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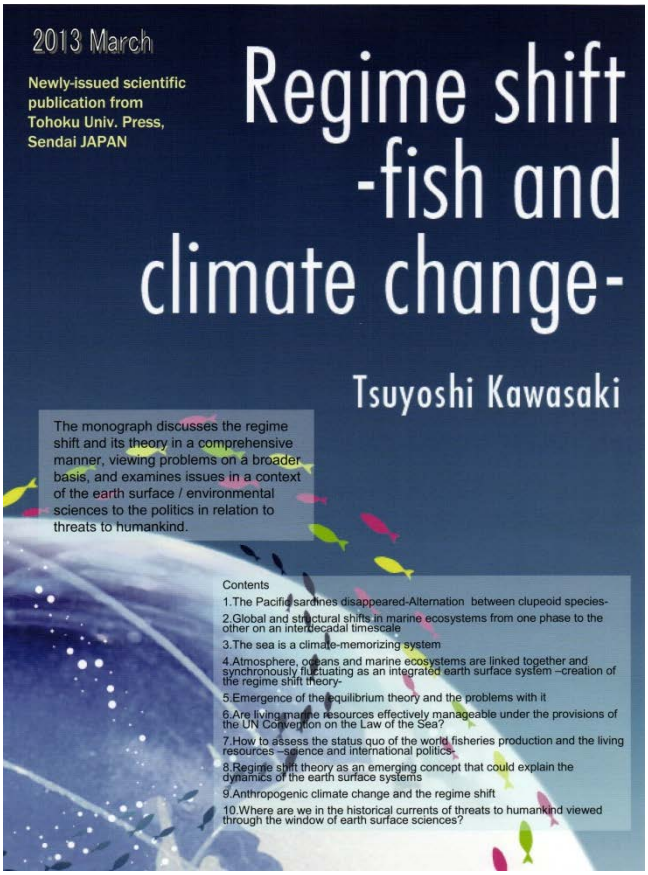

Atmospheric and oceanic components of marine ecosystems vary together at inter-decadal time scales and global spatial scales. This type of coherent variability is referred to as "regime shift". The regime shift theory originated from Professor Tsuyoshi Kawasaki's recognition of synchronous changes in biomasses of a small pelagic fish, the sardine, in various marine ecosystems bordering the Pacific Ocean. Over the last four decades, this theory has developed into a leading study area, not only in fisheries science, but also in marine biology, meteorology, climatology, and physical and biological oceanography. Professor Kawasaki was acknowledged internationally as the "father-of-regime-shift", a title offered by Professor Warren S. Wooster, a principal founder and the first Chairman of PICES.

A new book by Professor Kawasaki, titled "*Regime Shift – Fish and Climate Change*" (Tohoku University Press, March 2013, 162 pp., ISBN 978-4-86163-205-1 C3044) discusses the beginning of the regime shift theory, its application to sustainable use of living marine resources, and potential mechanisms responsible for regime shifts. In the mid 1970s, Kawasaki recognized synchronous changes in the sardine populations of the Kuroshio/Oyashio, California and Humboldt Current systems and noted their correlation with changes in global temperature. He first described these findings at the FAO Conference in San José, Costa Rica, in April 1983 (Kawasaki, T., 1983, Why do some pelagic fishes have wide fluctuations in their numbers?, FAO Fish. Rep. 291, 1066–1080). Prior to Kawasaki's revelation, the prevailing hypothesis regarding populations of small pelagic fishes focused on the balance between commercial fisheries catch and the carrying capacity of the ecosystem. Kawasaki's new theory was not well received initially, however, a subsequent paper on population dynamics of sardines and their relation to global variability in temperature (Kawasaki, T. and M. Omori, 1988, Fluctuations in the three major sardine stocks in the Pacific and the global trend in temperature. Long Term Changes in Marine Fish Populations, pp. 37–53.) attracted the interest of many scientists and motivated workshops to further investigate "regime problems". Principal aspects of the regime shift theory, which are highlighted in the book, include the dynamic nature of the earth system and utilization of living marine resources after consideration of their natural variability. With regard to potential mechanisms of regime shifts, Kawasaki recently proposed the trophodynamics hypothesis as a concept of variable energy flow in the food chain among phytoplankton, zooplankton, and small and large pelagic fishes in response to climate changes.

Nearly four decades have passed since the initial development of regime shift theory. For his contribution to the community's understanding of marine resources and their dynamics, Professor Kawasaki was awarded the Shinkishi Hatai Medal from the Pacific Science Association at the Twenty-First Pacific Science Congress in Naha, Okinawa, in July 2007 [This medal was established in 1966 to honor contributions of Dr. Shinkishi Hatai, the first professor in biology at Tohoku University (Sendai, Japan), to Pacific marine biology. The medal has been awarded since at every Pacific Science Congress to distinguished leaders in this research field (www.pacificscience.org/hataimedal.html).].

Professor Kawasaki has worked diligently to share his theory with the scientific community worldwide and has published some monographs in Japanese. One of them for the general public was translated into Korean with the English title "*Climate Change and Fish*", and published in 2012. A long-awaited English version includes more thorough discussions for scientists, managers and politicians and also a concise description of his life's work on the science of the earth system.

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