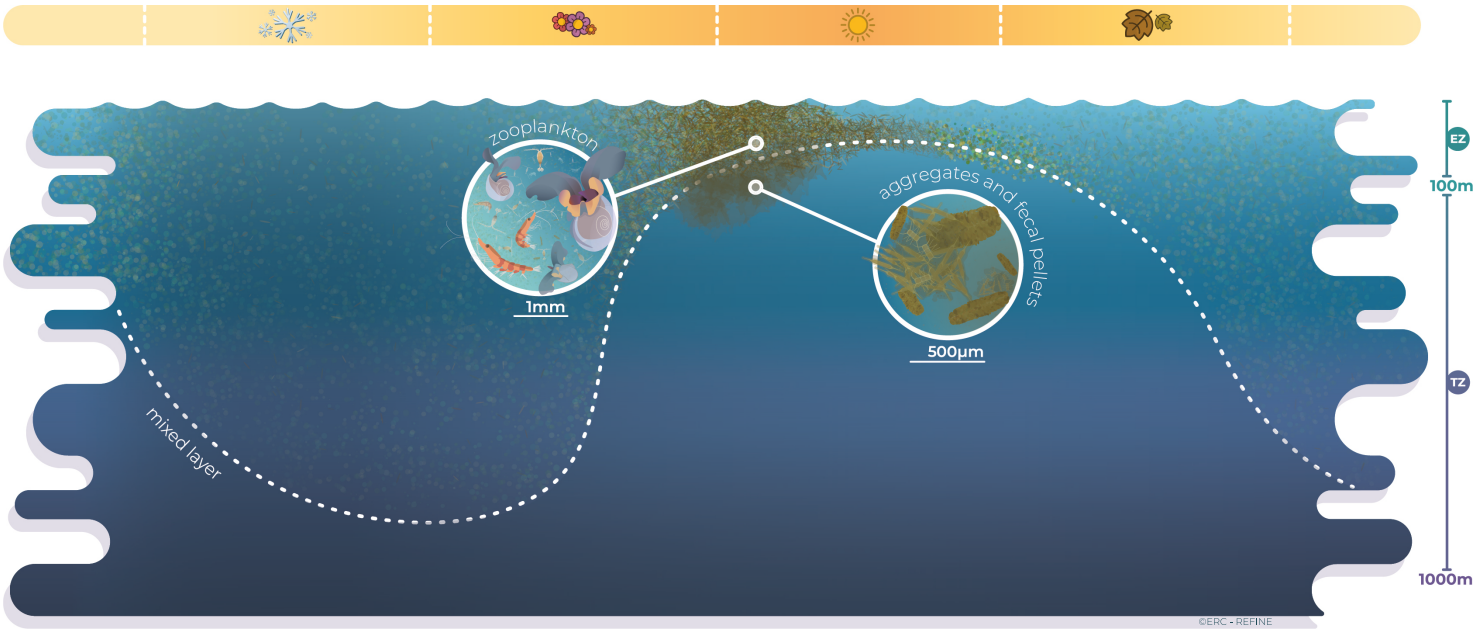
THE GRAVITATIONAL PUMP 2/3



The spring bloom: the key trigger of the Gravitational Pump.

The sudden rise in availability of phytoplankton in spring is beneficial for herbivorous zooplankton (here, krill, pteropods, copepods) that graze on it and can subsequently develop massively.

This development of zooplankton biomass is associated with the production of fecal pellets. Being large, the pellets sink rapidly and contribute to the Gravitational Pump (GP), hence tracing an important route for the transfer of organic material from the EZ to the TZ and below. During their transit to deeper layers, fecal pellets are eventually accompanied by phytoplankton aggregates formed through the clumping of ungrazed phytoplankton cells.

Together, fecal pellets, phytoplankton aggregates and their by-products, all generated most abundantly during the spring bloom and its collapse, can be considered as the main drivers of the GP.