

Food & Nutrition

May 22-24, 2017 Las Vegas, USA

Climate change and food: Why did so many Alaska /walleye pollack disappear?

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Alaska / walleye pollack (myeong-tae) is one of the preferred fish species in Korean cushion. It is used as fish itself and its eggs and intestines are used as fermented food. The annual catch of the fish was more than 50,000 tons in 1981, but dropped to less than 10,000 tons in 1990. It is not even counted today. It has been suspected that it is because of climate change, however, few study reported. This study was performed to investigate the relationship between the production of Alaska / walleye pollack in Korea and various oceanographic factors. We used annual production data of Alaska / walleye pollack of offshore fisheries from the Fisheries Yearbooks and Agricultural and Fisheries Statistics, and official data of National Fisheries Research and Development Institute for the oceanographic condition of the 30 years (1981~2010). Time series analysis and correlation analysis were used for this study. Both air temperature and surface sea temperature rose during the 30 years. The temperature rise of the East Sea / Japan Sea, a main fishing ground of the fish, was the most prominent. Among the oceanographic factors, sea surface temperature, salinity, nitrite nitrogen, nitrate nitrogen, wind scale and grade were negatively correlated with the production of Alaska / walleye pollack ($p < 0.05$). Only salinity was positively correlated with production of the fish ($p < 0.001$). The results of this study indicate that climate change affected the oceanographic environment of the habitat of Alaska / walleye pollack. The results also indicate that low sea surface temperature and air temperature, low concentration of nutrients, mild wind scale and grade, and high salinity are preferred by the fish species. This study suggests that most of the major pollutant indices affect the production of Alaska / walleye pollack.

Biography

Jong-Gyu Kim has completed M.P.H and Ph.D at Seoul National University. Currently she is working as Professor at Keimyung University.

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