

Table S1. Sex and size (i.e. fork length and weight) recorded at time of acoustic tagging for white sturgeon used in hidden Markov model (n = 45).

Fish ID	Sex	Year Tagged	Fork Length (cm)	Weight (kg)	Fish ID	Sex	Year Tagged	Fork Length (cm)	Weight (kg)
T23	Female	2005	207.0	79	T260	Male	2009	162.5	46
T235	Female	2009	168.0	35	T261	Female	2009	207.0	73
T238	Female	2009	200.0	62	T263	Unknown	Unknown	Unknown	Unknown
T239	Female	2009	170.0	32	T268	Female	2013	225.0	88
T241	Female	2009	196.0	56	T270	Female	2012	208.5	77
T242	Female	2009	190.0	57	T274	Female	2009	167.5	37
T243	Female	2009	181.0	43	T276	Female	2012	174.0	46
T244	Female	2009	174.0	37	T280	Female	2010	167.5	34
T245	Female	2009	186.0	58	T281	Male	2010	173.0	41
T246	Male	2012	191.0	60	T289	Female	2010	200.0	68
T247	Female	2007	205.0	73	T29	Male	2009	170.0	38
T248	Female	2009	193.0	64	T291	Male	2012	181.0	49
T249	Male	2009	159.5	34	T292	Male	2008	197.0	62
T250	Female	2008	161.5	27	T30	Female	2009	201.0	68
T251	Female	2011	174.0	45	T33	Male	2009	179.0	45
T252	Male	2012	177.0	43	T35	Male	2009	157.0	36
T253	Male	2009	171.0	37	T36	Female	2009	179.0	45
T254	Male	2008	173.0	34	T37	Male	2009	193.0	57
T255	Female	2012	195.0	76	T40	Female	2011	180.0	44
T256	Male	2010	193.0	47	T45	Male	2011	200.0	62
T257	Male	2010	143.0	25	T46	Male	2011	178.0	45
T258	Male	2009	186.0	61	T48	Male	2011	170.0	40
T259	Male	2008	182.5	52					

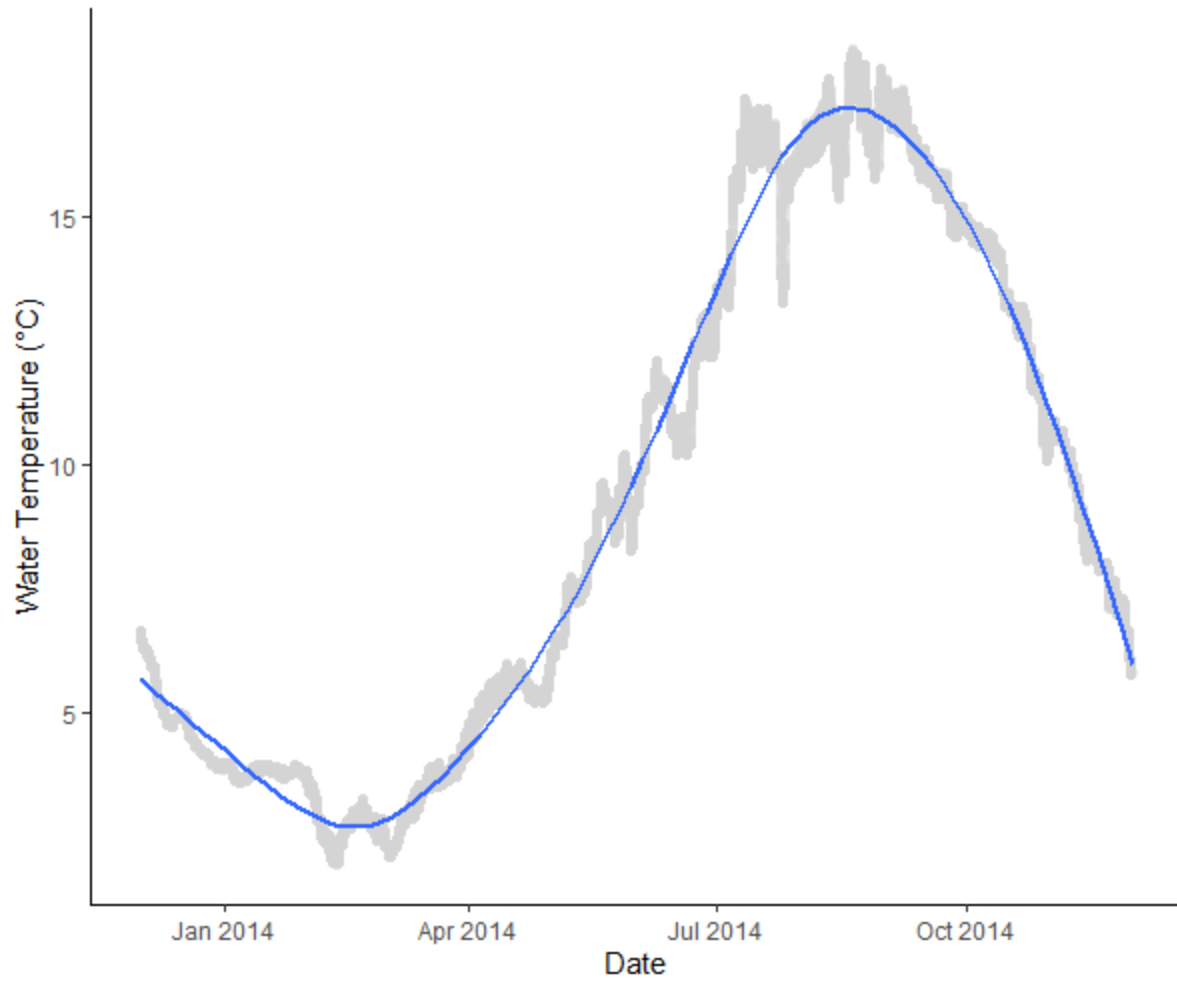


Figure S1. Water temperature in the study area from December 2013 – November 2014. Blue line represents LOESS smoothed data and grey points represent raw data.

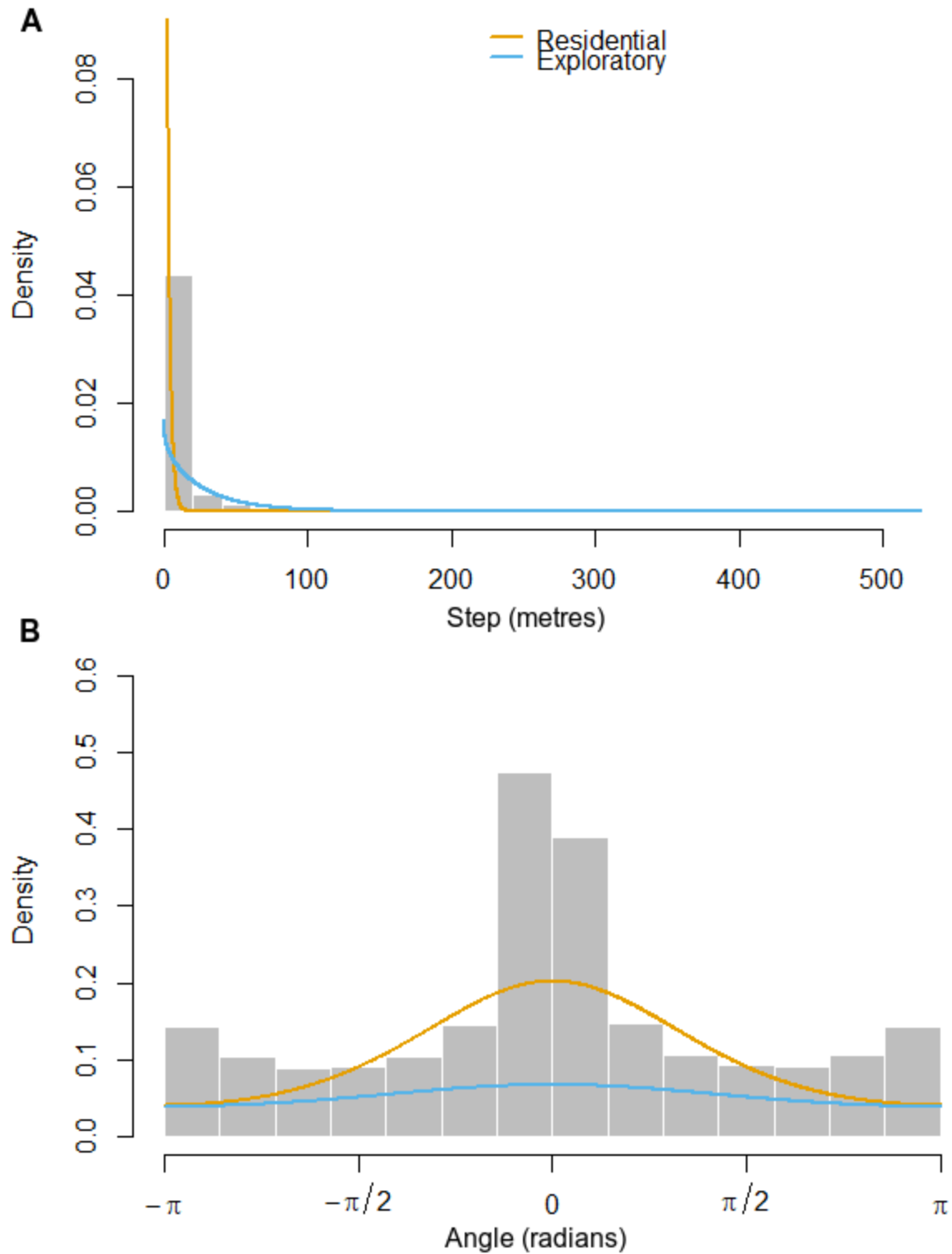


Figure S2. State-dependent distributions for A) step length and B) turning angle.

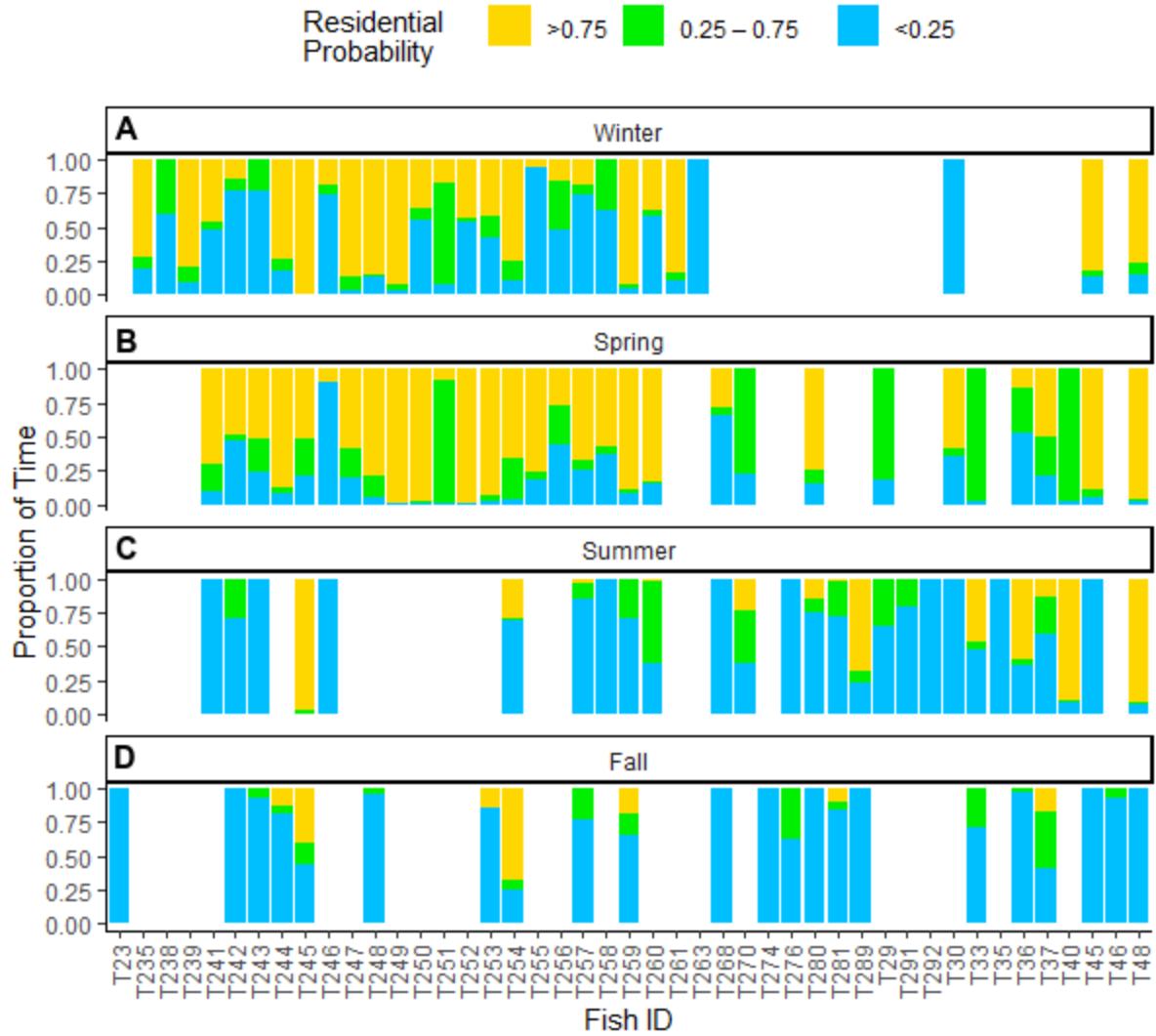


Figure S3. Proportion of time individual white sturgeon ($n = 45$) spent having an upper (>0.75), middle ($0.25 - 0.75$), or lower (<0.25) probability of being in residential behaviour. Results are separated by season and empty columns indicate a fish was not detected in a season.

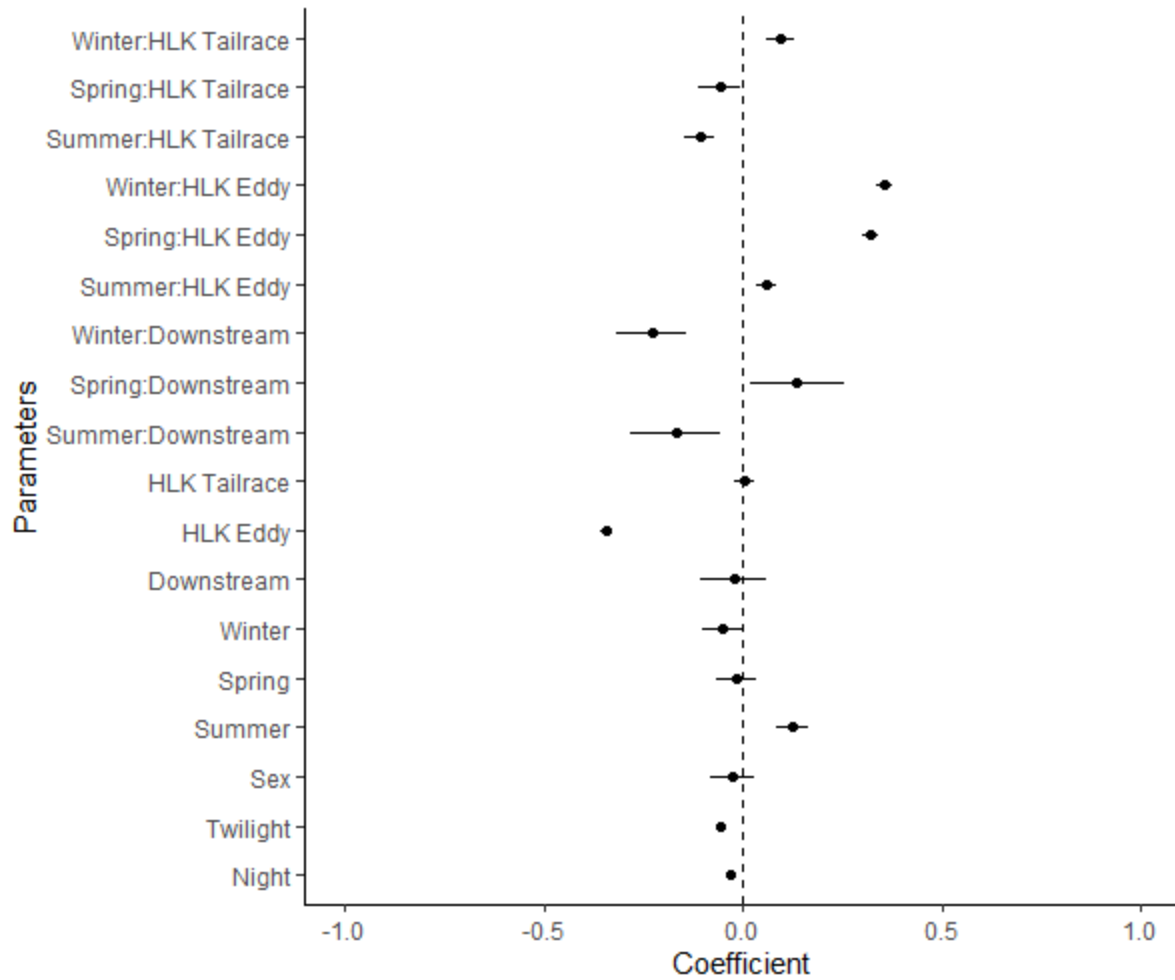


Figure S4. Model-averaged coefficients and standard errors (SE) of the beta generalised linear mixed model parameters predicting the probability of residential behaviour (15 minute interval). The intercept and probability of residential behaviour at time $t-1$ variable had model-averaged estimates of $-3.76 (\pm 0.06 \text{ SE})$ and $8.00 (\pm 0.01 \text{ SE})$ respectively.

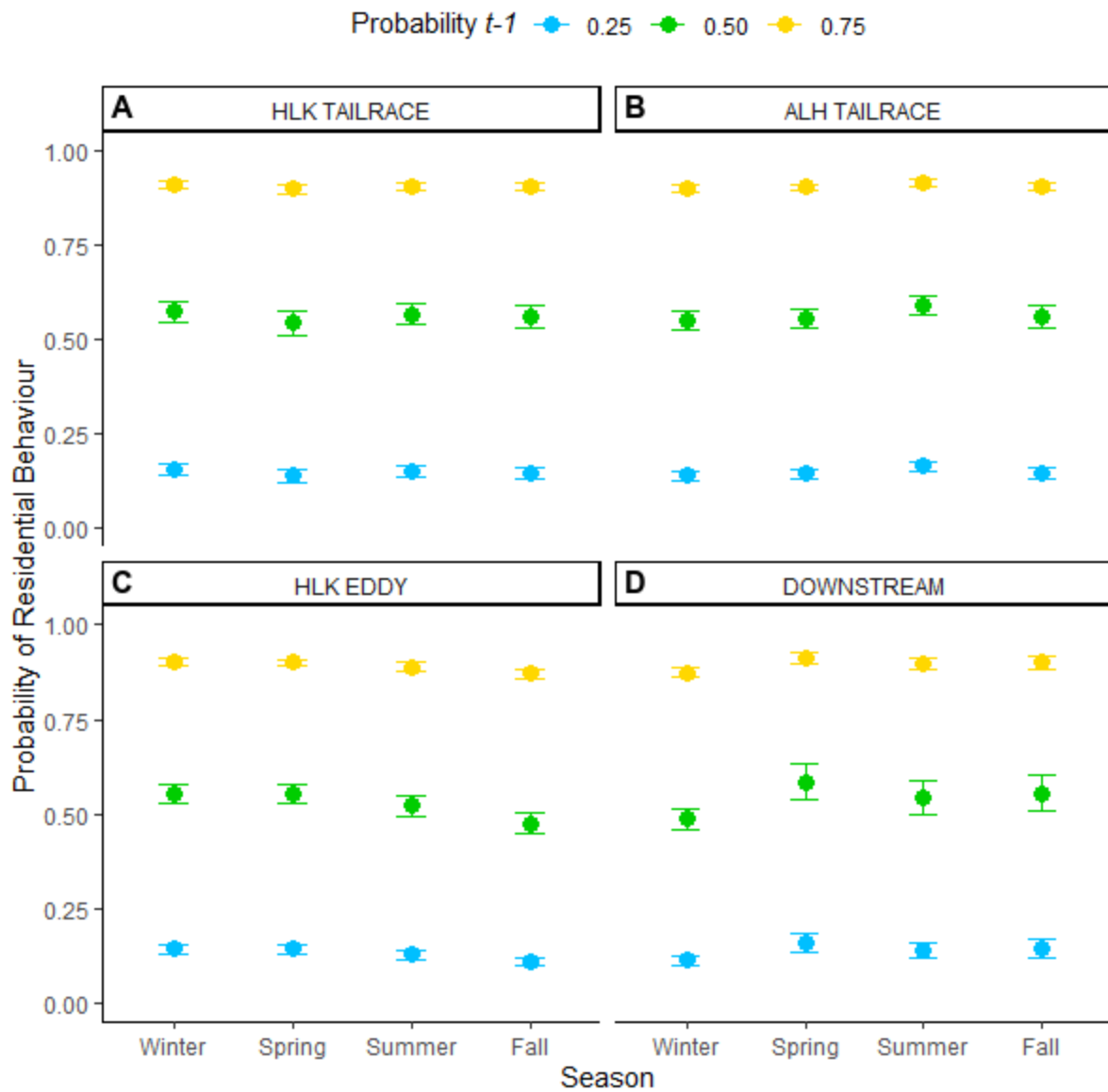


Figure S5. Model averaged predictions of the probability of being in the residential behaviour state by season, habitat zone, and probability of residential behaviour at time $t-1$. Whiskers denote 95% confidence interval. Categorical covariates sex and photoperiod were set to Female and Day respectively.

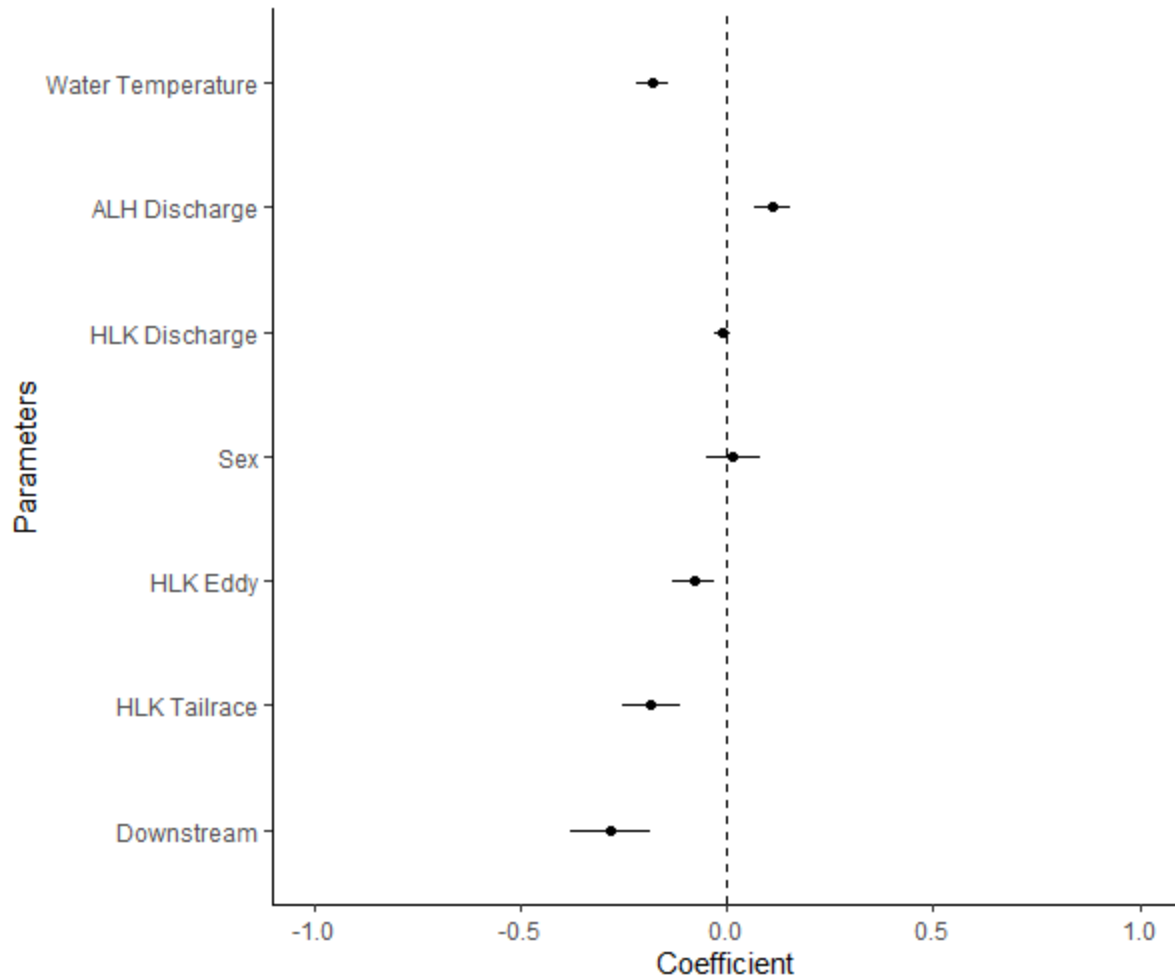


Figure S6. Model averaged coefficients and standard errors (SE) of the beta generalised linear mixed model parameters predicting the mean weekly probability of residential behaviour. The intercept and probability of residential behaviour at time $t-1$ variable had model-averaged estimates of $-3.30 (\pm 0.07 \text{ SE})$ and $6.73 (\pm 0.08 \text{ SE})$ respectively.