Figure ChangeK: **Performance of Regime Shift Detector Script under conditions of varying K.** Proportion of results with a given outcome under varying % changes in the K constant in the Ricker model at four simulated break point scenarios. Sets of 0, 1, 2 and 3 break points were randomly generated from within the set of possible values, and data were simulated with random 5% sampling error and a 20% shift of r at the given break point. Each series consisted of 25 years of simulated data and each scenario was iterated 500 times. Lines joining points represent a third order polynomial GAM representing the best fit, with standard error. Possible outcomes were A) Successful identification of all break points; B) One extra break point identified; C) One break point missed; D) Correct number of breaks found, but one or more break points misidentified; and E) Complete failure to identify the correct break point combination by the regime shift detector script.

Figure ChangeR: **Performance of Regime Shift Detector Script under conditions of varying r.** Proportion of results with a given outcome under varying % changes in the r constant in the Ricker model at four simulated break point scenarios. Sets of 0, 1, 2 and 3 break points were randomly generated from within the set of possible values, and data were simulated with random 5% sampling error and a 40% shift of K at the given break point. Each series consisted of 25 years of simulated data and each scenario was iterated 500 times. Lines joining points represent a third order polynomial GAM representing the best fit, with standard error. Possible outcomes were A) Successful identification of all break points; B) One extra break point identified; C) One break point missed; D) Correct number of breaks found, but one or more break points misidentified; and E) Complete failure to identify the correct break point combination by the regime shift detector script.

Figure noise\_sim: **Performance of Regime Shift Detector Script under conditions of varying sampling error.** Proportion of results with a given outcome under varying % in sampling error (‘noise’), modeled as randomly generated values selected from a continuous interval within a given % noise, for each observation generated in a simulation. Sets of 0, 1, 2 and 3 break points were randomly generated from within the set of possible values, and data were simulated with a 20% shift of r and a 40% shift of K at the given break point. Each series consisted of 25 years of simulated data and each scenario was iterated 500 times. Lines joining points represent a third order polynomial GAM representing the best fit, with standard error. Possible outcomes were A) Successful identification of all break points; B) One extra break point identified; C) One break point missed; D) Correct number of breaks found, but one or more break points misidentified; and E) Complete failure to identify the correct break point combination by the regime shift detector script.