

## عنوان مقاله:

Analysis of landings and environmental variables time series from the Caspian Sea

## محل انتشار:

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## خلاصه مقاله:

In the present study, the time series encompassing the years 1950-2011 of commercial landings from the Caspian Sea were analyzed using min/max autocorrelation factor analysis (MAFA) and dynamic factor analysis (DFA). These aim was to identify trends and explore the relationships between the response variables (annual landings of 10 species/groups such as kilkas, kutum, common carp, pike perch, roach, shads, bream, mullets, seal and sturgeons) and explanatory variables (sea level and Volga river water volume). Landings were more highly correlated with environmental variables. Both techniques gave coherent results, indicating that the two most important trends in the response variables are: (i) a decrease in landings during second half of the time-series, and (ii) a fluctuating pattern. The main common trends obtained by MAFA and DFA were positive relation with kilkas, sturgeons, seal and shads. The most significant MAFA axis showed a steady stability in the first half and a sharp decrease in the second half, which was similar to the most important common trend of the DFA. Species such as kilka, sturgeons, seal, shads, and perch were significantly positively related. On the contrary, landings of two species, mullets and kutum were negatively related to the first trend. Considering our results on the ecological and environmental data, these variables and impacts of human activities should be taken into account when managing coastal environments for the conservation of these species/groups in the Caspian basin.

## کلمات کلیدی:

min/max autocorrelation factor analysis, dynamic factor analysis, Caspian Sea, landings, Time series

## لینک ثابت مقاله در پایگاه سیویلیکا:

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