International Symposium on

Greening Fisheries

Towards Green Technologies in Fisheries

21-23 May, 2013, Cochin

ABSTRACTS

Society of Fisheries Technologists (India)
URL: http://www.fishtech.org/

and

Central Institute of Fisheries Technology, Cochin
CIFT Junction, P.O. Matsyapuri, Cochin-682 029, India
URL: http://www.cift.res.in/

Common trends in landings of marine fish resources in India examined through Dynamic Factor Analysis

T.V. Sathianandan*, Somy Kuriakose and K.G. Mini
Central Marine Fisheries Research Institute
Post Box No. 1603, Ernakulam North P.O., Cochin - 682 018, India
*E-mail: sattvsedpl@hotmail.com

Dynamic factor analysis (DFA) is a multivariate time series technique where in a set of time series are analyzed simultaneously to identify underlying components such as common trends, common seasonal patterns, common cycles, effects of explanatory variables and interaction between series. Time series data on all India annual landings of prominent 16 resource groups during 1980-2010 were used to determine common trends in their landings through DFA. The data before analysis was scaled for unit variance by dividing with the standard deviation of the series and three common trends were estimated for the multivariate time series data. The estimated first common trend initially shows an increasing trend, reaches a peak and then for few years it comes down slightly and remains steady thereafter. The second common trend shows an initial decline and continues in almost same level for some years and at the end it starts increasing. The third common trend shows an increasing trend throughout the period with little fluctuations. Based on the factor loadings of each of the resource groups corresponding to the three common trends the groups were classified and represented using Venn diagram. Results revealed that carangids and Bombay duck contribute towards trend-1 only with positive and negative coefficients respectively. Both silverbellies and pomfrets contribute only towards trend-2 both with positive and almost equal factor loadings. Clupeids contribute only towards trend-3 with positive factor loadings. Croakers and mackerel contribute almost equally towards trend-1 and trend-2 whereas perches, seerfish, tunnies, flatfishes, crustaceans and molluscs for a homogenous group contributing almost equally towards trend-1 and trend-3. Elasmobranchs also contribute towards trend-1 and trend-3 but in the opposite direction. Catfish and ribbonfish contribute towards trend-2 and trend-3 but with opposite signs.

Keywords: Dynamic factor analysis, marine fish landings, catch trends, India