Nonlinear models

ADMB and stock assessment

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ICES, 18–22 Feb 2013

Outline

von Bertalanffy growth

$$\hat{L}_a = L_\infty \left(1 - e^{-K(a-t0)}\right)$$

Beverton-Holt recruitment

$$\hat{R} = R_{\max} \frac{S}{S + S_{50}} \tag{1}$$

$$\hat{R} = \frac{S}{a + bS} \tag{2}$$

$$\hat{R} = \frac{aS}{1 + bS} \tag{3}$$

$$\hat{R} = \frac{aS}{1 + S/b} \tag{4}$$

Ricker recruitment

$$\hat{R} = R_{\max} \times \frac{S}{S_{\max}} \times exp\left(1 - \frac{S}{S_{\max}}\right) \quad (1)$$

$$\hat{R} = aSe^{-bS} \quad (2)$$