

Appendix 1

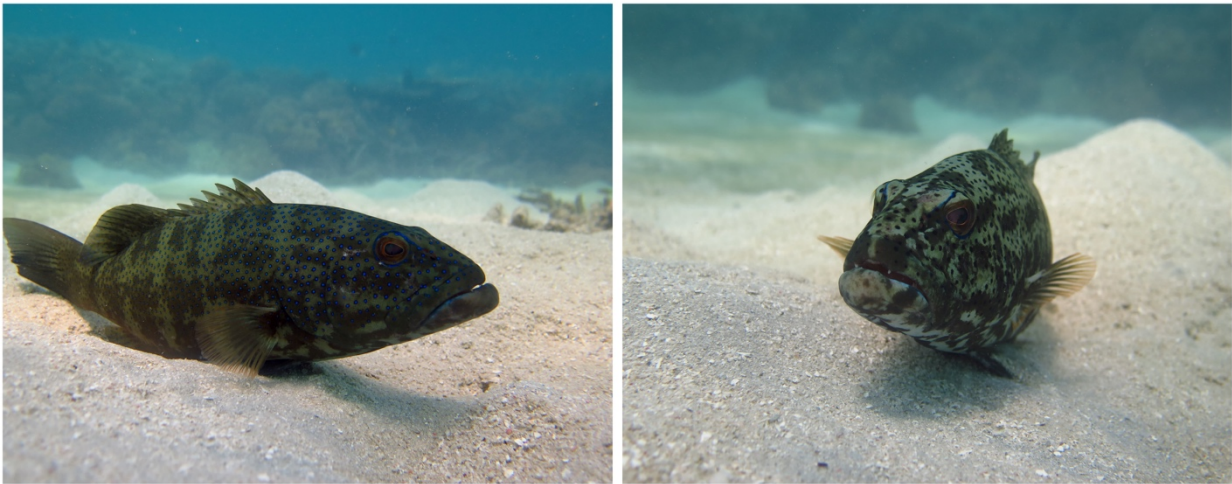


Figure A1. Coral trouts *Plectropomus leopardus* (Serranidae) resting over sandy substrate 4-6m from the edge of the coral reef (dark landscape at the back of the photo). Pictures taken at Vicki's reef, Lizard Island (Great Barrier Reef). Patchy colour pattern in the coral trout triggered by the presence of the divers.



Figure A2. Map of Lizard Island showing the location of the two locations (a) Vicki's Reef and Lagoon Reef. The spatial arrangement of the habitat patches (orange circles) along the reef edge (b) and the distance among individual patches (c) are also illustrated. Figures at different scales. Photo credit 'GeoEye satellite image'.

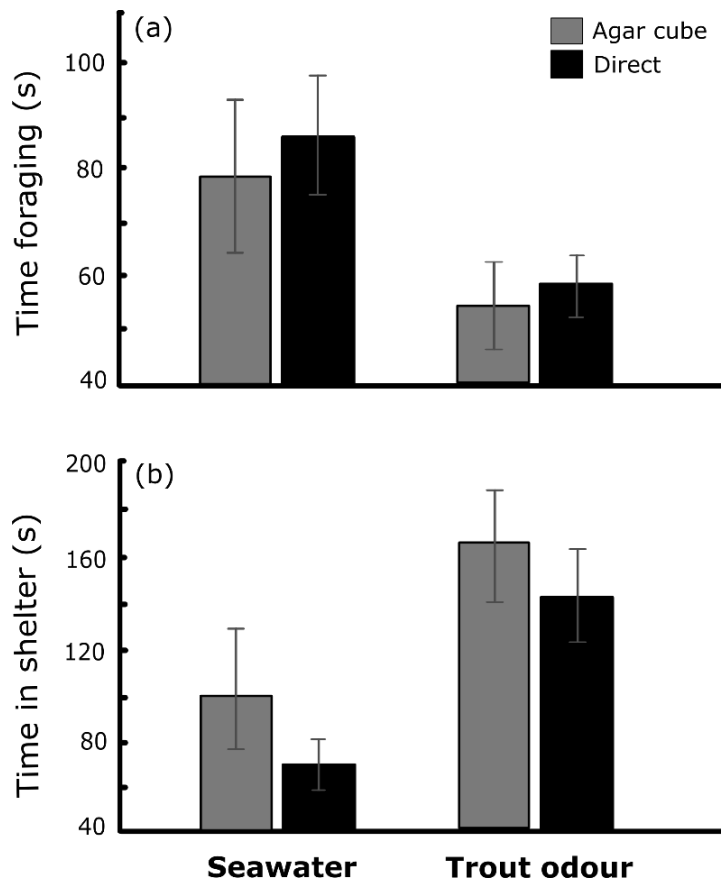


Figure A3. Time (mean \pm SE) that a focal mesopredator, *Pseudochromis fuscus*, spent (a) foraging and (b) inside shelter when exposed to control seawater or seawater with coral trout odour. Cues injected into the mesopredator tank were obtained directly from the source (tap seawater vs. tank holding a coral trout; black bars) or from a dissolved agar cube (grey bars). Agar cubes were prepared 2–3 h before use by mixing 8 g of agar with 150 ml of control seawater or water collected from a 368-l pool containing a coral trout, *Plectropomus leopardus*. Factorial ANOVAs (origin of cue: 2 levels= seawater vs. coral trout odour; type of cue: 2 levels= direct vs agar cube) conducted on log – transformed data indicated the coral trout odour had a significant effect on the time foraging (control seawater vs coral trout odour: $F_{1,35}=4.9$, $p < 0.05$) and the time inside shelter (control seawater vs coral trout odour: $F_{1,35}=12.5$, $p < 0.01$). For both behaviours, the effect remained consistent independent of the use of direct cues or cues from dissolved agar cubes (interaction Origin X Type of cue; $p > 0.05$). The two types of cues (direct vs. agar cube) generated responses of similar magnitude for both behavioural responses (time foraging: $p > 0.05$; time inside shelter: $p > 0.05$).

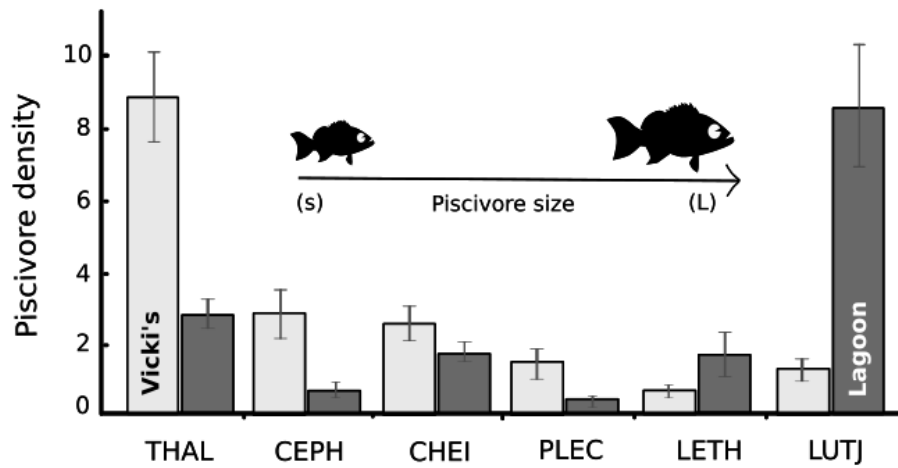


Figure A4. Density of the six most representative piscivore fish taxa (ind/ 150 m²; mean \pm SE) at Vicki's and the Lagoon locations. Fish are ordered from left to right with respect to their average size (*Thalassoma* spp.= THAL; *Cephalopholis* spp.= CEPH; *Cheilinus* spp.= CHEI; *Plectropomus* spp. = PLEC; *Lethrinus* spp. = LETH; *Lutjanus* spp.= LUTJ). Density of all piscivore taxa are reported in Supplementary material, Table S.1.

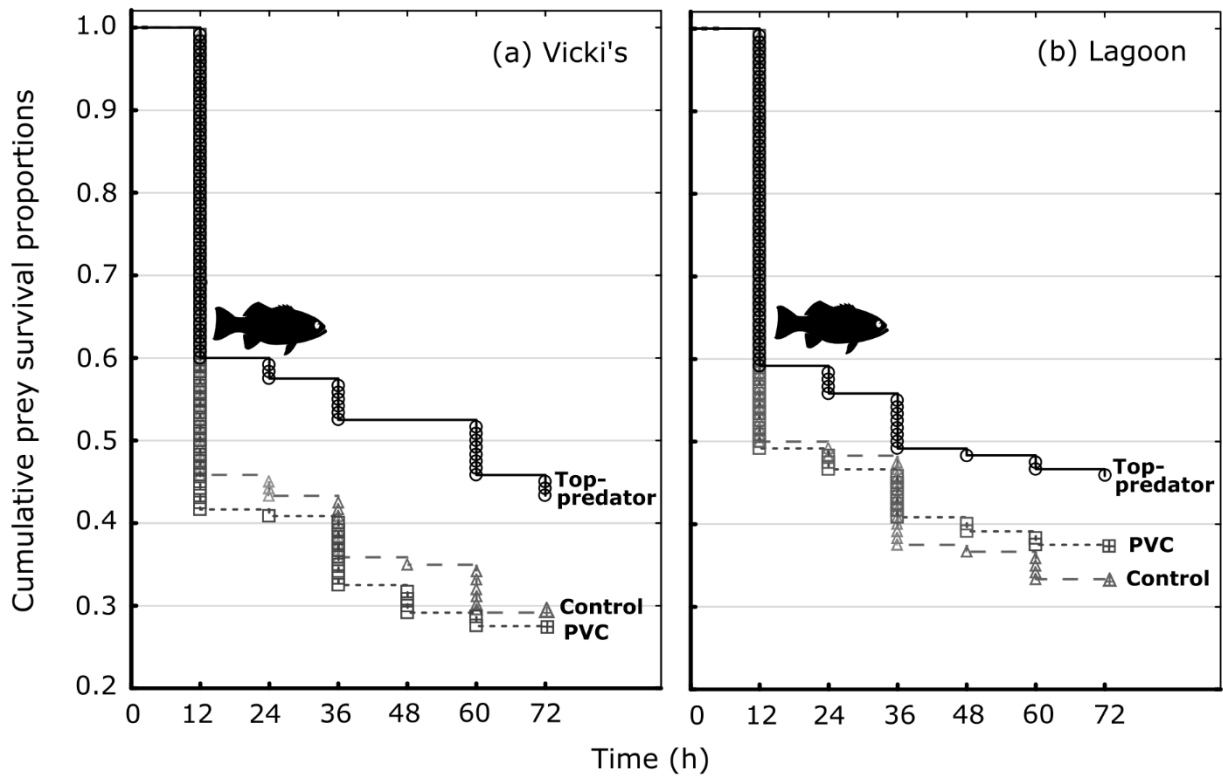


Figure A5. Survival trajectories of juvenile damselfish prey at (a) Vicki's and the (b) Lagoon reef locations for the three experimental treatments: control patches (light grey; broken line), PVC pipe patches (dark grey; dotted line) and top-predator habitat patches (black; continuous line).

Table A1. Density (mean / 150m²) of piscivorous fish species surveyed at Vicki's and the Lagoon locations. Families with the greater number of species are displayed first. Each fish surveyed was classified as small (S ≤10 cm TL), medium (10 < M > 20 cm TL) or large (L ≥ 20 cm TL). For each species the most common size is displayed, as well as the time of day when it is most active; day (○), night (●), or twilight (○●). Species with asterisk had one of the six highest total abundances.

Piscivore density	Vicki's reef		Lagoon reef		Size	Time active
	\bar{X}	± SE	\bar{X}	± SE		
Labridae (wrasses)						
* <i>Cheilinus chlorourus</i>	1.63	0.38	1.44	0.27	M	○
<i>Chelinus diagrammus</i>	0.25	0.11	0.19	0.10	M	○
<i>Chelinus trilobatus</i>	0.69	0.25	0.00	0.00	M	○
<i>Chelinus undulatus</i>	0.00	0.00	0.07	0.06	L	○
<i>Epibulus insidiator</i>	0.50	0.16	0.00	0.00	M	○
<i>Thalassoma amblycephalum</i>	0.06	0.06	0.07	0.06	M	○
<i>Thalassoma hardwicke</i>	0.88	0.22	0.06	0.06	M	○
* <i>Thalassoma lunare</i>	7.88	1.23	2.56	0.42	M	○
Serranidae (groupers)						
<i>Cephalopholis boenak</i>	0.00	0.00	0.07	0.06	M	○●
* <i>Cephalopholis cyanostigma</i>	1.94	0.50	0.44	0.20	M	○●
<i>Cephalopholis microprion</i>	0.88	0.27	0.19	0.10	M	○●
<i>Epinephelus cyanopodus</i>	0.13	0.09	0.00	0.00	L	○●
<i>Epinephelus merra</i>	0.19	0.10	0.07	0.06	M	○●
<i>Plectropomus leopardus</i>	1.44	0.43	0.31	0.15	L	○
Lethrinidae (emperors)						
* <i>Lethrinus atkinsoni</i>	0.31	0.12	0.56	0.27	L	●
<i>Lethrinus harak</i>	0.25	0.11	0.25	0.14	L	●
<i>Lethrinus nebulosus</i>	0.06	0.06	0.88	0.42	L	●
<i>Lethrinus obsoletus</i>	0.06	0.06	0.28	0.17	L	●
Lutjanidae (snappers)						
<i>Lutjanus bohar</i>	0.81	0.28	0.25	0.14	L	●
* <i>Lutjanus carponotatus</i>	0.44	0.18	1.81	0.51	L	●
<i>Lutjanus fulviflamma</i>	0.00	0.00	1.93	1.60	L	○●
* <i>Lutjanus gibbus</i>	0.00	0.00	4.13	1.15	L	○●
<i>Lutjanus quinquelineatus</i>	0.00	0.00	0.31	0.15	L	●
Synodontidae (lizardfishes)						
<i>Synodus variegatus</i>	0.31	0.20	0.13	0.09	S	○
<i>Synodus dermatogenys</i>	0.19	0.14	0.00	0.00	M	○
Holocentridae (squirrelfishes)						
<i>Myripristis murdjan</i>	0.50	0.18	0.07	0.06	M	●
<i>Neoniphon sammara</i>	0.19	0.10	0.13	0.09	M	●
<i>Sargocentron spiniferum</i>	0.13	0.09	0.00	0.00	M	●
Pinguipedidae (sandperches)						
<i>Parapercis cylindrica</i>	0.25	0.19	0.44	0.27	S	○
<i>Parapercis queenslandica</i>	0.19	0.10	0.00	0.00	M	○
Pseudochromidae (dottybacks)						
<i>Pseudochromis fuscus</i>	0.13	0.09	0.19	0.14	S	○
Carangidae (jacks)						
<i>Trachinotus bailloni</i>	0.06	0.06	0.00	0.00	L	○
Callionymidae (dragonets)						
<i>Diplogrammus goramensis</i>	0.00	0.00	0.07	0.06	S	○

Table A2. Summary table for the best models following Akaike Information Criterion (AICc) model selection. Rows represent individual models ordered from lowest to highest AICc score. Columns indicate each model term (main effects or interactions that were selected at least once in the top ten models), degree of freedom (df), maximum log-likelihood score (LogLik), AICc score, Δ AICc, and cumulative weight. All models included 'round' as a random intercept. Presence of model terms are indicated with a '+'. Interaction terms between two or three variables are represented with the column sign (':'). The model selected was the one with the lowest Δ AICc and least amount of terms.

Intercept	REEF (A)	TREATMENT (B)	PREY SIZE (C)	PREY SPP (D)	A:B	A:C	A:D	B:C	B:D	C:D	A:C:D	df	logLik	AICc	Δ AICc	Weight
0.80	+	+	+	+								7	-369.9	753.9	0.0	0.13
0.75	+	+	+	+			+					8	-369.7	755.4	1.5	0.06
0.62		+	+	+								6	-371.9	755.9	2.0	0.05
0.69	+	+	+	+				+				9	-368.9	755.9	2.0	0.05
0.81	+	+	+	+		+						8	-369.9	755.9	2.0	0.05
0.79	+	+	+	+						+		8	-369.9	755.9	2.0	0.05
0.58	+	+	+	+		+	+			+	+	11	-367.2	756.4	2.5	0.04
0.85	+	+	+	+					+			9	-369.4	756.7	2.8	0.03
0.81	+	+	+	+	+							9	-369.4	756.7	2.9	0.03
0.74	+	+	+	+			+			+		9	-369.7	757.3	3.5	0.02