

Spatial patterns in activity of leopard seals (*Hydrurga leptonyx*) in relation to sea-ice

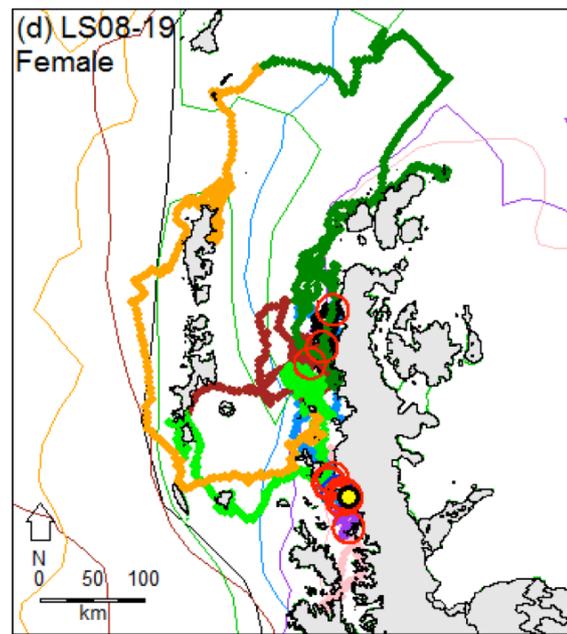
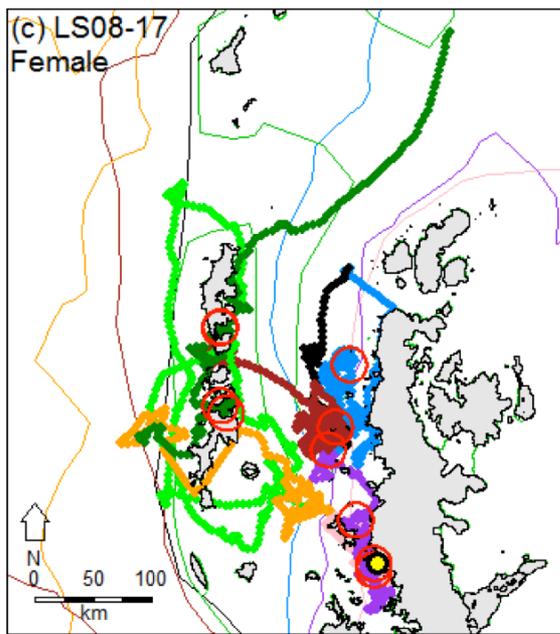
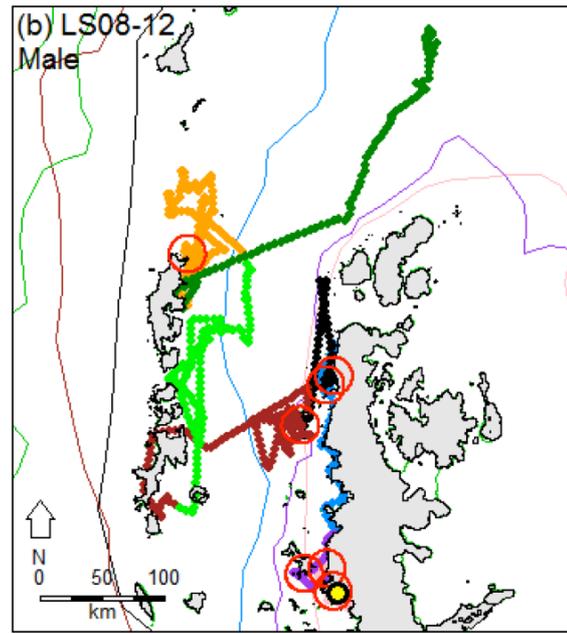
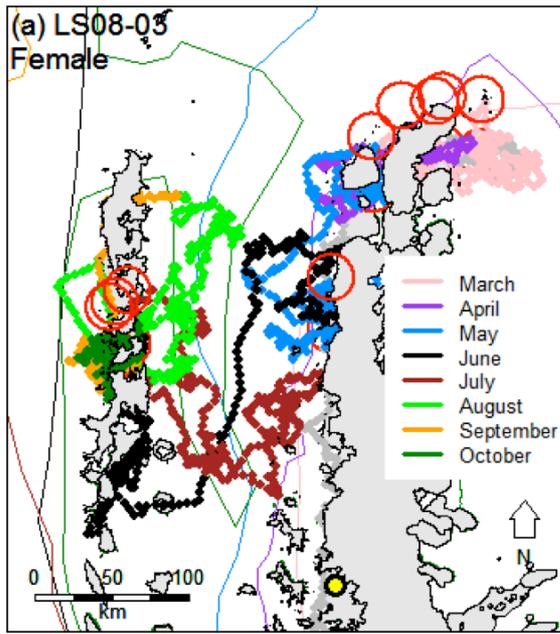
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Supplementary Figures

Fig. S1. Tracks of the remaining seven leopard seals recorded using ARGOS satellite tags. Filtered tracks with interpolated points at 5km intervals are shown in different colours for the month that they were recorded (colours are shown in the key in (a)). The position of the ice edge on the 15th day of each month is shown in a thinner line of the corresponding colour. If ice edge lines are not visible, the ice extends beyond the plot region. Red circles indicate the position of long (> 5 day) first-passage times (FPT). Circles are scaled to a 15km radius for each map. A yellow dot indicates the capture location for each seal. Labels include seal identification and sex. (a) Track of an adult female leopard seal. At the beginning of March the animal was at the tip of the Antarctic peninsula (having moved rapidly north up the coast of the western Antarctic Peninsula (WAP) following capture (shown in grey dots). It then moved more slowly south down the coast of the WAP before travelling back and forth from the peninsula to the coast of the South Shetland Islands in June and July. Long FPTs occurred nine times. (b) Track of an adult male leopard seal from March to October that moved north up the coast of the WAP then to the South Shetland Islands in July. In October it moved north east beyond the tip of the WAP. Long FPTs were recorded seven times. (c) Track of an adult female leopard seal from March to October that initially moved south of the capture location, then north and spent time off the coast of the WAP. In July it moved to the South Shetlands Islands then returned to an area close to the WAP in September, then moved north beyond the tip of the WAP in October. There were nine records of long FPTs. (d) Track of an adult female leopard seal from March to October that initially moved south, before moving north up the coast of the WAP. In July, August and September the animal travelled to and from the South Shetland Islands then north beyond the tip of the antarctic peninsula in September and early October, then moved south down the WAP through the remainder of October. Long FPTs were recorded eight times. (e) Track of an adult female leopard seal from March to July that remained close to the release site for two months then travelled southwards in June. Long FPTs were recorded nine times. (f) Track of an adult male leopard seal from March to August that remained close to the capture site until May then moved to the South Shetland Islands in June and July, and remained there until August when the tracker stopped transmitting. Long FPTs were recorded 30 times. (g) Track of an adult male leopard seal from March to June that moved up and down the coast of the WAP and visited islands close to the continent. Periods of long FPT were recorded six times. (h) Track of an adult female leopard seal from March to June that moved up and down the coast of the WAP. This animal did not show a peak in area restricted behaviour; indicating that the animal moved at a relatively constant rate without concentrating its movement in any particular area, hence there are no circles.



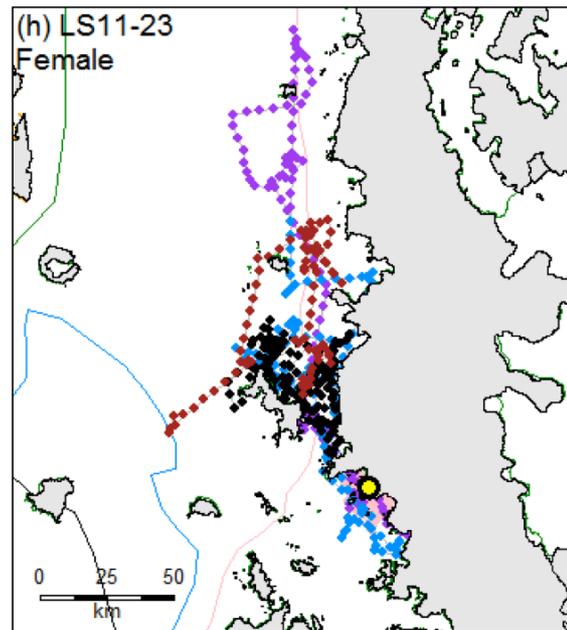
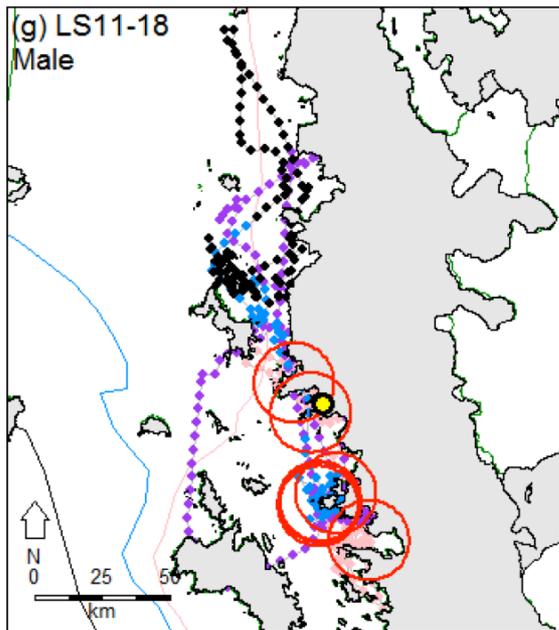
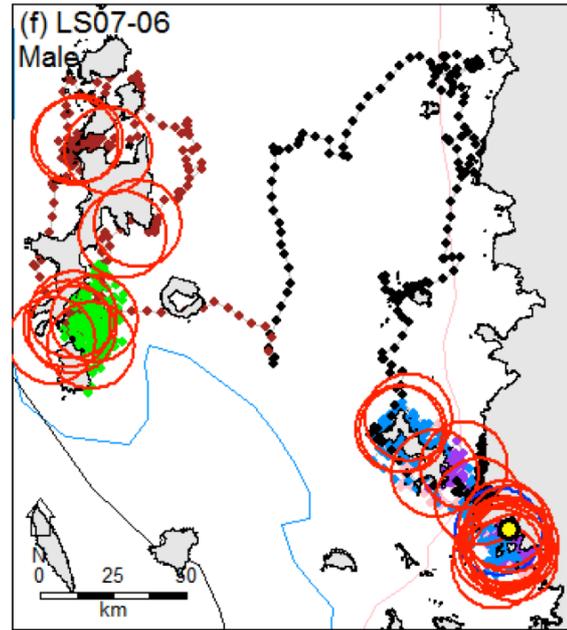
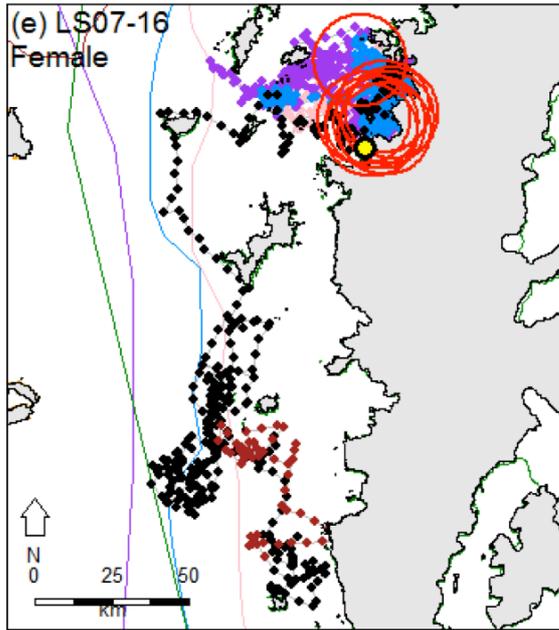


Fig. S2. Variance in log first passage time (FPT) for twelve satellite tracked leopard seals plotted against radius (m) of first passage time. Character/number combinations identify the individual seals and plots for all individuals show a distinct peak except LS11-13.

