

Supplementary Materials for

Tropical fish diversity enhances coral reef functioning across multiple scales

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The PDF file includes:

Fig. S1. Locations of our 10 study sites distributed across the Dominican Republic.

Fig. S2. Accumulation curves for the number of bites observed in each video assay.

Fig. S3. Species accumulation curves for each video assay.

Table S1. Output from a linear mixed-effects model predicting mass-standardized bite rate (kg bites per m² per hour) on benthic turf algae.

Other Supplementary Material for this manuscript includes the following:

(available at advances.sciencemag.org/cgi/content/full/5/3/eaav6420/DC1)

Data file S1 (.txt format). Metadata information.

Data file S2 (.csv format). Benthic community structure data.

Data file S3 (.csv format). Herbivore identity, biomass, richness, and bite rate data.

Data file S4 (.R format). R code script for reproducing all analyses.

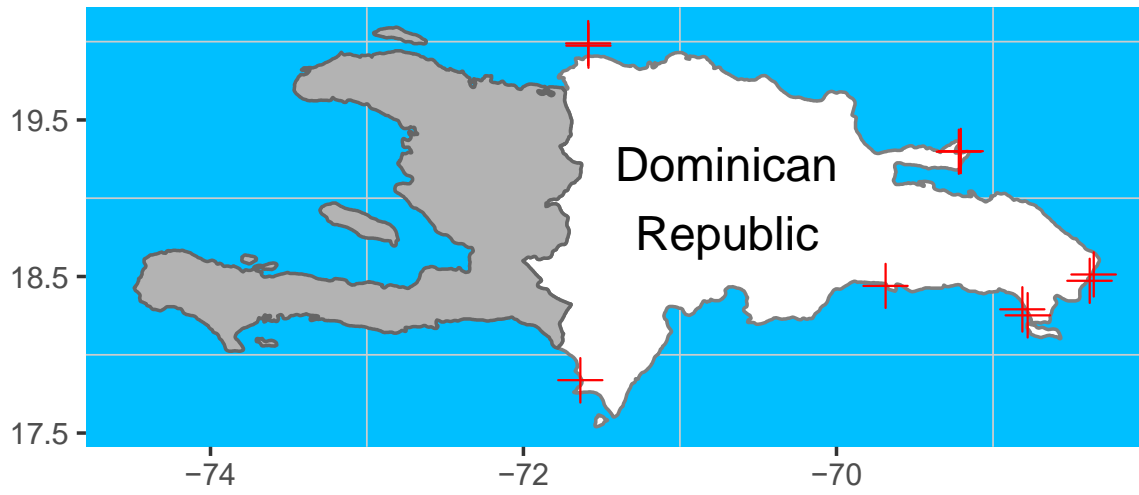


Fig. S1. Locations of our 10 study sites distributed across the Dominican Republic.

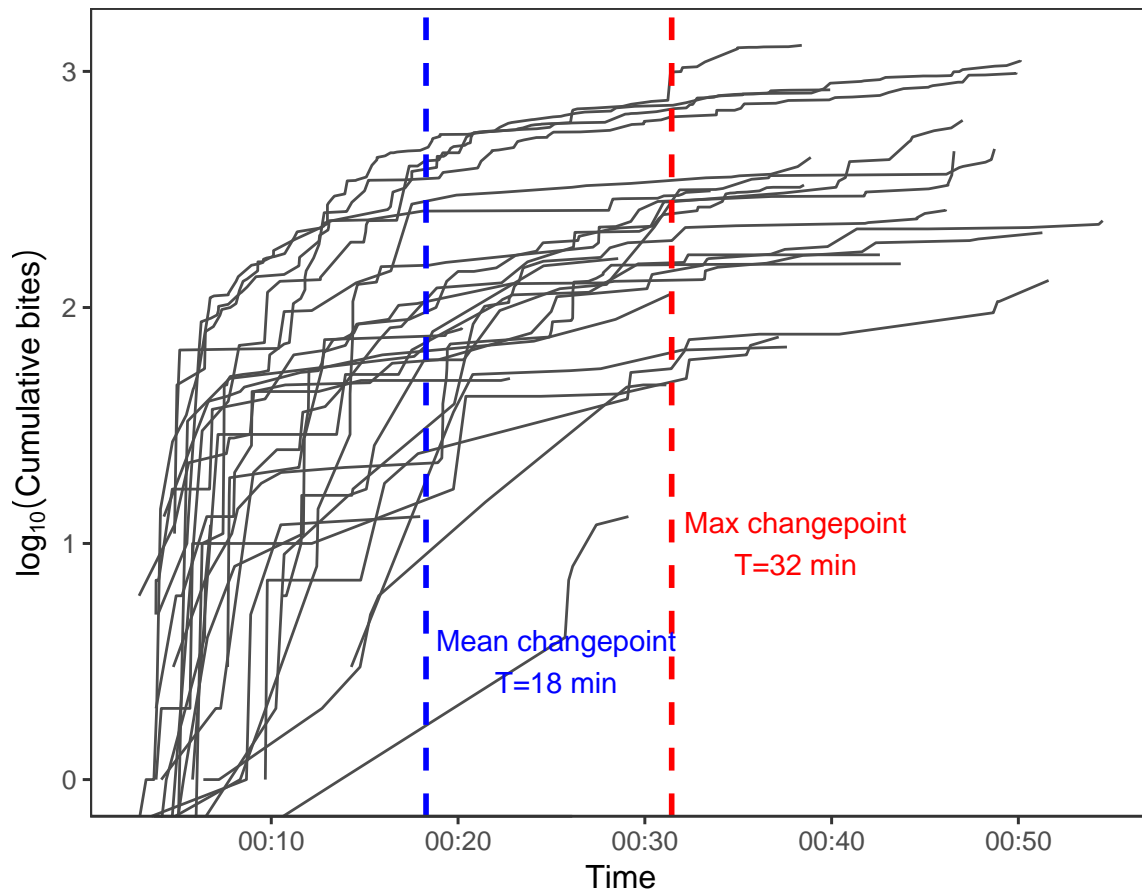


Fig. S2. Accumulation curves for the number of bites observed in each video assay.

Changepoint analysis was applied to identify the time point at which the mean for each video no longer significantly changed with increasing duration (i.e., the curve plateaued). On average this occurred after 18 minutes, with a maximum saturation point of 32 minutes. Bites were \log_{10} -transformed for ease of visualization.

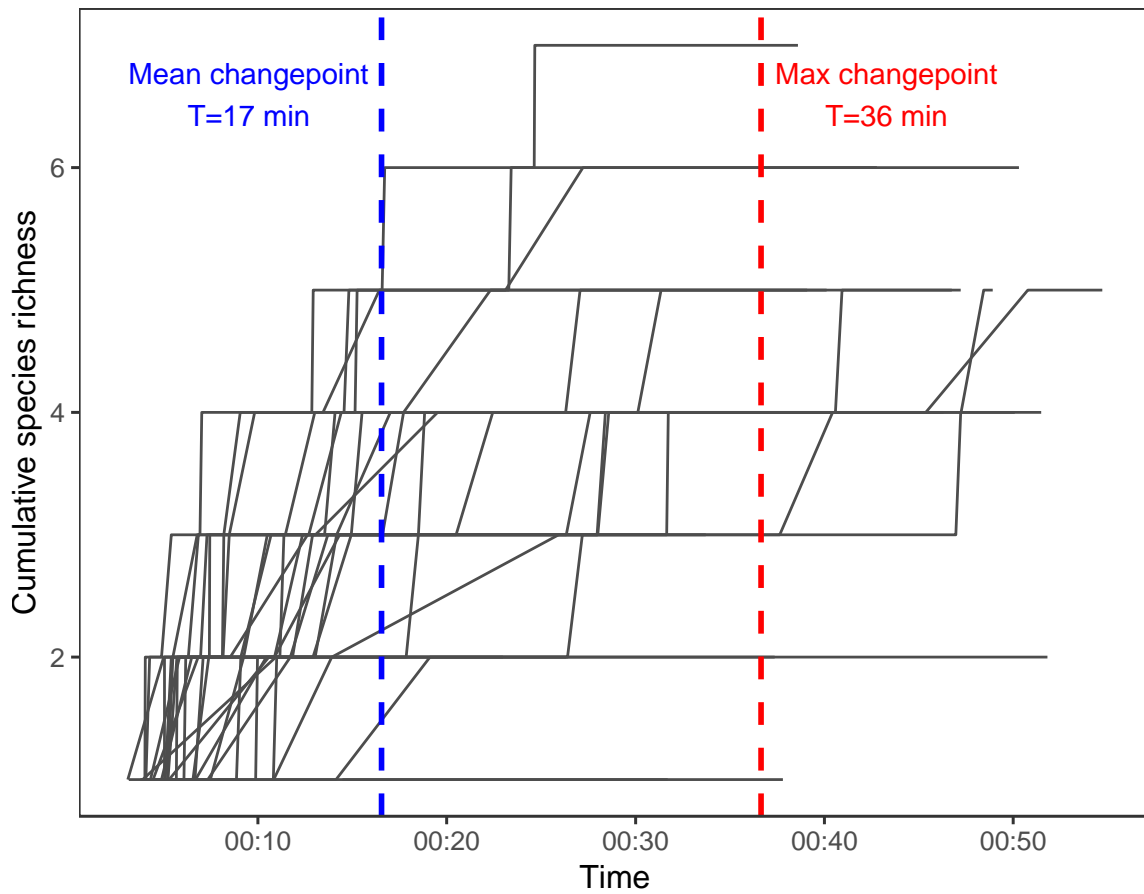


Fig. S3. Species accumulation curves for each video assay. Changepoint analysis was applied to identify the time point at which the mean level of richness observed in each video no longer significantly changed with increasing duration. On average, this occurred after only 17 minutes, with a maximum saturation point of 36 minutes.

Table S1. Output from a linear mixed-effects model predicting mass-standardized bite rate (kg bites per m² per hour) on benthic turf algae. Standardized regression coefficients were obtained by multiplying the coefficients by the ratio of the standard deviations. β_{rich} and β_{repl} correspond to the richness and replacement components of β -diversity, respectively.

Predictor	Estimate	Std. Error	<i>t</i>-value	<i>P</i>-value	Std. Estimate
Biomass	15.065	2.079	7.247	0.000	0.739
α -diversity	13.036	3.702	3.522	0.004	0.478
β_{rich} -diversity	907.141	259.007	3.502	0.004	0.527
β_{repl} -diversity	82.723	134.601	0.615	0.550	0.074
Coral cover	-1.958	0.435	-4.499	0.139	-0.515
Turf cover	-0.739	0.828	-0.893	0.536	-0.151
<i>Diadema</i> abundance	3.270	1.710	1.913	0.307	0.195