



Environmental influence on anchovy eggs and larvae transport in the Black Sea: a modeling study.

B.A. Fach, **B. Salihoglu**, T.I. Oguz

Institute of Marine Sciences, Middle East Technical University, Turkey

(bfach@ims.ims.metu.edu.tr)

With a population dynamics model the influence of environmental factors on the distribution of anchovy eggs and larvae in the Black Sea is studied. The model is initialized by specifying number of eggs with a given individual weight at different spawning areas indicated by the available observations. Zooplankton biomass within the sea is computed by a lower trophic food web model. Spawning is considered to begin in early June and last for 90 days when mixed layer temperatures are greater than 20°C. Each cohort of daily spawned eggs is subject to natural and predation mortalities, as well as somatic growth and metabolic loss which are all dependent upon zooplankton biomass and temperature. They are advected by current fields provided by daily circulation model (POM) predictions which involve the assimilation of altimeter data for 1992-1994. The present version of the model includes neither active swimming of juvenile and adults, nor fishing mortality to isolate the effect of life cycle characteristics as well as environmental influences on anchovy dynamics. Model results indicate that individuals are strongly controlled by advection through the Rim Current circulation around the periphery of the basin and are locally controlled by mesoscale eddies. It is found that the coastally attached anticyclones are more preferential foraging grounds of anchovy. Future plans are to couple the model dynamically with the lower trophic food web model.