Geophysical Research Abstracts,
Vol. 11, EGU2009-11408, 2009
EGU General Assembly 2009

Regulation of *Mnemiopsis leidyi* dynamics by potential changes in temperature and zooplankton conditions in the Black Sea.

B. Salihoglu, B. Fach, and T. Oguz
IMS-METU, Mersin, Turkey (baris@ims.metu.edu.tr)

Providing a comprehensive understanding of the effects that cause formations of ctenophore blooms in the Black Sea is the main objective of this study. In order to analyse ctenophore dynamics in the Black Sea a zero-dimensional population based model of the ctenophore *Mnemiopsis leidyi* is developed. The stage resolving ctenophore model combines the modified form of stage resolving approach of Fennel, 2001 with the growth dynamics model of Kremer, 1976; Kremer and Reeve, 1989 under 4 stages of model-ctenophore. These stages include the different growth characteristics of egg, juvenile, transitional and adult stages. The dietary patterns of the different stages follows the observations obtained from the literature. The model is able to represent consistent development patterns, while reflecting the physiological complexity of a population of *Mnemiopsis leidyi*. Model results suggest that different nutritional requirement of each stage may serve as the bottlenecks for population growth and only when growth conditions are favorable for both larval and lobate stages, the high overall population growth rates may occur. Model is also used to analyse the influence of climatic changes on *Mnemiopsis leidyi* reproduction and outburst. This study presents and discussed how potential changes in temperature and zooplankton conditions in the Black Sea may regulate *Mnemiopsis leidyi* dynamics.