## Using short-term measures of behaviour to estimate long-term fitness of southern elephant seals

L. F. New<sup>1,2,3,\*</sup>, J. S. Clark<sup>4</sup>, D. P. Costa<sup>5</sup>, E. Fleishman<sup>6</sup>, M. A. Hindell<sup>7</sup>, T. Klanjš ek<sup>8</sup>, D. Lusseau<sup>9</sup>, S. Kraus<sup>10</sup>, C. R. McMahon<sup>7,11</sup>, P. W. Robinson<sup>5</sup>, R. S. Schick<sup>3,4</sup>, L. K. Schwarz<sup>5</sup>, S. E. Simmons<sup>1</sup>, L. Thomas<sup>2,3</sup>, P. Tyack<sup>2</sup>, J. Harwood<sup>2,3</sup>

<sup>1</sup>Marine Mammal Commission, Bethesda, Maryland 20814, USA

<sup>2</sup>Scottish Oceans Institute, University of St Andrews, St Andrews KY16 8LB, UK

<sup>3</sup>Centre for Research into Ecological and Environmental Modelling, University of St Andrews, St Andrews KY16 9LZ, UK

<sup>4</sup>Nicholas School of the Environment, Duke University, Durham, North Carolina 27708, USA

<sup>5</sup>Department of Ecology and Evolutionary Biology, University of California, Santa Cruz, California 95060, USA

<sup>6</sup>John Muir Institute of the Environment, University of California, Davis, California 95616, USA

<sup>7</sup>Institute for Marine and Antarctic Studies, University of Tasmania, Hobart, TAS 7001, Australia

<sup>8</sup>Ruðer Boškovič Institute, 10000 Zagreb, Croatia

<sup>9</sup>Institute of Biological and Environmental Sciences and Marine Alliance Science and Technology for Scotland,

University of Aberdeen, Aberdeen AB24 2TZ, UK

<sup>10</sup>New England Aquarium, Boston, Massachusetts 02110, USA

<sup>11</sup>Research Institute for the Environment and Livelihoods, Charles Darwin University, Darwin, NT 0909, Australia

\*Corresponding author: lnew@usgs.gov

Marine Ecology Progress Series 496: 99–108 (2014)

**Supplement.** Figures assessing the model fit for all 30 analysed post-moult foraging trips

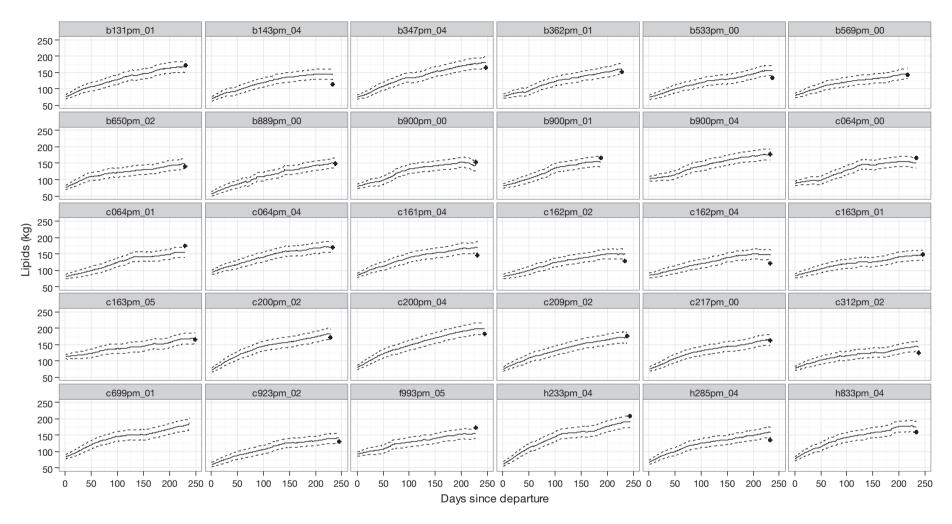


Fig. S1. *Mirounga leonina*. Changes over time in the estimated lipid mass during 30 post-moult foraging trips of female southern elephant seals from Macquarie Island, Australia (solid line), with 95% confidence intervals (dashed lines). The black dot indicates the measured final lipid mass of the seal upon return to Macquarie Island. The final lipid mass for seal c699pm\_01 is not shown, since the inclusion of this value (>250 kg) inhibits the clarity of the figure