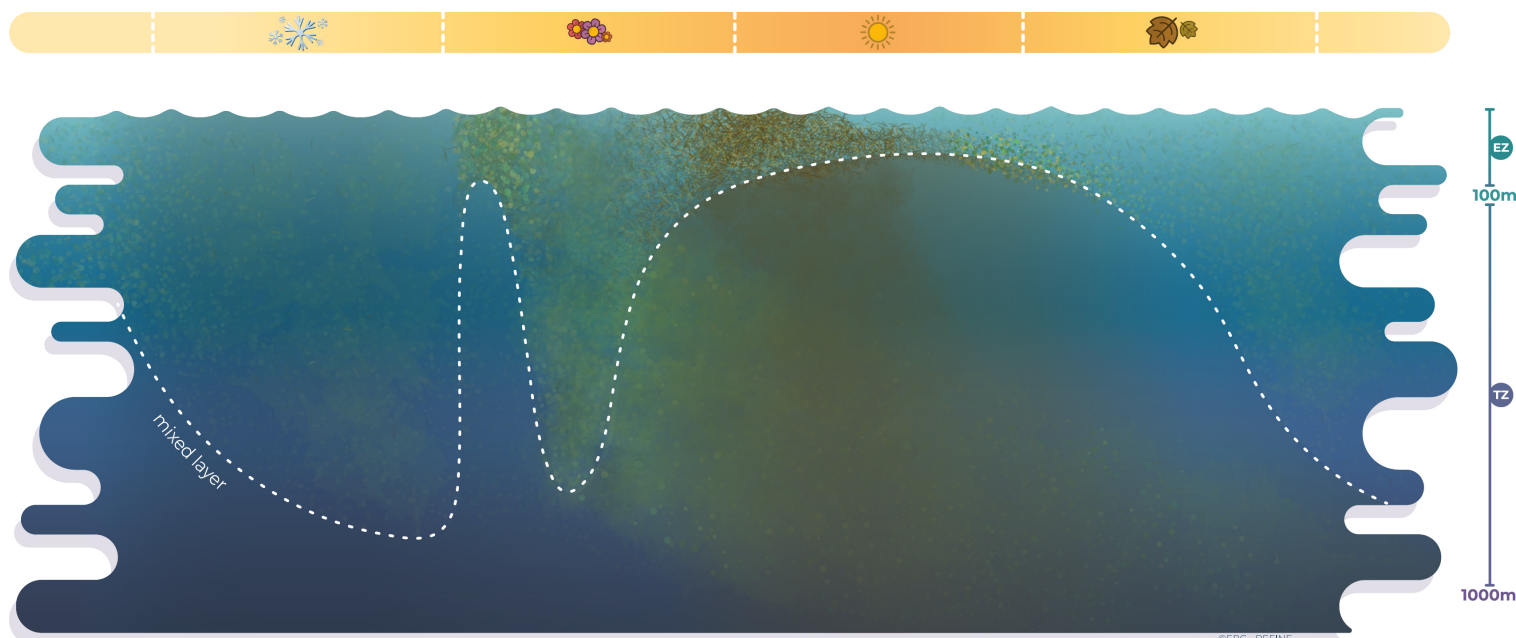


THE MIXED LAYER PUMP

2/2



Where and when Mixed Layer and Gravitational Pumps overlap.

Phytoplankton and associated particles transported downward by the MLP will continue their journey onward to lower depths through gravitational sinking. This way, they will subsequently contribute to the GP. Additionally, they will encounter in the TZ particles issuing from the spring bloom and also escaping from the EZ thanks to the GP.

The two types of particles arriving in the TZ diverge in their residence time and their potential for carbon sequestration. On the one hand, ephemeral blooms associated with the MLP are dominated by phytoplankton such as flagellates, likely to be grazed by microzooplankton — conditions that favor the injection of suspended particles with a low sinking speed into the TZ, where they tend to reside for a considerable period.

On the other hand, the spring bloom is generally dominated by diatoms grazed by large zooplankton, which generate large particles with a high sinking speed that will cross the TZ more rapidly, hence increasing their potential for carbon sequestration.