Tropentag, September 18-21, 2016, Vienna, Austria

"Solidarity in a competing world — fair use of resources"

Stock Assessment of the Mediterranean Horse Mackerel, *Trachurus mediterraneus* in the Egyptian Mediterranean Coast Off Alexandria

Sahar Mehanna[1], Fahmy El-Gammal[1], Maria Yankova[2]

[1] *National Institute of Oceanography and Fisheries (NIOF), Fish Population Dynamics, Egypt*
[2] *Institute of Oceanology, Marine Ecology and Biology, Bulgaria*

Abstract

Population parameters such as age, growth, mortality and maturity-at-age are crucial parameters for accurate stock assessment and management plans to ensure the sustainable development of fisheries. Also, they are essential for the calculation of spawning stock biomass (SSB) and equilibrium yield as well as biological reference points. Mediterranean horse mackerel is one of the most important component in the purse-seine fishery along the Egyptian Mediterranean coasts especially Alexandria fishing area. Age and growth parameters were estimated for *T. mediterraneus*, sampled from commercial landings of the purse seine fishery in the Egyptian Mediterranean waters off Alexandria during the period from July 2013 until April 2015. Samples were collected bimonthly. Although there is a closed fishing period, from Mid May until the end of June, this measure is not enforced like the other proposed regulations. Also, the fishing laws in Egypt have many regulatory measurements but unfortunately not enforced. Age and growth study was based on otolith's reading technique. Back calculated lengths were used to estimate the von Bertalanffy growth parameters by applying Ford-Walford plot. Total, natural and fishing mortality rates, exploitation ratio, length-at-50 % maturity and the length at first capture were also estimated. These critical lengths are used for determining the optimum mesh sizes of the purse-seine nets in Alexandria fishing ground. SSB analysis showed that the effort reduction is strongly recommended such that fishing mortality is reduced by 40 % to rebuild spawner biomass to acceptable levels. Beverton and Holt Per-recruit analysis revealed that fishing mortality should be reduced by about 30 % for mackerel to achieve the maximum yield per recruit.

Keywords: Egypt, management, mediterranean horse mackerel, population dynamics

Contact Address: Sahar Mehanna, National Institute of Oceanography and Fisheries (NIOF), Fish Population Dynamics, P.O. Box 182, Suez, Egypt, e-mail: sahar_mehanna@yahoo.com