

Appendix 1. Relationship between body mass and length for wild harbour porpoises found in the North Sea and inner Danish waters.

Table S1A1. Estimated equations describing the relationship between total body mass (kg) and standard length (cm) based on the linear model applied to the log-transformed data. Morphometric data were collected from stranded and bycaught porpoises from the North Sea and inner Danish waters between 1988 and 2015.

	N	M = a × L^b	± SE for b	R²
Males	116	$6.28 \cdot 10^{-4} \times L^{2.25}$	0.12	0.75
Females	75	$0.83 \cdot 10^{-4} \times L^{2.67}$	0.13	0.86
Males and Females	192	$1.46 \cdot 10^{-4} \times L^{2.55}$	0.08	0.83

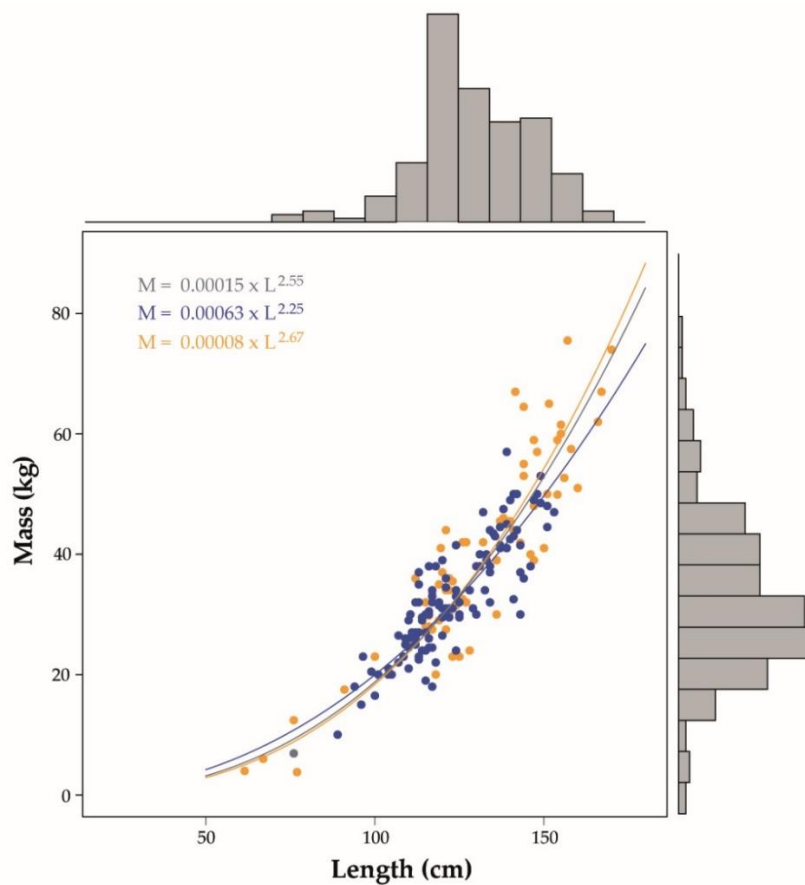


Figure S1A1. Total body mass (kg) and standard body length (cm) relationship for males (blue), females (orange) and all animals (grey). The histograms at the right and at the top represent distributions of mass and length data, respectively.

Appendix 2. Freja's respiration rates during 10-minute intervals between 2010 to 2015 and 2017.

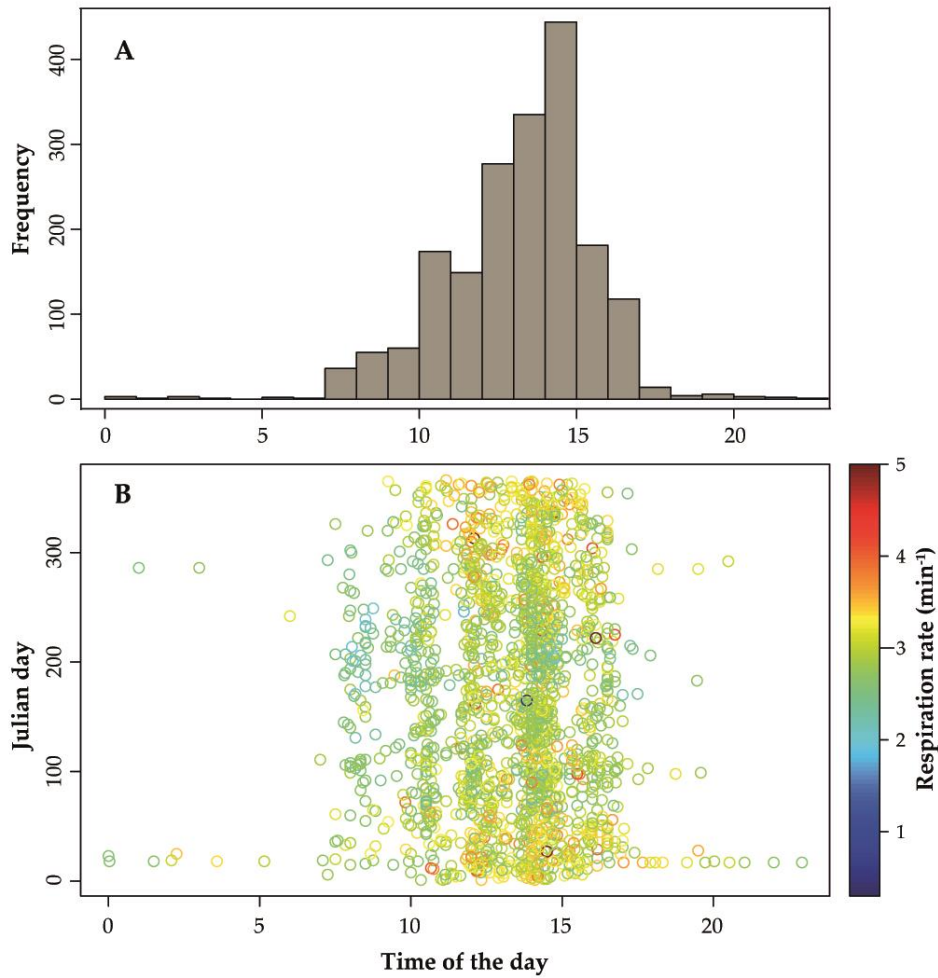


Figure S1A2. Frequency distribution of the collection times of the respiration rate over 10-minute interval between 2010 and 2015 and in 2017. A) The histogram denotes a tendency to collect respiration rates between 10:00 and 16:00. B) The distribution of the collection time throughout the day in reference to the day of the year demonstrates that collection time did not vary depending on the time of the year.

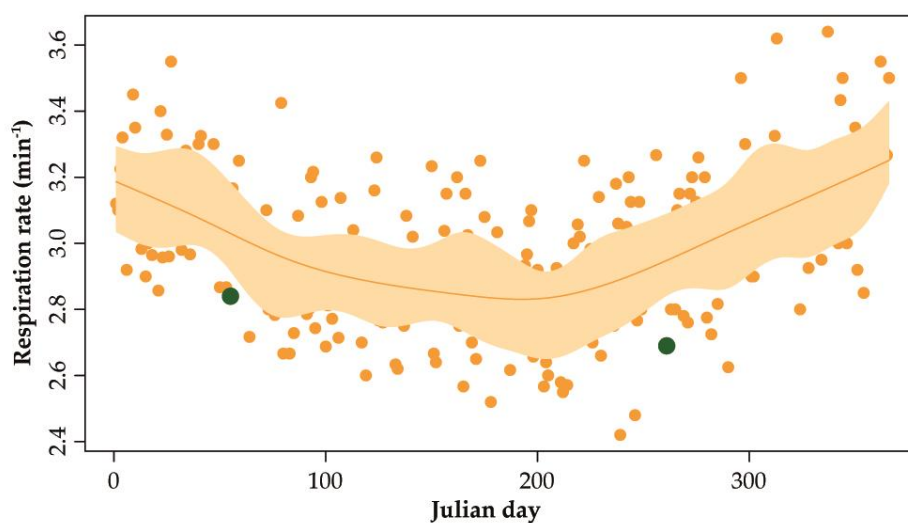


Figure S2A2. Average respiration rate for Freja, one of the captive porpoises, over 7 years of respiration data. The coloured area represents the standard error around the mean, and the dark green dots correspond to the estimated respiration rate during the two periods in which respirations were collected over an entire day. There is great variability in the respiration rates between days, but there is a clear tendency for decreased respiration rates during warmer months. Estimated respiration rates taken during 24 hours are lower than average. Both the overall decrease in respiration rates during the night (Fig. 2, main text) and the tendency to collect respiration rates between 10:00 and 16:00 may cause an overestimation of daily respiration rates based on 10-minute intervals during the day.

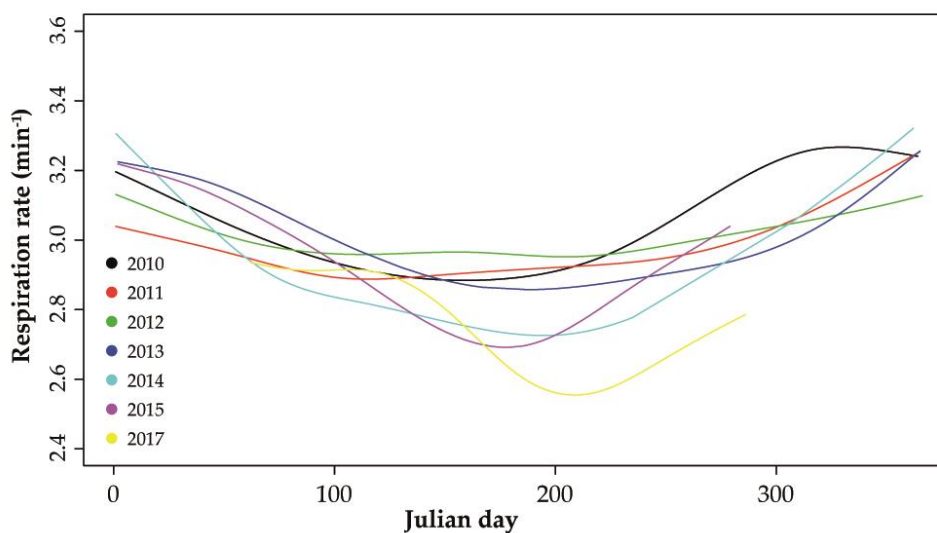


Figure S3A2. Respiration rate smoothed average for each year of respiration counts collected daily during 10 minutes. There is some variation between years, but all years show a decrease in respiration rate during warmer months. Data from late 2015 and 2017 were missing for the analysis.

Appendix 3. Sensitivity analysis to estimate variation limits for the estimated daily respiration rate of all tagged wild harbour porpoises.

Deployment hours	Mean variation LL	Mean variation UL	Median variation LL	Median variation UL
5.8	0.22	0.17	0.22	0.15
10.5	0.14	0.12	0.13	0.11
10.9	0.14	0.12	0.13	0.11
12.0	0.12	0.11	0.11	0.09
14.3	0.08	0.11	0.07	0.11
16.7	0.07	0.09	0.06	0.10
20.7	0.04	0.06	0.03	0.06
20.9	0.04	0.06	0.03	0.06
22.2	0.04	0.06	0.04	0.06
22.7	0.05	0.07	0.05	0.06
24.3	0.05	0.06	0.05	0.06
27.0	0.07	0.07	0.07	0.07
38.5	-	-	-	-

Table S1A3. Mean and median variation intervals for the all 13 tags. LL = lower limit and UL = upper limit. Note that the missing values (“-”) in the table are due to the method used to calculate variation interval of daily respiration rates. Animal hp16_316a (38.5-hour deployment) was the longest deployment and hence, we could not use any other deployment to estimate its variation interval.