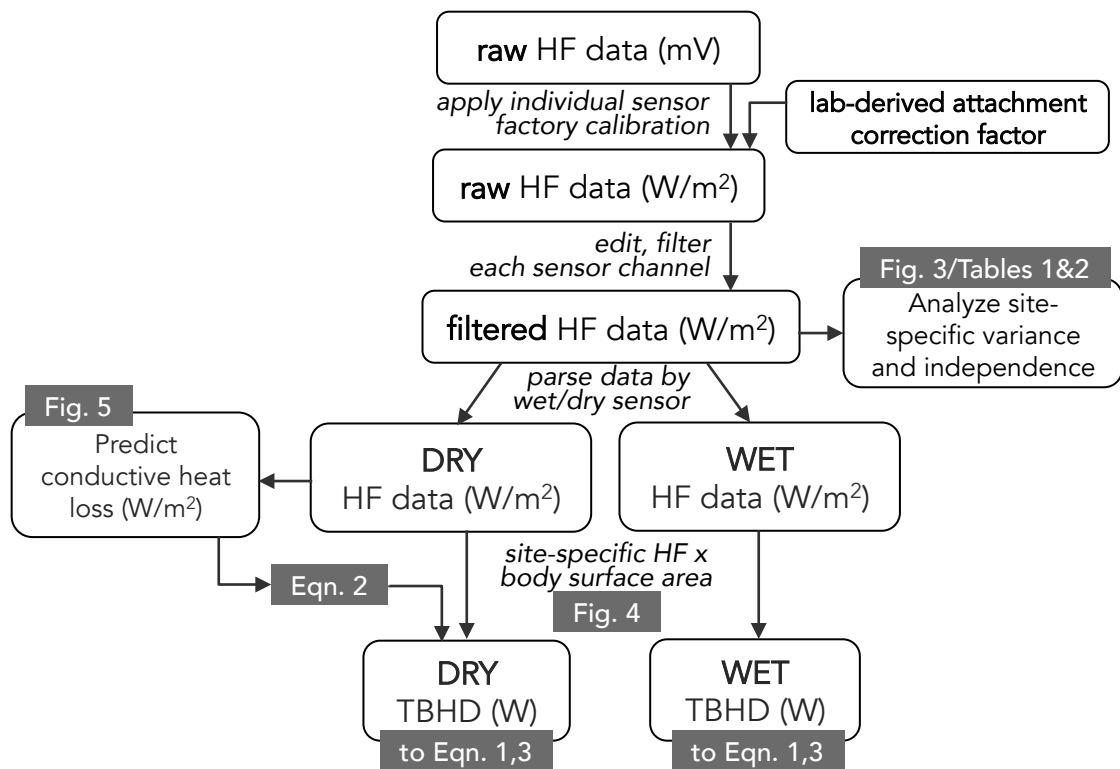




Additional File 1. Data processing and analysis schematic for deriving Total Body Heat Dissipation (TBHD) from skin-surface heat flux (HF) sensors, as applied from free-ranging Weddell seals. Figure, Table and Equation references refer to the presentation or analysis of relevant data in the manuscript. Raw HF data was manually curated to crop regions with obviously damaged sensors, then filtered to improve signal to noise ratio (described in detail in Methods). Photogrammetry wireframes estimated total body surface area and the surface area of each individual’s contact with the ice during haul-out. Heat loss directly to the ice was predicted from empirical data collected with this dataset (Equation 2). To derive TBHD, HF at each sensor site was applied over the contiguous proportion of body surface area estimated to match the infrared surface temperature profiles (i.e. range of values) of focal site measurements for dry versus wet seals.