Introduction

[PAR1] Parasites play significant roles in the regulation of fish populations and are more generally recognized as an essential component to understand how global changes will influence future population and community dynamics. While both local and regional drivers of fish parasite prevalence in populations have been studied, no studies have integrated a multi-scale approach necessary to test the validity of scaling-up parasite prevalence across different sampling approaches. Depending on how parasite prevalence scale with space, driving processes could vary with spatial scale, which would seriously hamper generalization on the identified drivers at one specific scale (local or regional). It thus essential to characterize, with multiple sampling approaches, how parasite prevalence scale-up in space, and then identify key drivers accordingly.

[PAR2] Parasites can influence populations and communities by….. (paragraphe qui fait une courte revus sur les effets connus des parasites et leur importance).

Dernière phrase : In that context, identifying key targets to predict parasite prevalence is essential…

[PAR3] Previous work have suggested that X and Y Z are important drivers of prevalence (ici on fait une courte revus des études qui ont tenté d’identifier les variables explicatrices de la prevalence de parasite. Le paragraphe commence avec les études à l’échelle locale et progresse vers les études qui ont intégrées les échelles plus régionales).

Dernière phrase : However, the relative importance of local and regional factors will depend on how parasite prevalence scale with spatial scale. If prevalence scale non-linearly with space, then one cannot simply scale up prevalence-environment relationships (as is the case for species richness and the BEF; REFs).

[PAR4] In this study we aimed to i) test how fish parasite prevalence scale with space, ii) test whether this relationship hold to different sampling approaches and iii) identify key drivers of fish prevalence for future management. Prevalence is measured as a fraction of number of infected on total population or community abundance. As such, only one scenario led to a scale invariant situation: both the numerator and denominator have to scale linearly with increasing sampling area. If this is the case, then we should expect that the relationship between sampling area and prevalence will be null (a flat line), which essentially mean that fish prevalence does not change with spatial scale…..