

Zooplankton transport and distributions in the Gulf of Lions: estimates from a Lagrangian model and optical remote sensing data

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Abstract - Zooplankton is an important part of marine ecosystems. Investigating the relationships between zooplankton and marine ecosystems is crucial to understand the mechanisms guiding the biological production. In this paper, we develop a Lagrangian model to simulate the transport and distributions of zooplankton in the Gulf of Lions coupling with the 3D circulation model Symphonie. We also consider diel vertical migration using a simple swimming pattern with food factor. Chlorophyll concentrations retrieved from optical remote sensing have been used to derive the vertical distributions of the food. The influence of hydrodynamic processes and food on zooplankton transport and distributions has been investigated in 2001. The individuals are released from the plume of the Rhône River and are tracked during 40 days. Results suggest passive individuals released in the plume of the Rhône River spread on the Gulf of Lions shelf or in the Catalan sea. Following the season between a quarter to an half of the initial released individuals stay in the Gulf.