

## Modern Information of Functional and Metabolic Activity of the Black Sea Sprat and Anchovy

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Condition of small pelagic fishes in the Black Sea is changing very quickly. It is significant to assess these changes during last years. We obtained new data on sprat *Sprattus sprattus phalericus* (Risso, 1827) and anchovy *Engraulis encrasicolus ponticus* (Aleksandrov) stock condition. This shows the trends of such changes in studied species in close relationships with environmental factors. In the same time it will help to estimate the situation in the Black Sea pelagic ecosystem on the whole because a small pelagic fish at present is really upper level of its trophic chains. Temperature and food supply are two the most important environmental factors that control stock and population condition of mass small pelagic fish in the Black Sea. It is well known that water temperature in the Black Sea increased last decade due to global warming. It strongly decreased fat content of cold-tolerated sprat that indicated worsening of fish food supply. This affected negatively on energy potential of sprat populations. On the contrary temperature warming influenced positively on fat accumulation in warm-tolerated anchovy. There is relationship between fat content of fish populations and their stock abundance. We demonstrate this on the connection between primary fodder base (concentration of phytoplankton) of the Black Sea pelagic ecosystem and total biomass of anchovy and sprat stocks during last 5 decades. For this aim we compared phytoplankton concentration in Pre-Danube shallow region of largest primary productivity with stock value of anchovy + sprat. Data on stock value for last years are absent but there is high correlation between stock value and landing of small pelagic fish for periods of 1967- 1992 years ( $r = 0.81$ ;  $p < 0.01$ ). There is close correlation between phytoplankton biomass and fish stock values, excluding period of so named ecological crisis (1989-1992). This relationship (Q -value) is good indicator for estimation connection between small pelagic fish abundance and state of primary fodder base in the Black Sea ecosystem (efficiency of fish production). This Q-value shows that situation in the Black Sea pelagic ecosystem in 2000s did not return to pre-eutrophication period (1960s) and is on intermediate position between 1960s and 2000s.