



Supplementary Figure 1. (A) Picture of a whole pectoral fin spine (~20 cm) of an Atlantic sturgeon (*Acipenser oxyrinchus*), with red lines indicating where sections were taken from the fish (this example of a full fin spine came from a reported mortality). (B) Example of a fin spine section from a fish estimated to be 11 years old, with annuli marked by red dots (red dashed lines indicate annuli widths). (C) Example of a fin spine section with inclusions in both lobes (indicated by red arrows). Inclusions, which are secondary fin rays that get absorbed in the lobes of the primary spine, precluded annuli measurements.

Annuli were measured along a consistent axis drawn from the center to the edge of the right lobe. If the right lobe contained an inclusion, the left lobe was chosen. If both lobes contained inclusions (as in the example shown in C), the sample was excluded. The center was defined by using the star-shaped first annulus. The center was pinpointed by visualizing the cross between a vertical line coming down from the tip of the star and a horizontal line connecting the tips of the second row of points. The angle of the line profile was standardized as the line that always started from the center point and ended at the edge of the lobe, while going through the tip of the farthest point on the star.