

Fig. S1. Body size-dependent variability for targeted and non-targeted (bycatch) fish populations in Rio de la Plata Estuary. Exponential models fitted to the upper and lower quantile (95% and 5% respectively; broken lines) of the distribution of the ratio of each year abundance over the specific mean abundance (abundance:mean ratio) for targeted (red) and non-targeted (black) species are shown. Horizontal grey line represent the 1:1 ratio.

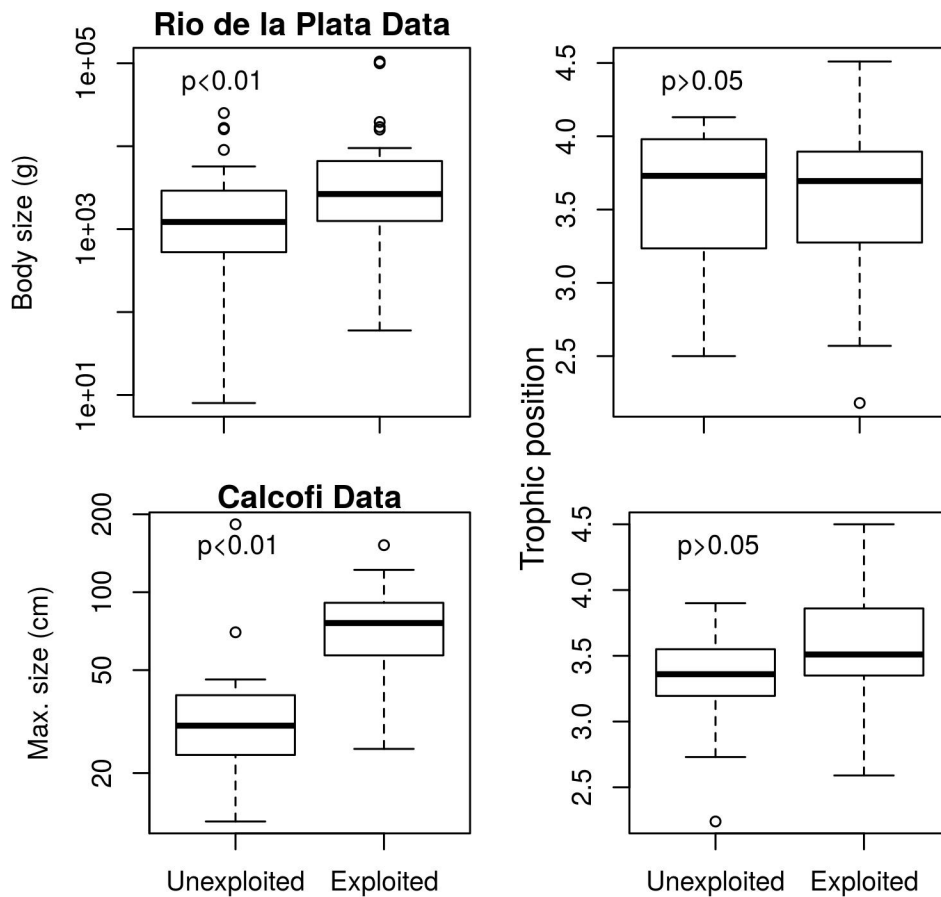


Fig. S2. Patterns in the distribution of body sizes and trophic positions for the community of adult fish in the Rio de la Plata and the larval assemblage from the Calcofi data evaluated previously. Calcofi data was obtained from supplementary material table S4 in Anderson et al. (2008).

REFERENCE

Anderson CNK, Hsieh C, Sandin SA, Hewitt R and others (2008) Why fishing magnifies fluctuations in fish abundance. *Nature* **452**:835–839

<https://doi.org/10.1038/nature06851>

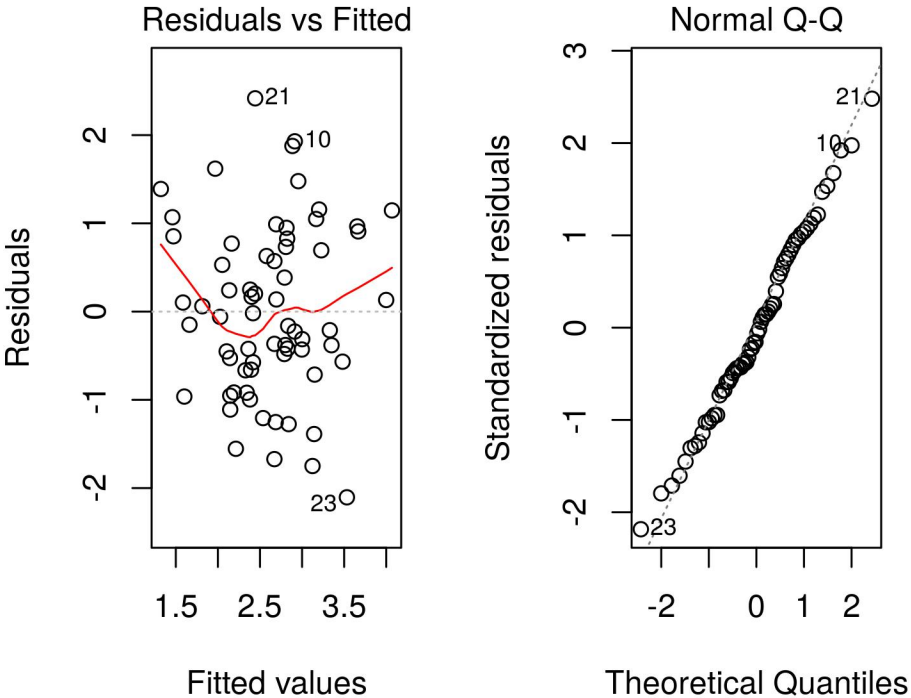


Fig. S3. Model evaluation for the size abundance relationship in exploited and unexploited fish populations. Details of model parameters can be found in Table S1, model SDR+E.

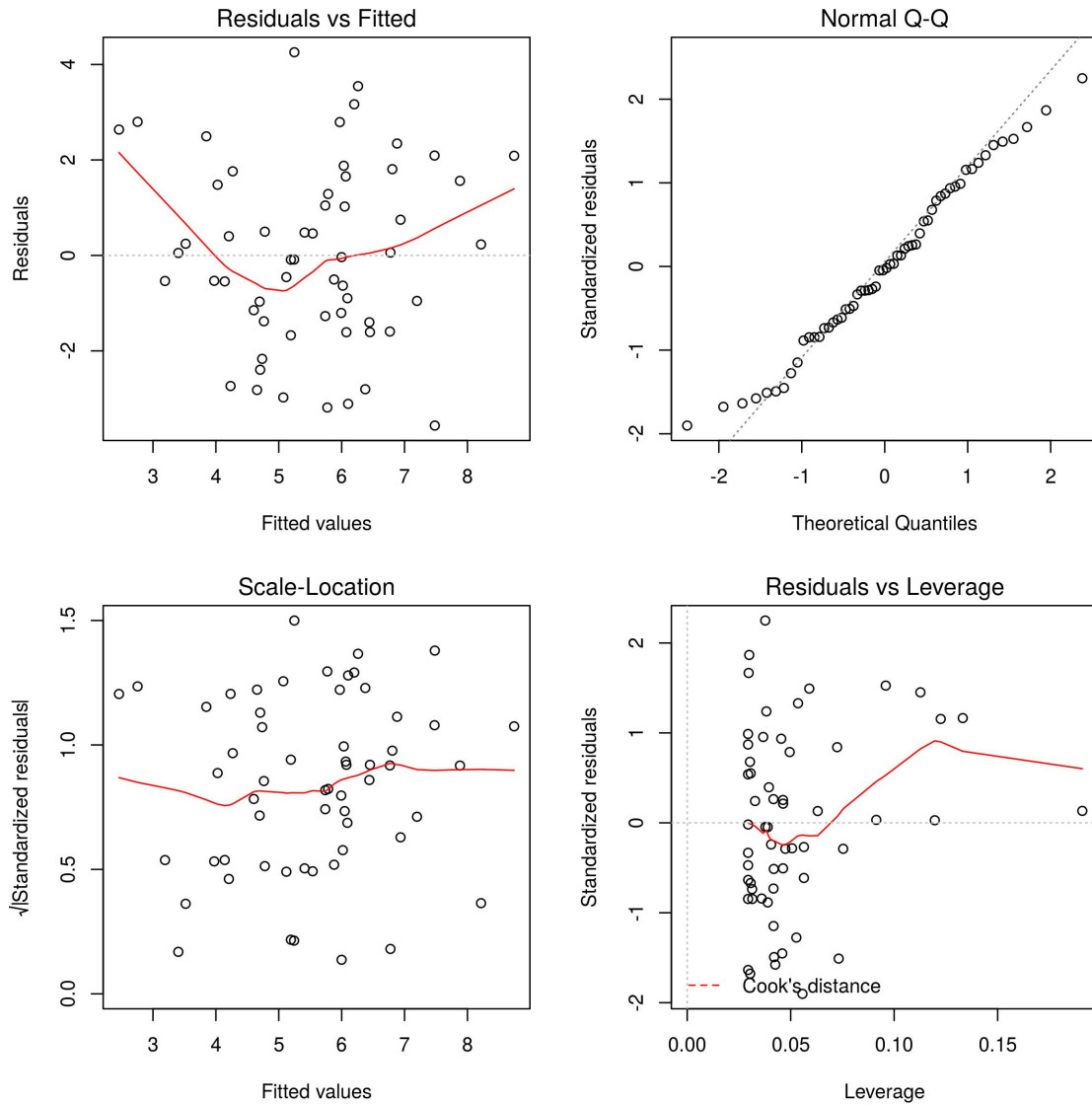


Fig. S4. Model evaluation for the variance-mass relationship in exploited and unexploited fish populations. Details of model parameters can be found in Table S3, model VMA+E.

Table S1. Statistics for the size (M) density (N) relationship (SDR) in fish populations. The general fitted model was $y=a + b x + \text{covariables} + \text{interactions}$, where $y=\log_{10}(N)$, $x=\log_{10}(M)$, and the covariables were exploited species (E; binary (0-1)) and trophic position (TP; continuous). The interaction between slope and exploitation (b:E) was also evaluated. ΔAIC is the difference in the Akaike information criteria among competing models. Lower ΔAIC values imply a better model fit.

	SDR		SDR+E		SDR+TP		SDR+E+TP		SDR:E	
Predictors	Estimates CI		Estimates CI		Estimates CI		Estimates CI		Estimates CI	
Slope (b)	-0.64 ***	-0.98 – -0.29	-0.77 ***	-1.10 – -0.43	-0.51 *	-0.92 – -0.11	-0.69 **	-1.09 – -0.28	-0.57 *	-1.03 – -0.11
Intercept (a)	4.70 ***	3.55 – 5.85	4.69 ***	3.60 – 5.78	5.50 ***	3.66 – 7.34	5.17 ***	3.40 – 6.94	4.10 ***	2.65 – 5.54
E(a)			0.74 **	0.22 – 1.25			0.71 **	0.18 – 1.23	2.11	-0.14 – 4.36
TP					-0.33	-0.94 – 0.27	-0.20	-0.79 – 0.38		
B: E									-0.42	-1.09 – 0.25
Observations	66		66		66		66		66	
ΔAIC	6.1		0		6.8		1.5		0.36	
R^2 / R^2 adjusted	0.177 / 0.164		0.272 / 0.249		0.192 / 0.167		0.278 / 0.243		0.290 / 0.255	
* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$										

Table S2. Statistics for Taylor’s law (TL) relationship between the temporal abundance average $E[N]$ and the variance ($\text{var}[N]$). The general fitted model was $y=c + d x + \text{covariables}$, where $y=\log_{10}(\text{Var}[N])$, $x=\log_{10}(E[N])$, and the covariables were exploited species (E; binary (0-1)) and trophic position (TP; continuous). ΔAIC is the difference in the Akaike information criteria among competing models. Lower ΔAIC values imply a better model fit.

	TL		TL+E		TL+E+TP		TL+TP	
Predictors	Estimates CI		Estimates CI		Estimates CI		Estimates CI	
Slope (d)	2.11 ^{***}	2.00 – 2.22	2.11 ^{***}	2.00 – 2.23	2.08 ^{***}	1.96 – 2.21	2.08 ^{***}	1.97 – 2.20
Intercept (c)	-0.38 [*]	-0.70 – -0.05	-0.37 [*]	-0.71 – -0.04	0.18	-0.85 – 1.21	0.18	-0.84 – 1.20
Exploited			-0.02	-0.27 – 0.22	-0.01	-0.26 – 0.24		
TP					-0.14	-0.38 – 0.11	-0.14	-0.37 – 0.10
Observations	58		58		58		58	
ΔAIC	0		2		1		3	
R^2 / R^2 adjusted	0.964 / 0.963		0.964 / 0.963		0.965 / 0.963		0.965 / 0.964	
* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$								

Table S3. Statistics for the variance-mass allometry (VMA) relating individual body size (M) and population variance (var[N]). The general fitted model was $y=e + f x + \text{covariables}$, where $y=\log_{10}(\text{Var}[N])$, $x=\log_{10}(M)$, and the covariables were exploited species (E; binary (0-1)) and trophic position (TP; continuous). The interaction between slope and exploitation (f:E) was also evaluated. ΔAIC is the difference in the Akaike information criteria among competing models. Lower ΔAIC values imply a better model fit.

	VMA		VMA+E		VMA+E+TP		VMA+TP		VMA:E	
Predictors	Estimates CI		Estimates CI		Estimates CI		Estimates CI		Estimates CI	
Slope (f)	-1.26 **	-2.02 – -0.50	-1.65 ***	-2.37 – -0.92	-1.37 **	-2.24 – -0.50	-0.85	-1.74 – 0.03	-1.33 **	-2.27 – -0.39
Unexploited (e)	9.60 ***	7.08 – 12.13	9.70 ***	7.42 – 11.99	11.25 ***	7.72 – 14.79	12.08 ***	8.27 – 15.89	8.77 ***	5.86 – 11.68
Exploited (e)			1.97 ***	0.89 – 3.04	1.84 **	0.74 – 2.94			4.42	-0.43 – 9.28
TP					-0.67	-1.83 – 0.50	-1.06	-2.30 – 0.18		
Interaction term									-0.76	-2.23 – 0.70
Observations	58		58		58		58		58	
R ² / R ² adjusted	0.164 / 0.149		0.327 / 0.303		0.343 / 0.307		0.206 / 0.177		0.340 / 0.304	
ΔAIC	10.61		0		0.6		9.6		0.9	
* p<0.05 ** p<0.01 *** p<0.001										