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Theme: Special Sessions

Session: FrG2 - Efficiency

Title: **Measuring Productivity Change and its Components for Fisheries: The Alaskan Pollock Fishery, 1994-2003**

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Abstract: Traditional productivity measures have been much less prevalent than other measures of economic and biological performance in fisheries economics. It has been increasingly recognized, however, that modeling and measuring fisheries' production relationships is central to understanding and ultimately correcting the repercussions of externalities and poorly designed regulations. We use a transformation function production model to estimate productivity and its components for the Bering Sea and Aleutian Islands pollock fishery over a ten-year period. We recognize the roles of externalities from pollock harvesting by incorporating data on environmental conditions (sea surface temperature in the winter and summer months, and an index of storminess), bycatch of multiple prohibited species, and biomass stock. We also capture the regulatory impacts of changes in the institutional structure (away from a derby style fishery and to an ITQ- and cooperative-based fishery) through indicators of changes in fishing strategy and fixed effects. We find that the productive contributions and interactions of environmental conditions, bycatch, and fishing strategies are statistically significant, and that regulatory changes have had both direct and indirect impacts on catch patterns. These results have implications for productivity studies that omit such variables and take a more "standard" approach used in other industries.