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Journal Article of the Year for 1994

# **An Adaptive Model of Perishable Inventory Dissipation in a Nonstationary Price Environment**

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The paper develops an adaptive model of perishable commodity dissipation based on the individual's price expectations and risk perception. A two-step, state-space procedure for modeling nonstationary time series is presented. The method combines an impulse response model for estimating deterministic components with an innovations model for the remaining stationary stochastic noise. Combined parameters are used to generate forecasts and to derive a measure of risk in a nonsta-

tionary price environment. Defined as the variance (covariance) of out-of-sample forecast error, the measure of risk is the difference between the historical estimate of the stationary noise auto-covariance and variance (covariance) of out-of-sample forecasts. The optimal marketing strategy for a hypothetical salmon processor who sells to Japanese wholesalers is developed to illustrate the model. The solution is obtained using quadratic programming algorithm.