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**Title:** Index Number Profit Decompositions and Productivity Measurements in Fisheries.

***Abstract***

A method is introduced and applied to analyse changes in productivity of firms harvesting in a multi-species fishery. The index-number technique decomposes firm profits into its contributions and can be used to assess economic performance by both regulators and individual firms across an industry and over time. Using an unbalanced panel of 47 vessels in the South East Fishery of Australia, index-number profit decompositions are obtained for productivity, an implicit output price, fuel price, labour price and a capital stock. The results indicate significant differences in productivity between small and large vessels and over the four-year sample period.