

Invasive lionfish increase activity and foraging movements at greater local densities

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Table S1. Results of generalized linear mixed effects models testing for an effect of lionfish density, prey density, and time of day on lionfish behavior and movements. Significance of fixed effects was tested using likelihood ratio tests (LRT) following a χ^2 distribution. When an interaction between lionfish density*time or prey density*time was not significant, it was dropped from the model and the significance of lower-order fixed effects were tested. When an interaction was significant, Wald Z-tests were used to determine at which times of day lionfish or prey density significantly affected the response variable.

Response	Fixed Effect	LRT χ^2	LRT p-value	Time	z-value	p-value
Proportion of lionfish hunting on each reef	Lionfish*Time	4.044	0.132			
	Prey*Time	2.305	0.316			
	Lionfish	0.060	0.806			
	Prey	0.898	0.343			
	Time	107.108	< 0.001			
Proportion of time spent hunting by individual lionfish	Lionfish*Time	9.294	0.010	Dawn	-0.013	0.989
				Midday	1.099	0.272
				Dusk	0.242	0.809
	Prey*Time	16.910	< 0.001	Dawn	3.089	0.002
				Midday	0.390	0.696
				Dusk	3.384	< 0.001
Proportion of lionfish active on each reef	Lionfish*Time	9.609	0.008	Dawn	1.284	0.199
				Midday	0.221	0.825
				Dusk	2.900	0.004
	Prey*Time	0.671	0.715			
	Prey	2.236	0.135			
Proportion of time spent active by individual lionfish	Lionfish*Time	34.468	< 0.001	Dawn	0.091	0.928
				Midday	0.190	0.849
				Dusk	2.144	0.032
	Prey*Time	10.924	0.004	Dawn	-0.666	0.505
				Midday	-2.216	0.027
				Dusk	-2.853	0.004
Proportion of lionfish sheltering on each reef	Lionfish*Time	14.588	< 0.001	Dawn	-1.416	0.157
				Midday	0.784	0.433
				Dusk	-2.606	0.009
	Prey*Time	0.881	0.644			
	Prey	0.272	0.602			
Proportion of lionfish arriving at each reef	Lionfish*Time	12.604	0.002	Dawn	2.059	0.040
				Midday	-1.664	0.096
				Dusk	1.048	0.295
	Prey*Time	2.178	0.337			
	Prey	0.115	0.734			
Proportion of lionfish departing from each reef	Lionfish*Time	8.130	0.017	Dawn	1.759	0.079
				Midday	-0.582	0.560
				Dusk	2.959	0.003
	Prey*Time	4.152	0.125			
	Prey	1.878	0.171			

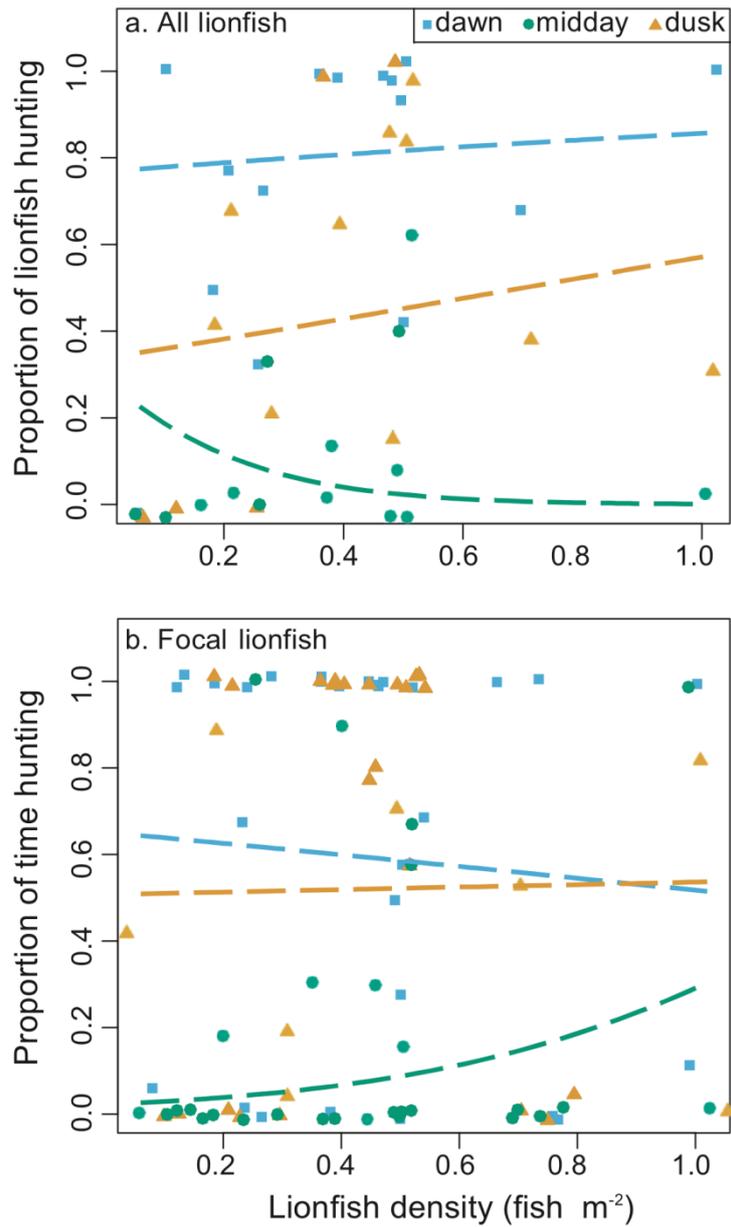


Fig. S1. Proportion of lionfish that were hunting upon arrival at the reef (a) and proportion of time individual focal lionfish spent hunting (b) as a function of lionfish density at dawn, midday, and dusk. Lines are predicted probabilities based on generalized linear mixed effects models. Dashed lines represent slopes that are not significantly different than zero ($p > 0.05$). Points represent reefs (a) and individual lionfish (b) and were randomly jittered to reduce overlap.

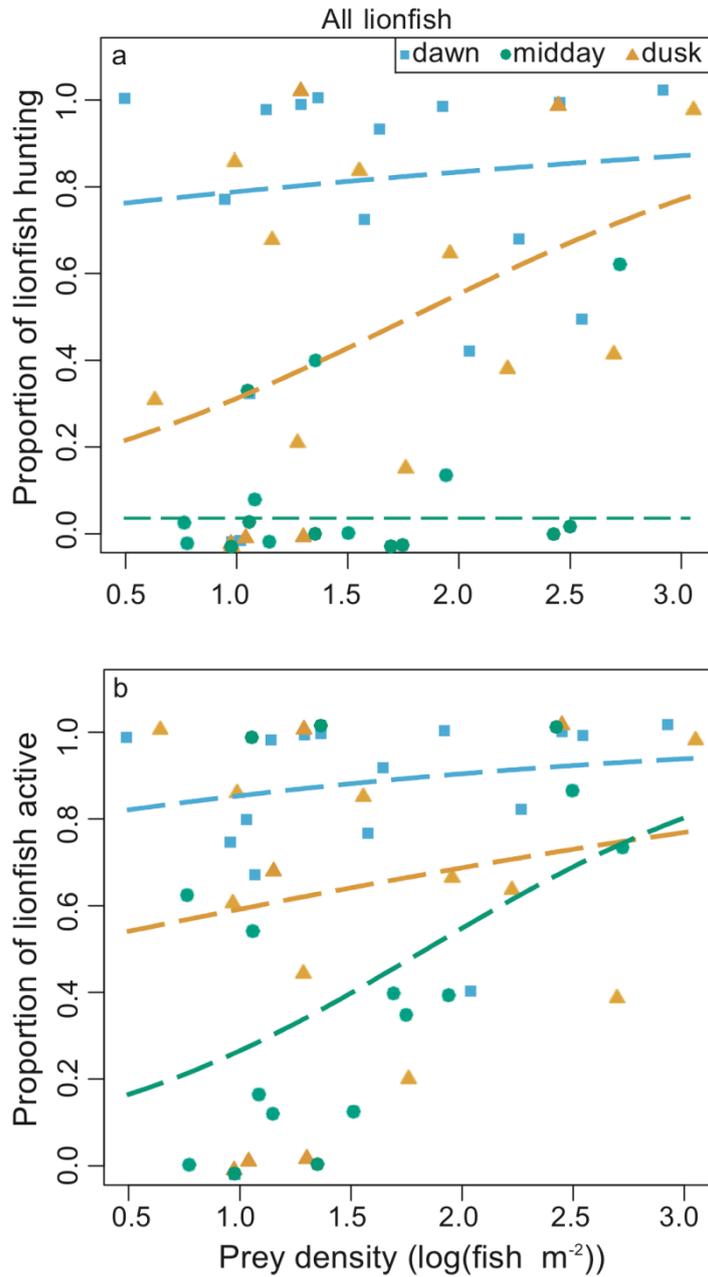


Fig. S2. Proportion of lionfish that were hunting (a) and active (b) upon arrival at the reef as a function of prey fish density at dawn, midday, and dusk. Lines are predicted probabilities based on generalized linear mixed effects models. Dashed lines represent slopes that are not significantly different than zero ($p > 0.05$). Points represent reefs and were randomly jittered to reduce overlap.

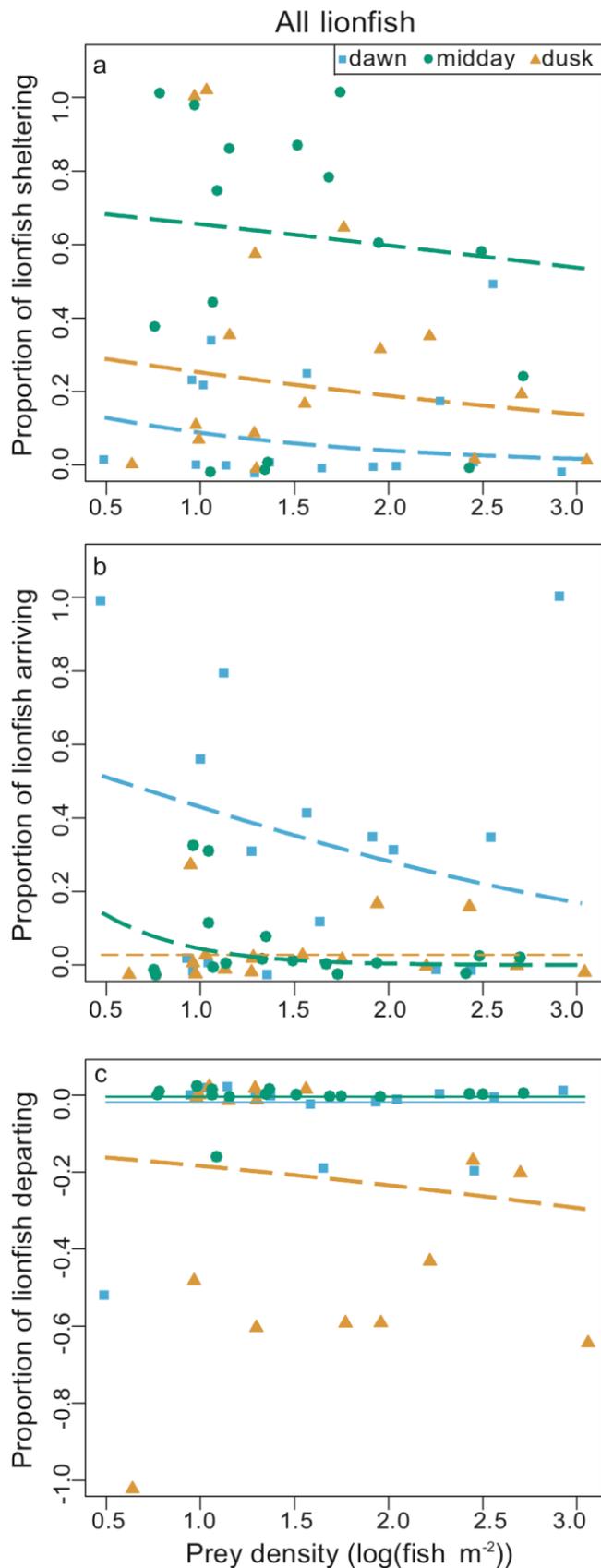


Fig. S3. Proportion of lionfish that were sheltering upon arrival at the reef (a), proportion of new lionfish that arrived at each reef (b), and proportion of lionfish that departed from each reef (c) as a function of prey fish density at dawn, midday, and dusk. Lines are predicted probabilities based on generalized linear mixed effects models. Dashed lines represent slopes that are not significantly different than zero ($p > 0.05$). Points represent reefs and were randomly jittered to reduce overlap.