Supplementary material

Evaluation of a novel research trap for surveys of blue swimmer crab populations

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Table S1. Temporal selectivity model selection table.

| Model Name	Model	Comment	AIC	ΔAIC
M1	Prop ~ bs(Carapace_Length, 3)	Base model	8197.9	30.9
M1a	Prop ~ bs(Carapace_Length, 3) + (1|Site)	Add random site effect to M1	8183.8	16.8
M1b	Prop ~ bs(Carapace_Length, 3) + (1|Date)	Add random date effect to M1	8177.2	10.2
M1c	Prop ~ bs(Carapace_Length, 3) + (1|Site) + (1|Date)	Add both random site and date effects to M1	8174.2	7.2
M2	**Prop ~ bs(Carapace_Length, 3) + Estuary + (1|Site) + (1|Date)**	**Add estuary effect to M1c.**	**8167.0**	**0**
M2a	Prop ~ bs(Carapace_Length, 3) + Month + (1|Site) + (1|Date)	Add month effect to M1c	8179.6	12.6
M2b	Prop ~ bs(Carapace_Length, 3) + Estuary + Month + (1|Site) + (1|Date)	Add estuary and month effects to M1c	8172.6	5.6
M2c	Prop ~ bs(Carapace_Length, 3) + Estuary*Month + (1|Site) + (1|Date)	Add estuary and month interactive effect to M1c	8184.6	17.6

Using forward stepwise selection, model selection was undertaken to minimise the AIC. Bs(x, 3) represents a b-spline polynomial with 3 degrees and (1 | variable) represents a random intercept effect of 'variable'. Site was nested within estuary. ΔAIC represents the difference in AIC from the best model. The best model is represented in bold.
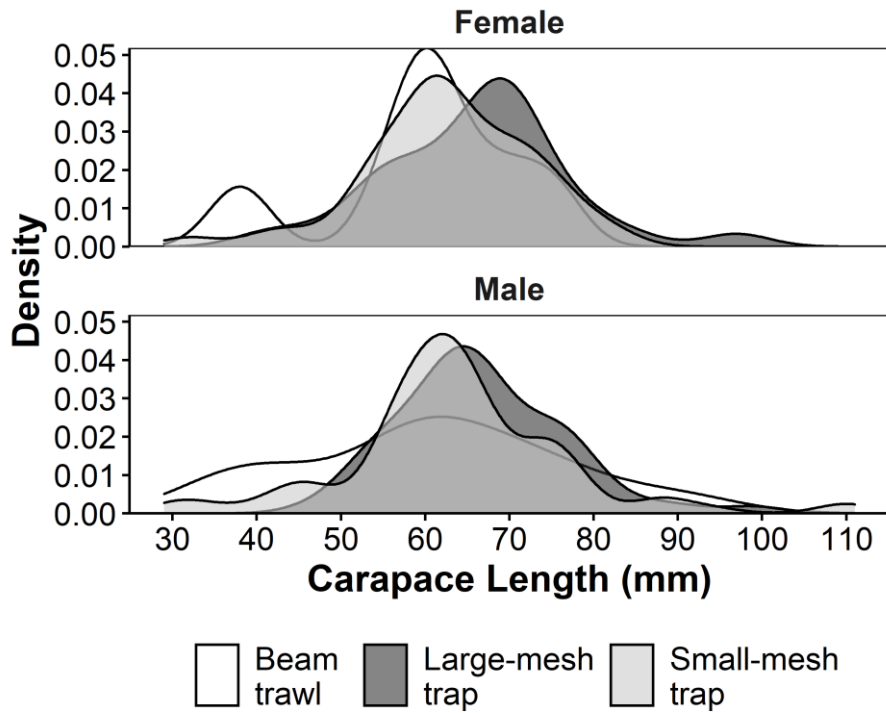
Figure S1. Comparison of kernel density estimate (KDE) probability density functions for male and female Blue Swimmer Crab captured in the phase 1, 3-way gear comparison. Note all estuaries were pooled due to low numbers of crabs in the beam trawl samples ($n = 19$) compared to small-mesh ($n = 141$) and large-mesh traps ($n = 90$).
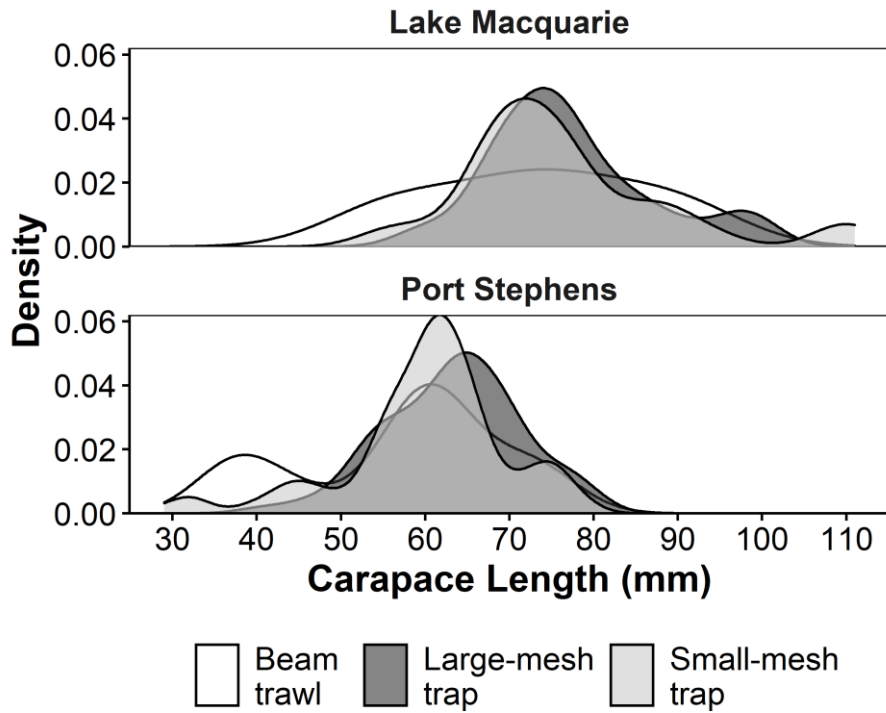
Figure S2. Comparison of kernel density estimate (KDE) probability density functions for Blue Swimmer Crab captured in the phase 1, 3-way gear comparison by estuary. Note sexes were pooled due to low numbers of crabs in the beam trawl samples ($n = 19$) compared to small-mesh ($n = 141$) and large-mesh traps ($n = 90$).
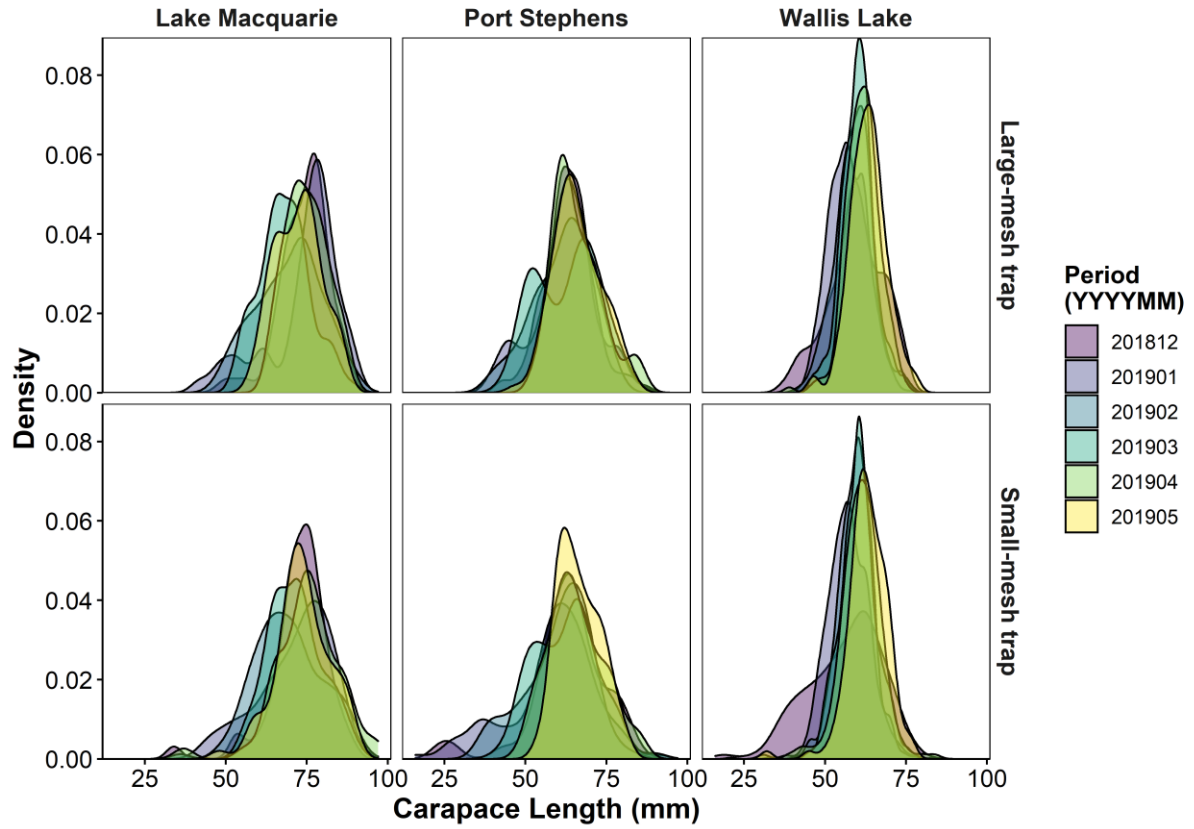
Figure S3. Comparison of monthly kernel density estimate (KDE) probability density functions for Blue Swimmer Crab captured in small and large-mesh traps in the three estuaries (phase 2).