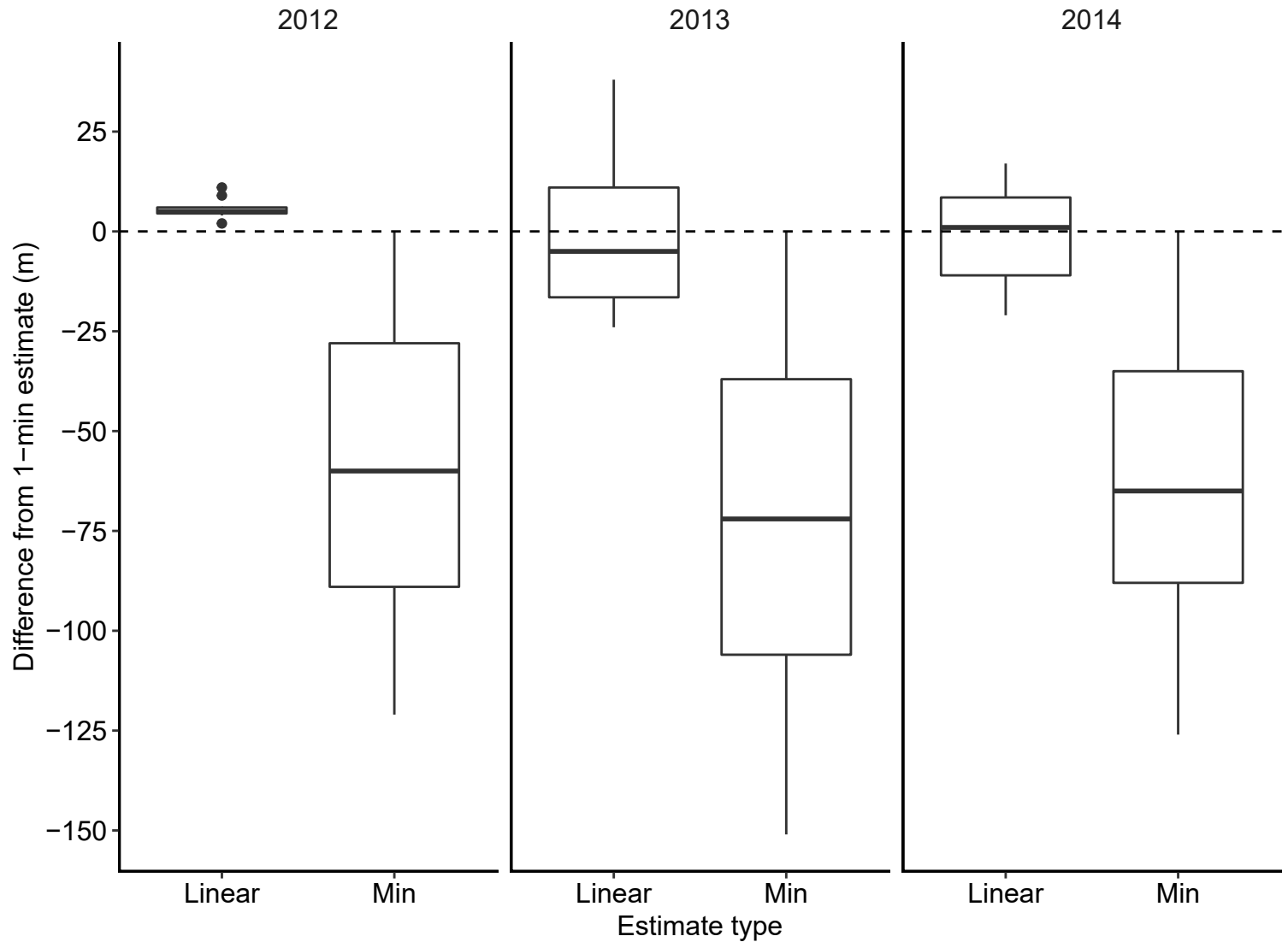


**Supplementary Figure 3.** Example of estimating the depth of a spawning rise apex for Greenland halibut (*Reinhardtius hippoglossoides*) with low frequency sampling in the Bering Sea. Tag no. 383 recorded a single spawning rise in each of 3 consecutive years with a 1-min sampling frequency (black), and the 15 versions of subsampling these data to a 15-min frequency to estimate the apex by using a simple linear model for both the ascent and descent are shown (grey).



**Supplementary Figure 4.** Comparison using box plots of alternatives for estimating the depth of a spawning rise apex of Greenland halibut (*Reinhardtius hippoglossoides*) in the Bering Sea for 3 years from tag no. 383. The y-axis is the difference between each estimate and the minimum depth known from the 1-min interval sampling. Estimate types are the simple linear model method (Linear), which is outlined in the "Materials and methods" section, and the minimum recorded depth from subsampled 15-min interval as the apex (Min).