

## **Results of the Turkish Scientific Surveys on Black Sea anchovy**

### **- New requirements to modern era-**

Since 2011, Middle East Technical University Institute of Marine Sciences, together with Trabzon Institute of Central Fisheries Research of Turkey conducted 15 scientific fisheries surveys in the Black Sea targeting anchovy. Although the main objective of the surveys was to understand the spawning, migration and overwintering behavior of the species on the southern half of the Black Sea, the data and the results of the surveys raised some important issues for the assessment of Black Sea anchovy stock.

Three ichthyoplankton surveys conducted successively on July 2013, 2014 and 2015 indicated that the size of the southern stock has increased remarkably when compared to 1990s. An additional survey conducted in October 2014, showed that the eggs spawned on the south survive and recruit to the stock. These findings are important for the definition of the stock units.

As for the migration studies, results showed that the anchovy do not necessarily follow their classic route every year and they may display remarkable changes depending on the cooling rate and pattern over the entire basin. The most striking case has been experienced in 2015 when the first schooling anchovies, which are usually sighted on the western-central Black Sea coast Turkey were spotted at the Turkish-Georgian border. The migration models developed based on the field observations suggested that due to the cooling pattern experienced in the autumn 2015 the anchovies might possibly followed an offshore route, did not approach to the Turkish coast and headed directly east, towards Georgia. As a consequence of this unusual situation, Turkey who used to exploit by far the largest part of the stock lost its share to Georgia. In fact, unexpected drop in the Turkish landings has been experienced several times in the past and disregarding the rest of the basin, it was considered collapse of the stock associated with some other factors, such as exotic invaders, or predators.

These observations clearly show that anchovy has to be monitored and assessed jointly, at least, by Georgia and Turkey