

Figure S1 – Transition probabilities between states as determined by the HMM, with transitions between states for nearshore (0) and offshore (1) waters occurring at 7:00 HST in the top left box and at 17:00 HST in the bottom left box. Transitions across the hour of day for nearshore tracks are in the top right box and for offshore tracks are in the bottom right box.

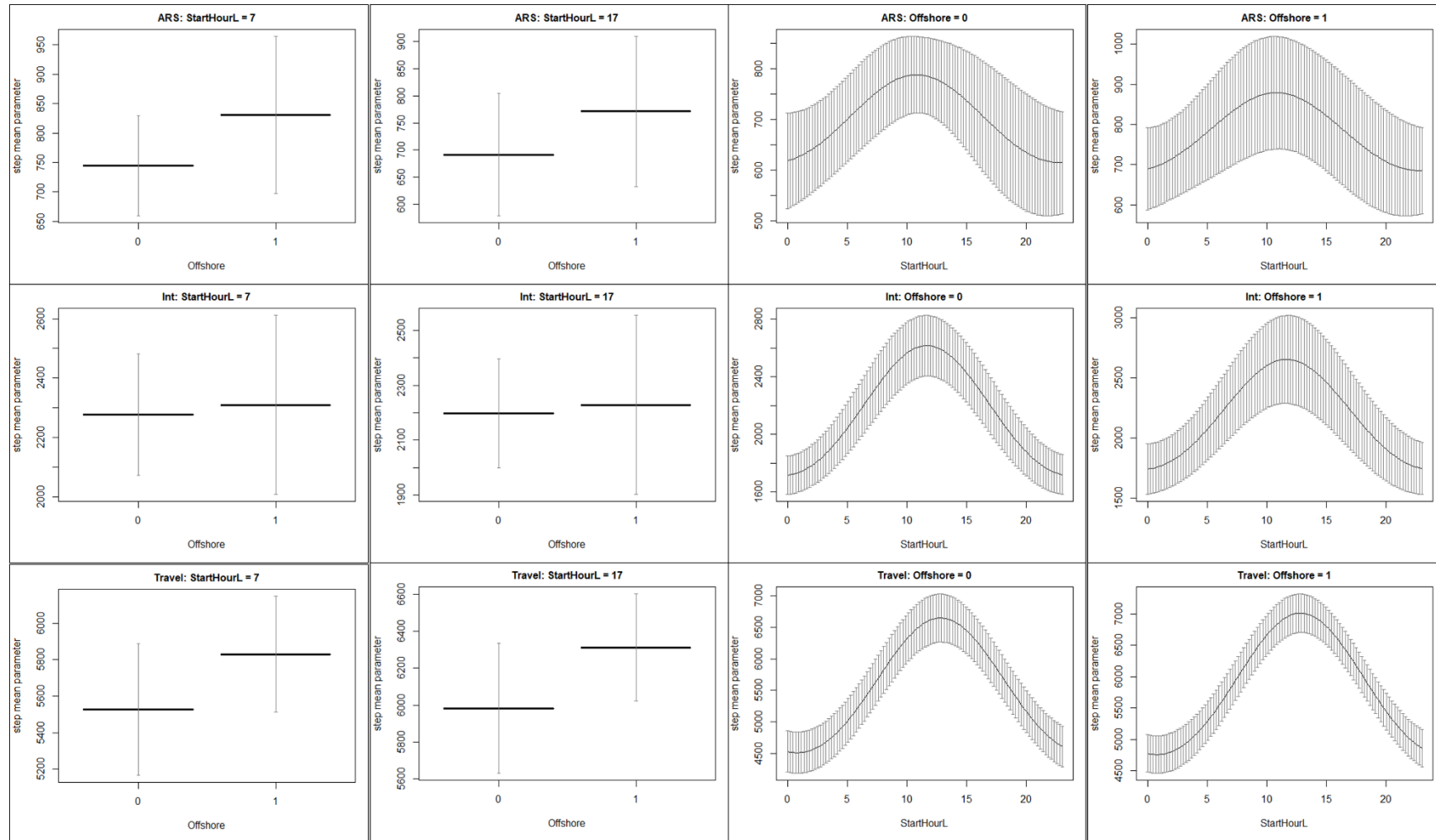


Figure S2 – Mean step values for each behavioral state, with ARS in the top row, intermediate in the middle row, and directed travel in the bottom row. The left two columns are the step values in nearshore (0) and offshore (1) waters at 7:00 HST (first column) and 1700 (second column), while the right two columns are the step values across each hour of the day in nearshore (third column) and offshore (fourth column) waters.

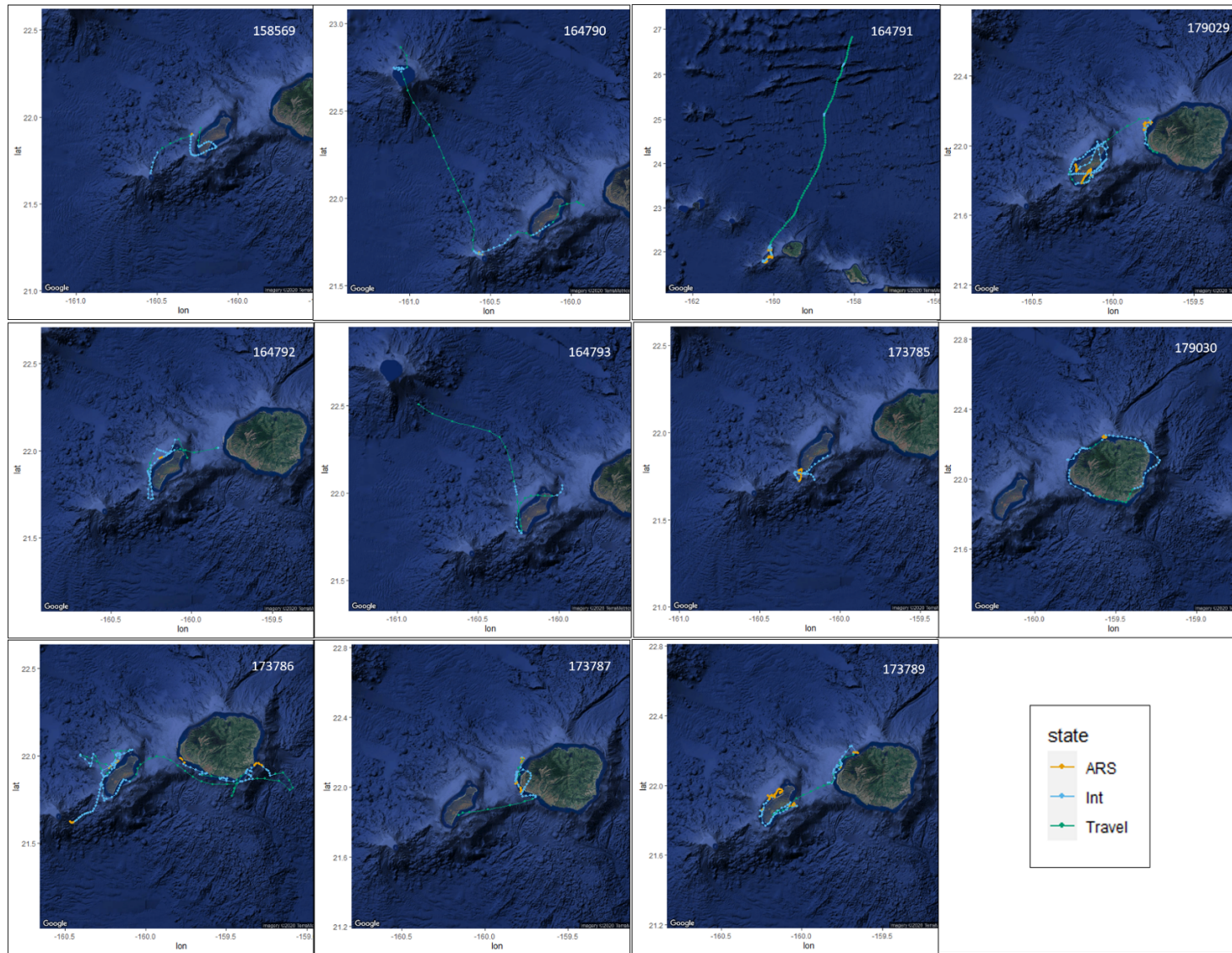


Figure S3 – HMM movement behavior plots for additional humpback whales not plotted in Figs. 3 & 4.

Table S1 – Hidden Markov Models (HMM) of humpback whale movement behavior based on step length and turning angle with their associated Akaike Information Criteria (AIC) scores. Offshore indicates the binary factor of whether animals were within 50 km of shore (Inshore) or outside of that radius (Offshore). The design matrix indicated how each parameter influenced the state dependent distribution of steps. The final model with the lowest AIC score is shown in bold.

HMM	AIC score
Step Length + Turning Angle	36659
Step Length + Turning Angle + Bathymetric Depth	37230
Step Length + Turning Angle + Offshore	36752
Step Length + Turning Angle + Offshore + Decision Matrix	36728
Step Length + Turning Angle + Local Hour	36645
Step Length + Turning Angle + Local Hour + Decision Matrix	36647
Step Length + Turning Angle + Offshore + Local Hour	36744
Step Length + Turning Angle + Offshore + Local Hour + Decision Matrix	36623