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Long-term climate change and food supply in South Korea: focused on fishery products

Jong-Gyu Kim and **Joong-Soon Kim***
Faculty of Food and Health Sciences, Keimyung University, Korea / University of Washington, U. S. A.
*Dept. of Industrial and Management Engineering, Keimyung University, Korea / Oregon State University, U.S.A.

This study was performed to investigate a long-term impact of climate change on the capture of offshore fisheries in Korea over the past three decades and their effect on the consumer price index (CPI) of popular fish species for Korean cousin. The data used were official data such as Jeongsun Marine Survey and specialized agencies for the past 30 years (1981~2010). Time series analysis, regression analysis and correlation analysis were used. Not only land surface temperature but also sea surface temperature of offshore waters increased over the past 30 years, and both have positively correlated ($p < 0.01$). The rise of sea surface temperature in the East Sea was especially prominent than those in the South Sea and the West/Yellow Sea. The capture fisheries production in offshore fisheries has overall declined gradually and only 36% in 2010. In particular, the cold-water fish species such as Alaska/walleye pollack and Sailfin sandfish have almost disappeared or much decreased, while warm-water fish species such as anchovy, squid, and common mackerel have increased. Korean's aquatic food consumption has increased in recent years and is at a global level, however, the self-sufficiency rate declined considerably to 77.9% in 2010. Among the fish species preferred in Korea, the production quantity of largehead hairtail and Alaska/walleye pollack had a significant effect on total CPI ($p < 0.01$). The CPI of Pacific saury tended to be similar to the total CPI during the past 30 years, reflecting overall consumer prices. These results indicate that global warming affected not only sea water temperature rise, but also had remarkable impact on the production of offshore fisheries. The decreased supply of the offshore fisheries and increased demand may result in occurring fishflation. There is need for policy response and strategies and implementation to ensure a stable supply of fishery products.

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.

jgkim@kmu.ac.kr

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