investigated in the northern hemisphere.
- ❖ Unstability of hydroperiod decreases ponds biodiversity which compose the allochthonous and autochthonous organic matter of litter and increases dry-rewet phenomenon.
- ❖ The rise of temperature into ponds disturbs aquatic foodweb structure and enhances carbon emitting processes.
- ❖ The impact of increasing atmospheric CO₂ into ponds is not well-known, but in other aquatic systems this condition stimulate photosynthesis and carbon storage.

1: Brooks 2004 ; 2: Brooks 2009 ; 3: DelVecchia et al. 2019 ; 4: Brooks 2005 ; 5: Hervé et al. 2020 ; 6: Fromin et al. 2010 ; 7: Ali et al. 2016 ; 8: Yvon-Durocher et al. 2017 ; 9: Shurin et al. 2012 ; 10: Natchimuthu et al. 2014 ; 11: Atwood et al. 2015 ; 12: Van Kempen et al. 2016 ; 13: Hussner et al. 2019 ; 14: Shi et al. 2020 ; 15: Liu et al. 2016