School of Aquatic and Fishery Sciences,

Box 355020

(360) 710-9887

FAX (206) 685-7471

04 February, 2016

The Editor

Fisheries Research

Please find the submission entitled “Can autocorrelated recruitment be estimated using integrated assessment models and how does it affect population forecasts?”. This paper outlines a method to account for autocorrelation in estimated recruitment deviations when using age-structured stock assessment models. Autocorrelated recruitment can be caused by several factors, but are typically attributed to multi-year environmental drivers affecting early life survival rates. We found that estimating autocorrelation from estimates of recruitment residuals as output from an integrated assessment model resulted in less a biased estimate than when autocorrelation was estimated internally within the model.

Understanding variability in fishes is one of the greatest challenges faced by fisheries scientists today. Accounting for autocorrelation in recruitment can lead to stock projections which are different than when autocorrelation is not accounted for and thus may be integral to rebuilding plans and the recovery of some stocks. This manuscript is the first to assess the performance of stock assessment forecasts when recruitment is autocorrelated. Methods that work towards decreasing known biases in stock assessment models are important for increasing the sustainability of marine resources and likely to be highly cited.

This paper is all our own work. It is not being submitted for publication anywhere else.

We look forward to your favorable response.

Yours sincerely

Kelli Faye Johnson (corresponding author)

kfjohns@uw.edu