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Marked recent declines in boron in Baltic Sea cod otoliths – a bellwether of incipient acidification in a vast hypoxic system?

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Figure S1. Principal components plot for first two components for water data, Gotland Deep, 1985-2019.

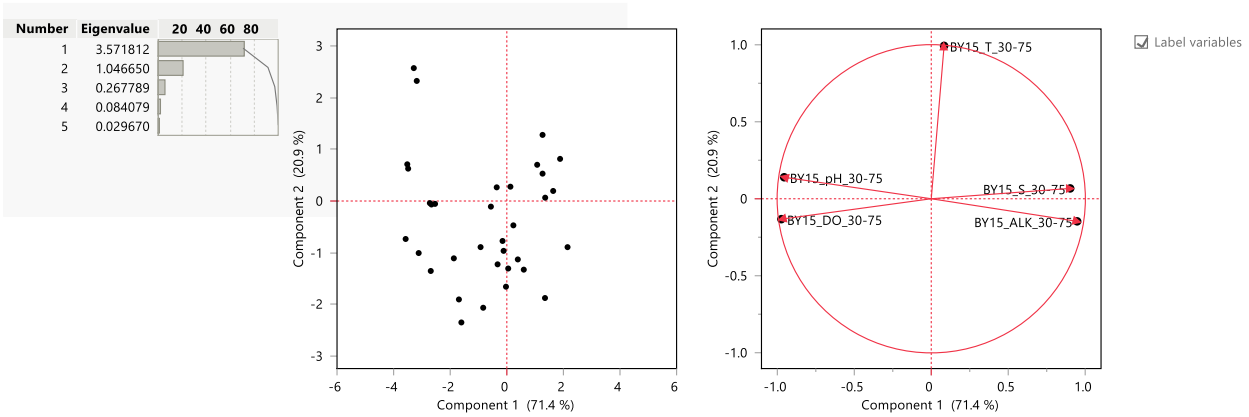

Figure S2. Mean annual B:Ca by Age and Decade.

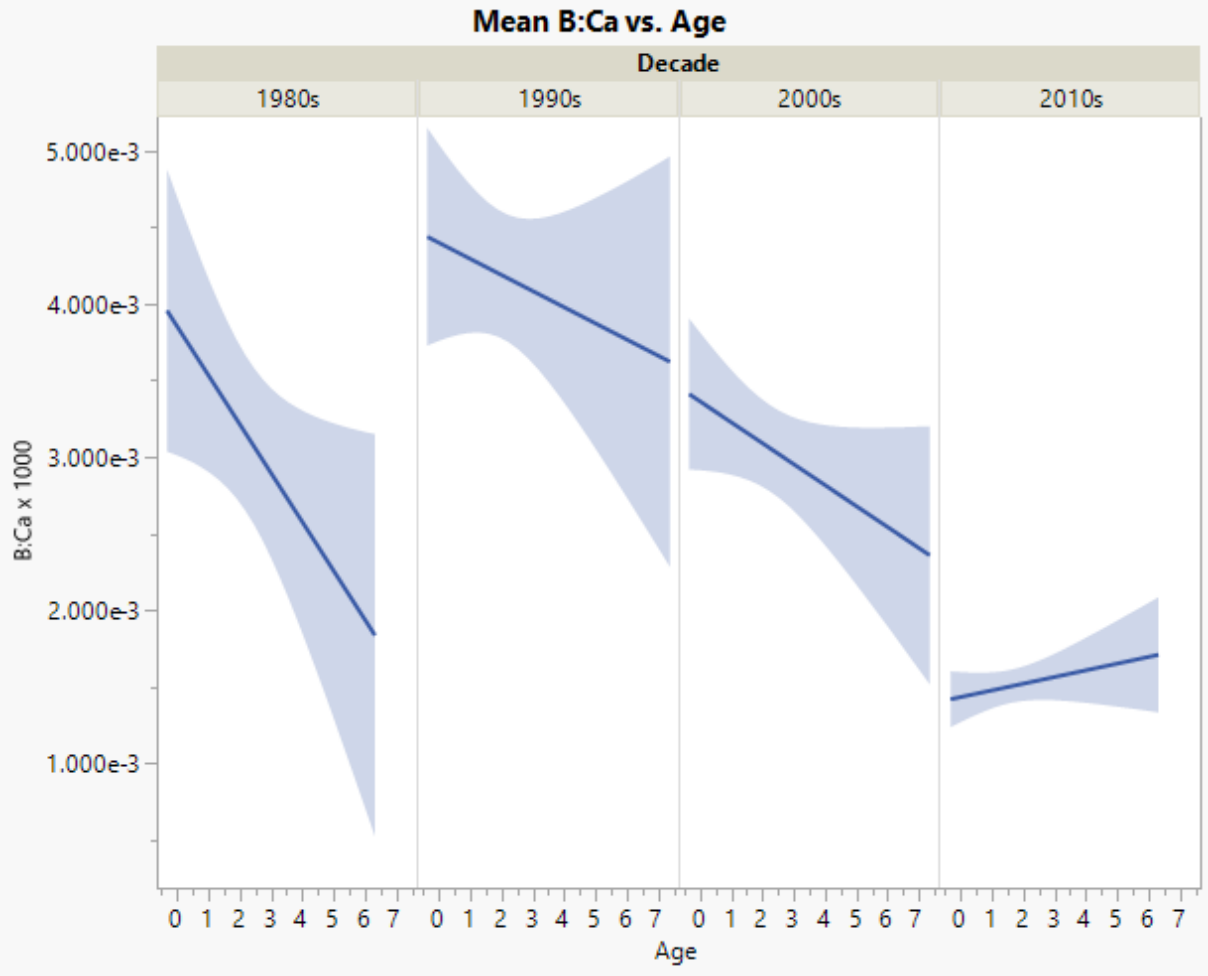

Figure S3(a). Plots of statistics for regressions of P:Ca on B:Ca computed for each otolith analyzed. Individual otolith slopes are plotted here as a function of the corresponding R^2 values. Iceland is included as an out-group. Steeper positive slopes with higher R2 values imply an unknown physiological control on B:Ca, since P:Ca is under physiological control. Dashed horizontal line shows slope = 0.

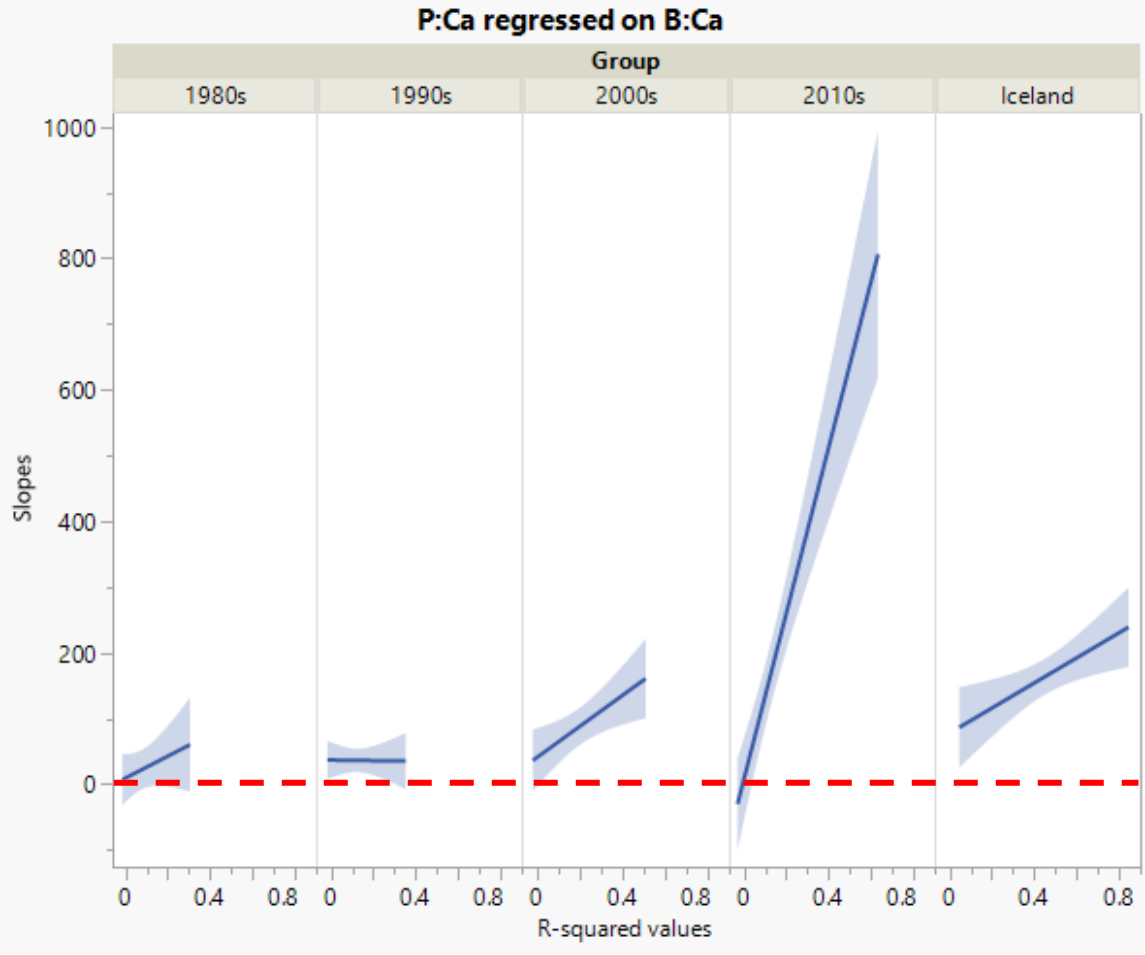

Figure S3(b). Box plots of R^2 values of individual fish regressions of P:Ca on B:Ca, by decade.

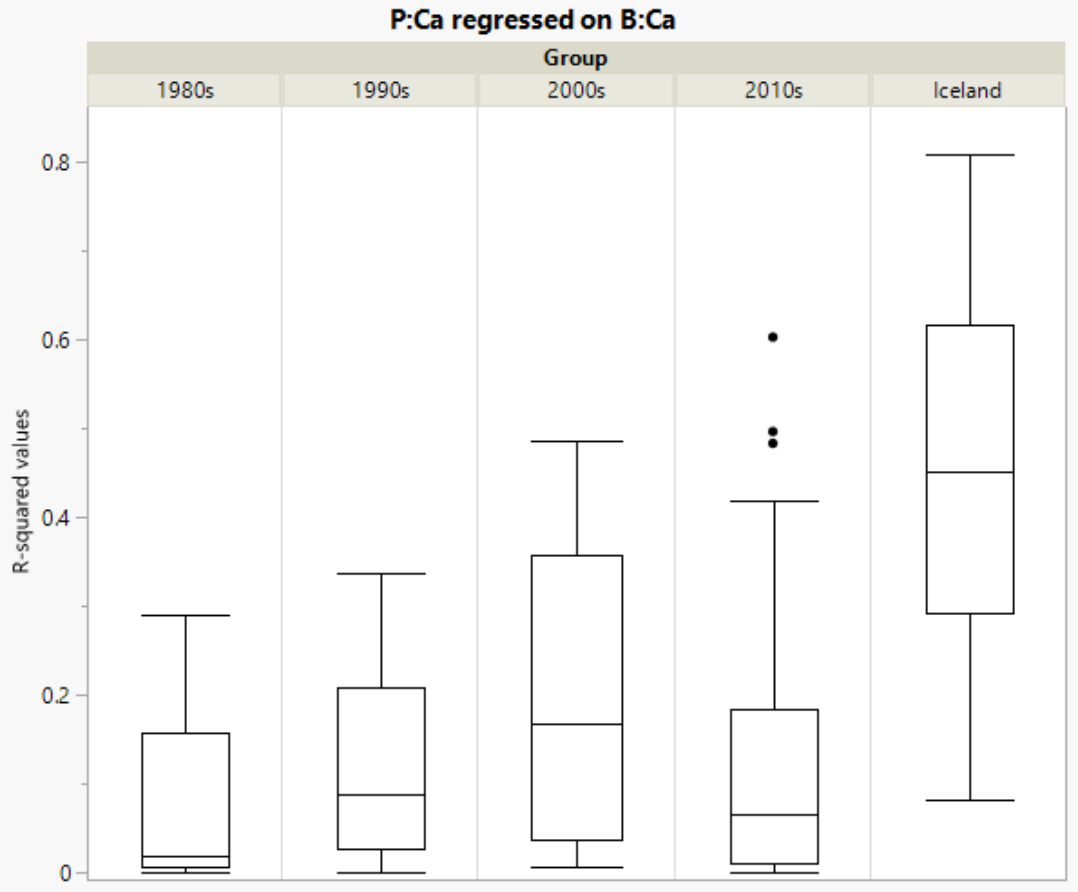

Figure S4. Plots of statistics for regressions of Mn:Mg on B:Ca computed for each otolith analyzed. Individual otolith slopes are plotted here as a function of the corresponding R^2 values. Because otolith Mn:Mg serves as a proxy for hypoxia exposure, negative slopes imply that when hypoxia is high, B:Ca is low, which could occur if organic acids are formed during algal bloom decomposition that consumes oxygen. Dashed horizontal line shows slope = 0.

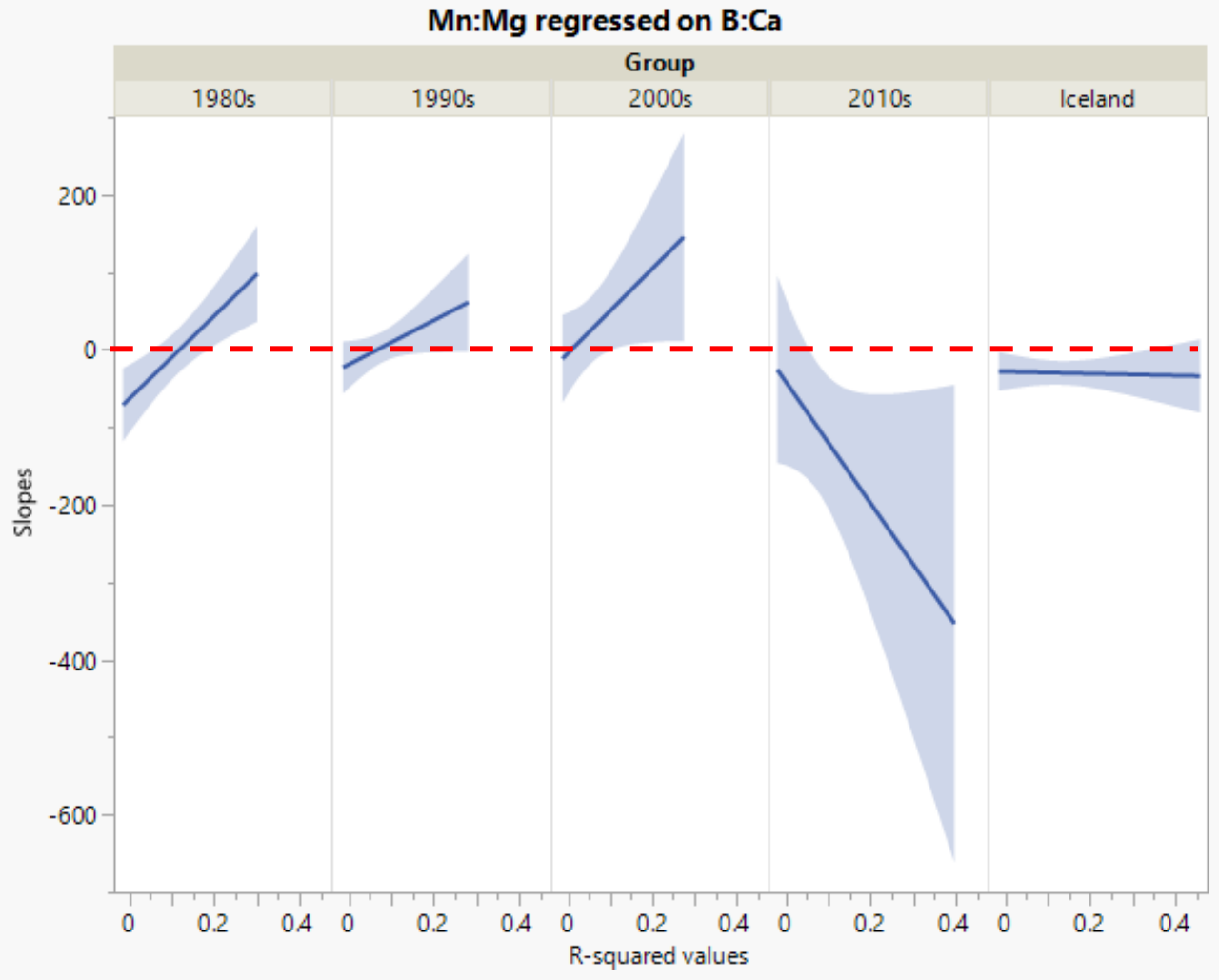

Figure S5. Slopes of Mn:Mg regressions on B:Ca computed for each otolith plotted against fish age by decade (with Iceland being an out-group). Dashed horizontal line shows slope = 0.