

SENSITIVITY OF BIOPHYSICAL MODELING TO MODEL'S VERTICAL COORDINATE REPRESENTATION. M. J. Olascoaga, E. Chassignet, J. Kindle, and A. Wallcraft. A nutrient-phytoplankton-zooplankton-detritus (NPZD) model is coupled to the Hybrid Coordinate Model (HYCOM) to make assessments of the sensitivity of plankton dynamics modeling to the choice of the model's vertical coordinate representation. An idealized two-dimensional domain (vertical cross section of a meridional channel with free surface and irregular bottom topography) is adopted for this study. The wind stress is chosen to produce upwelling (downwelling) in the west (east) channel's coast. HYCOM's flexibility to the vertical coordinate choice is exploited to perform numerical simulations using: (i) fixed z -levels, (ii) ρ -coordinates (MICOM mode), (iii) following topography σ -levels, and (iv) hybrid (z -, ρ -, and σ -coordinates) layers (standard HYCOM mode). Particular attention is paid to the effects of diapycnal mixing and mixed-layer representations on biophysical interactions modeling in the different experiments. Further experiments will be the inclusion of a nine-component biological model as well as an application to the coast of California.