Supporting Information for

**Limited predictability of body length in a fish population**

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**This file includes:**

**Figure S1.** Changes in body length at age across ages 3–12y from year 1946 to 2004 (original data comes from Eikeset et al. 10.1073/pnas.1525749113).

**Figure S2.** Chaos detection of time series without noise. (A, D and G) Original data without noise; (B, E and H) Attractor reconstruction; (C, F and I) Lyapunov exponent of body length: *D* is the neighborhood radius, *m* is the embedding dimension and *C* is the correlation integral, which is influenced by both *D* and *m*. In each rectangle, *m* varies from 5 to 12 (from top line to bottom line, *m*=11 can be obtained for each case when the rate of change of ln*C*(*m*, *D*) with ln*D* does not change with the increase of *m*). Body length class I (*S1*), class II (*S2*) and class III (*S3*).

**Figure S3.** Bifurcation diagrams of the biomass *C1* vary with each ecological parameter. All parameters are presented in table 1 except for *V1*=*V2*=*V3*=*V4*=0; the initial value of Eq. (1) is (0.1, 0.1, 0.03, 0.02, 0.03, 0.01, 0.01, 2.2, 2.4, 2.8, 3).



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