SUPPLEMENTARY MATERIAL

Deep-Dwelling Populations of Mediterranean *Corallium rubrum* and *Eunicella cavolini*: Distribution, Demography, and Co-occurrence

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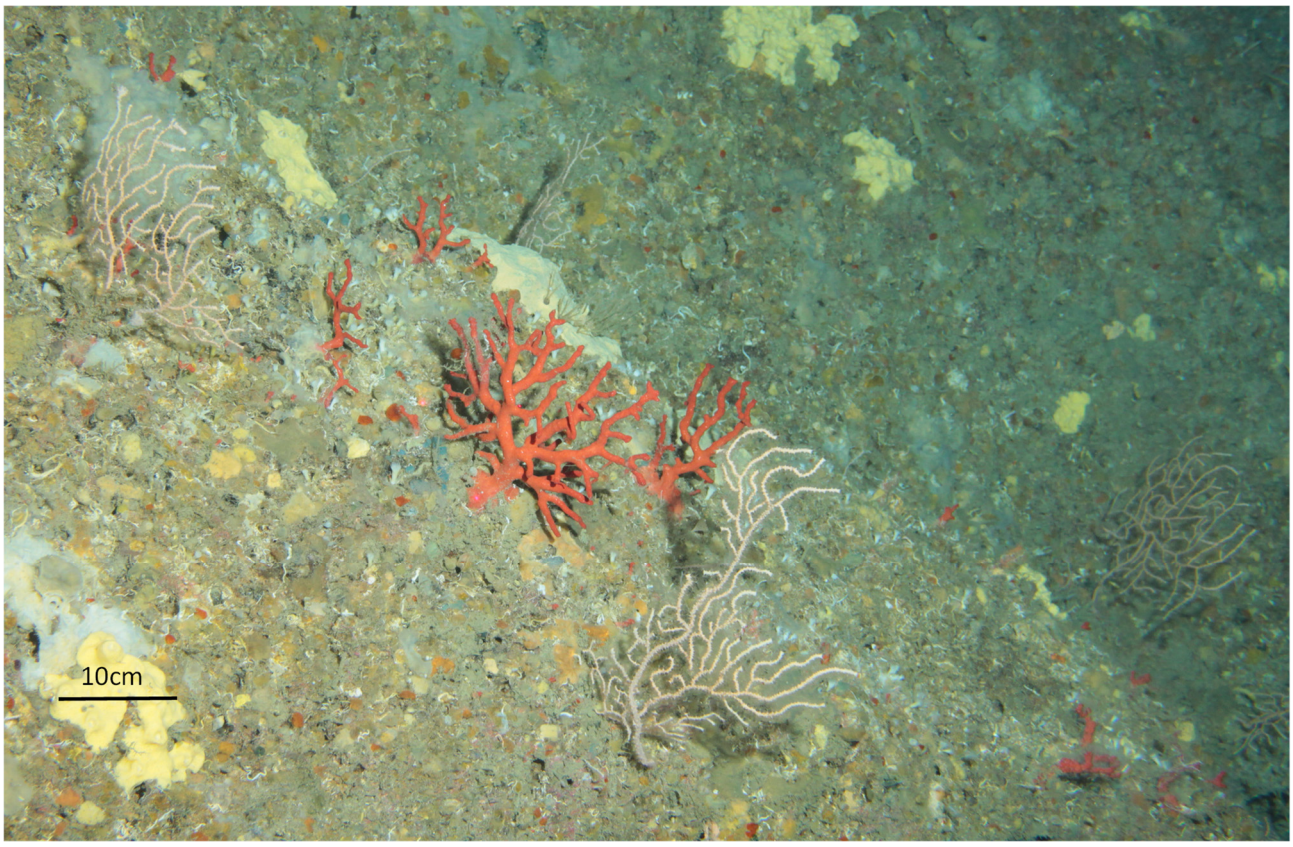

Figure S1. Example of frame used in this study with the reference scale provided by the red coloured laser beams.

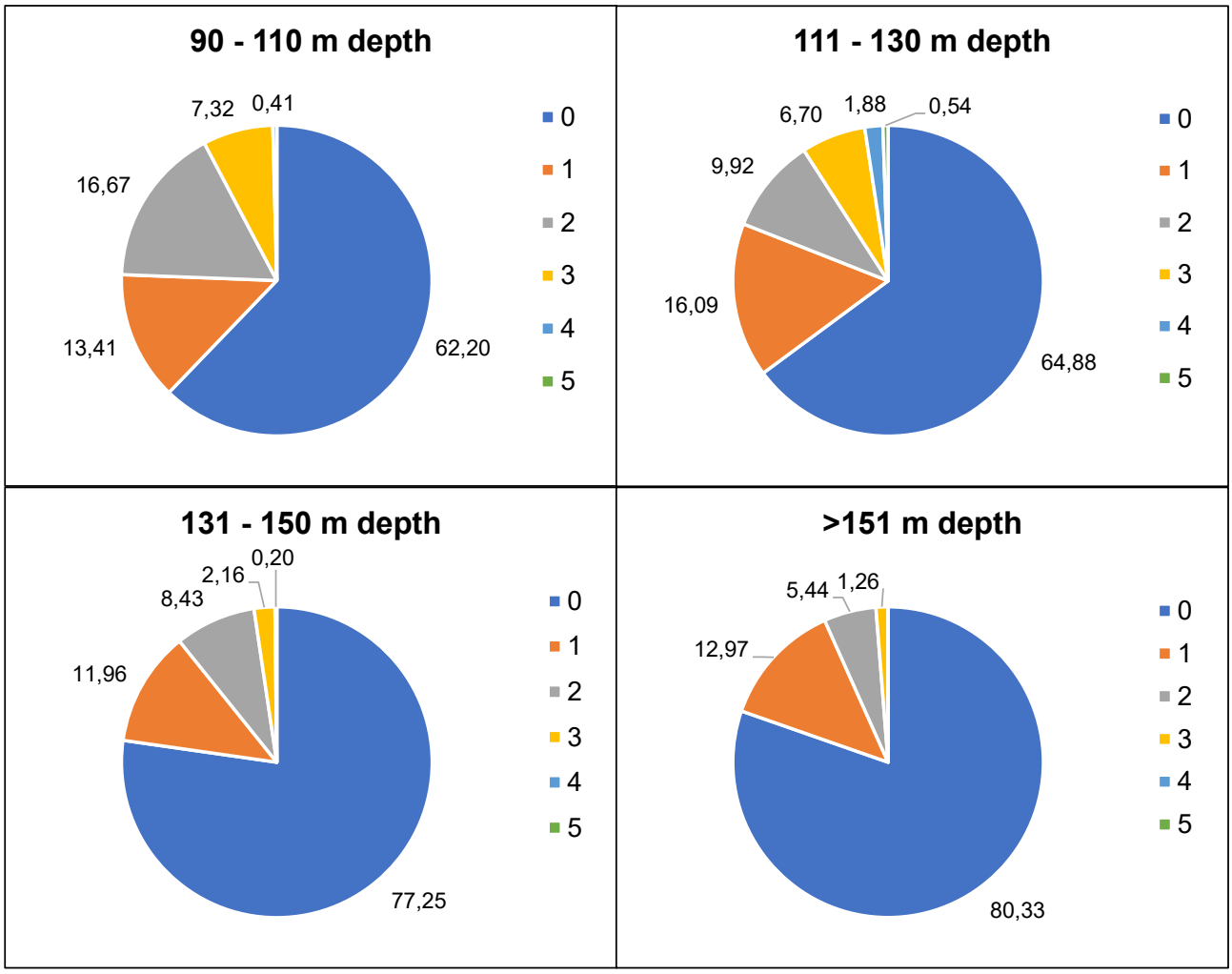

Figure S2. Pie chart representing the relative percentages of the highest level of branching in *C. rubrum* colonies, across the depth-categories investigated. The number in the legend corresponds to the maximum branching pattern.

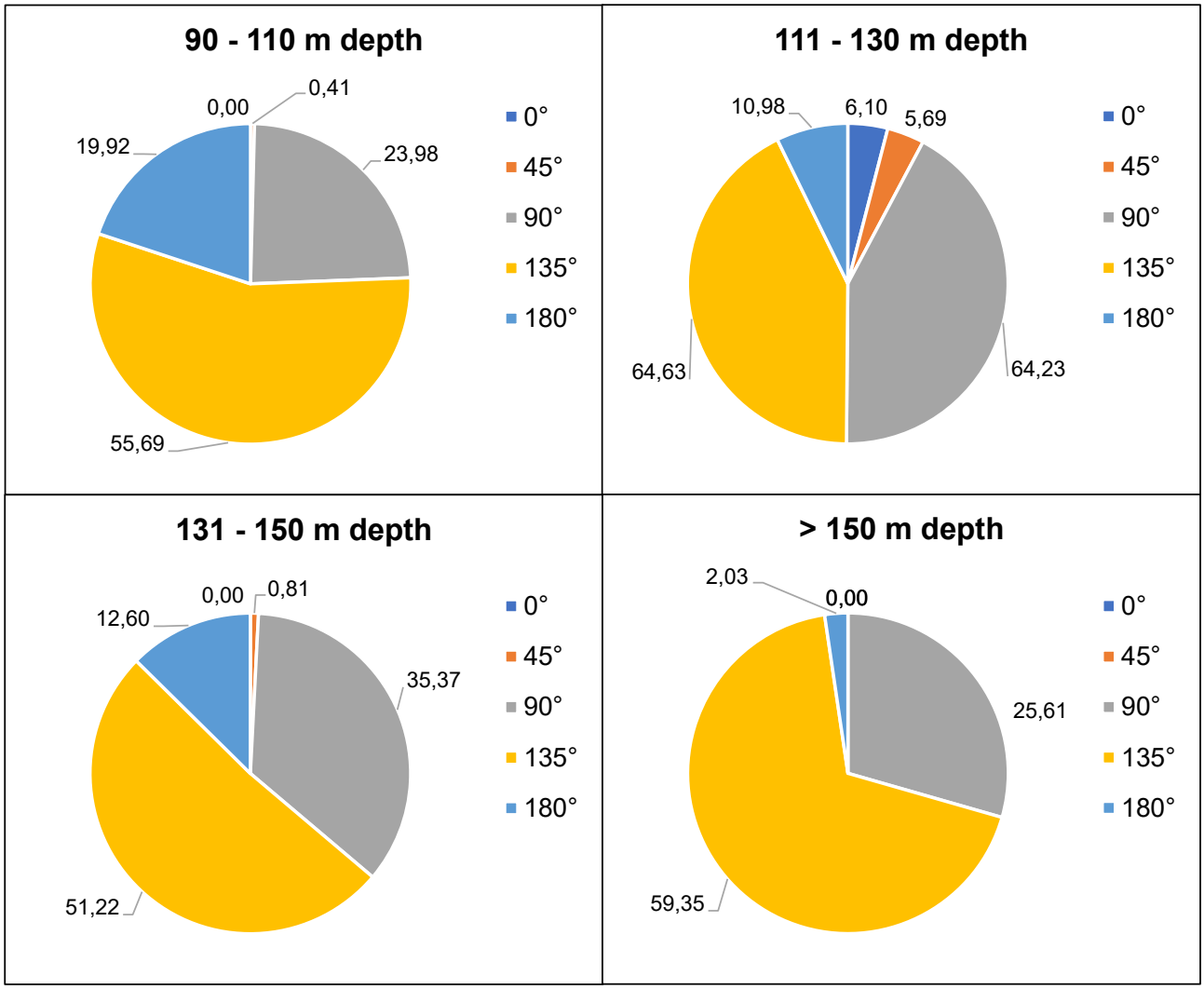

Figure S3. Pie chart representing the orientation of *C. rubrum* colonies (expressed as relative %), across the depth-categories investigated.

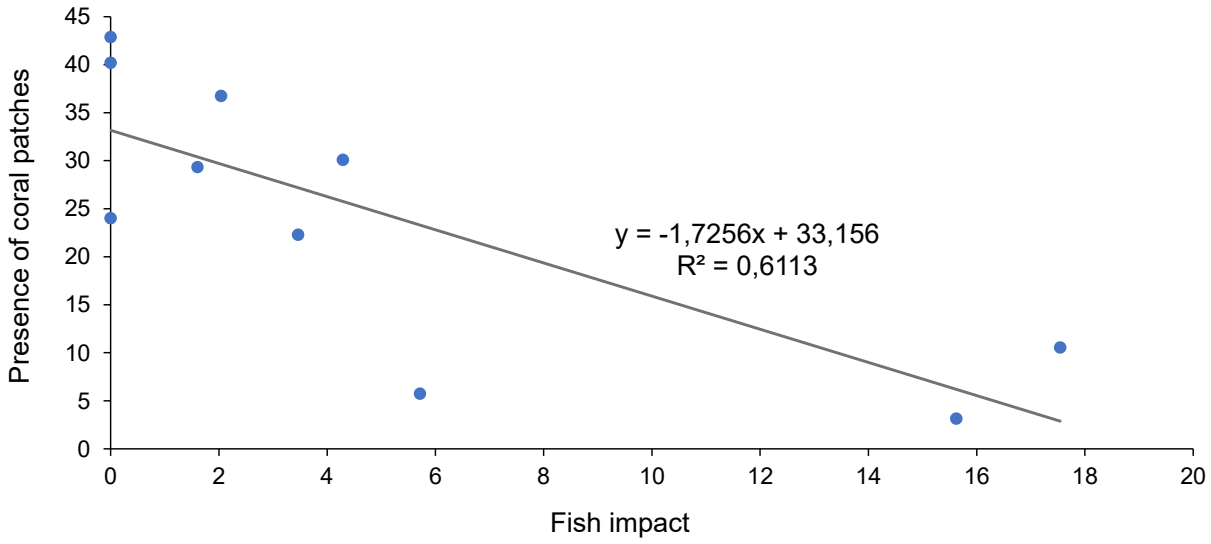

Figure S4. Relationship between the presence of red coral (expressed as % of analyzed frames including red coral colonies), vs fishing impact (expressed as % of analyzed frames including lost fishing gears) in the investigated areas (n=10, R=0.783, $p<0.01$).

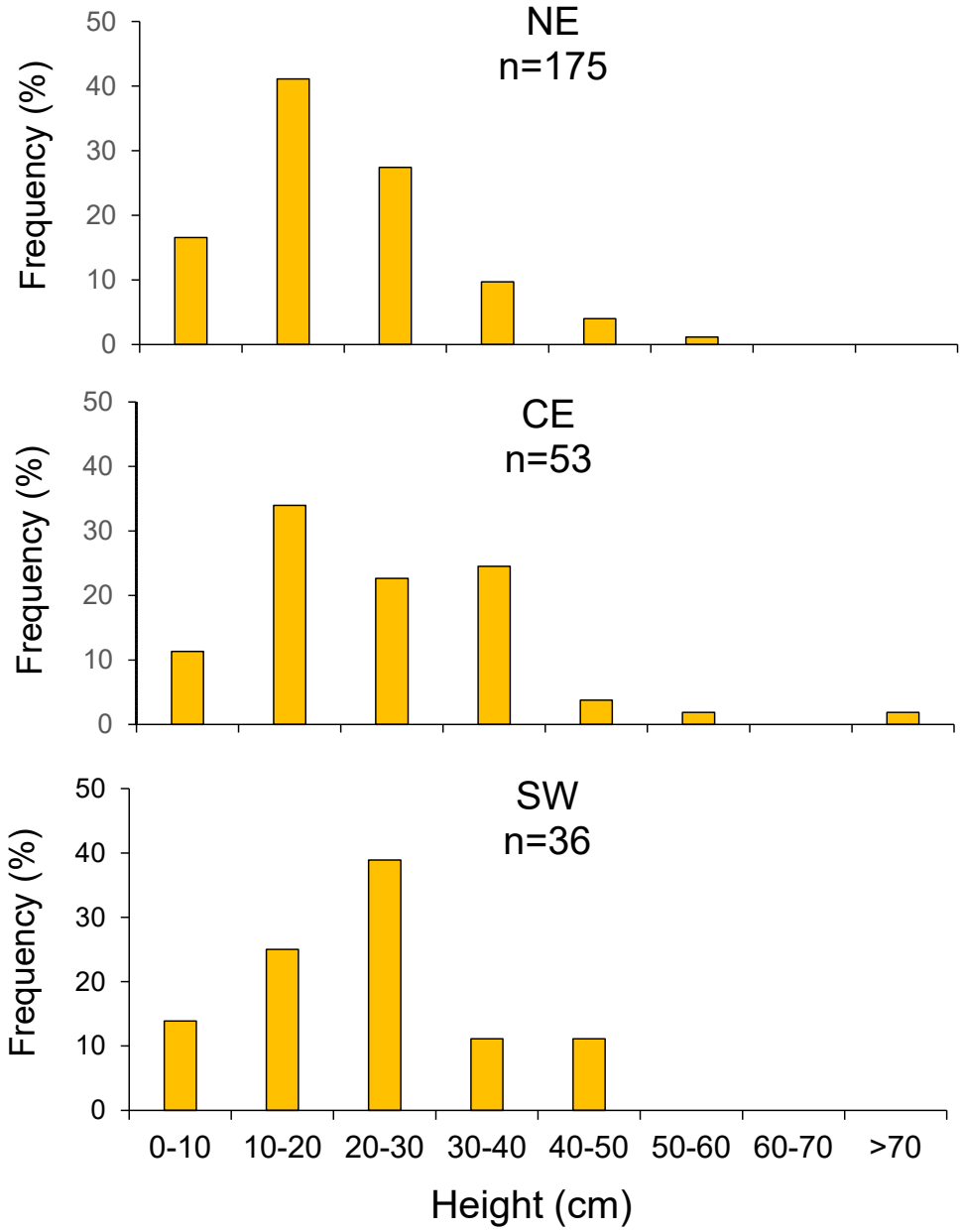

Figure S5. Size-frequency distribution of *E. cavolini* colony height in the three investigated areas.

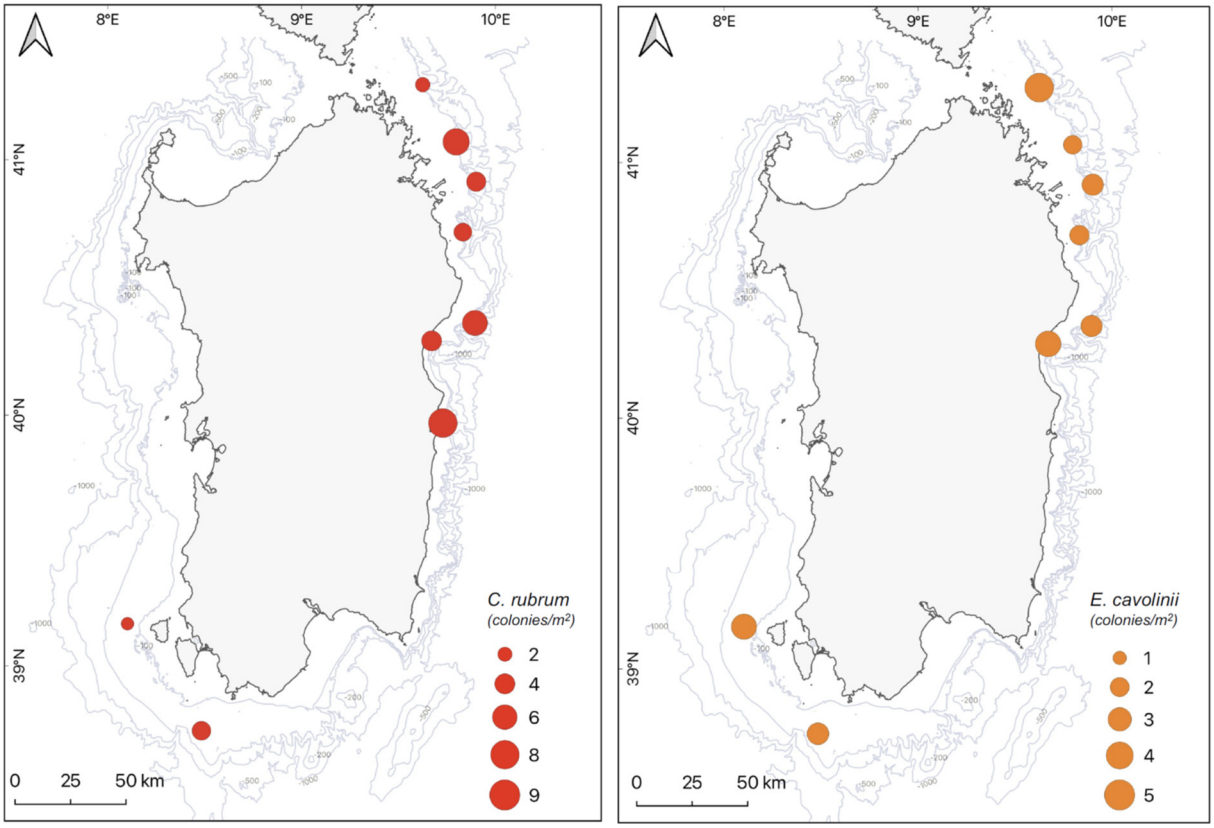

Figure S6. Distribution map of the two investigated species (*C. rubrum* on the left, *E. cavolini* on the right) based on the data obtained during the study.

Table S1. Output of the Mann-Whitney pairwise comparison on differences in *C. rubrum* density among the different depth-categories considered in this study.

	90-110	**111-130**	**131-150**	**> 150**
90-110		**0.00085**	**0.02872**	**0.00394**
111-130	**0.00085**		0.69350	0.28230
131-150	**0.02872**	0.69350		0.15930
>151	**0.00394**	0.28230	0.15930	

Table S2. Output of the Mann-Whitney pairwise comparison on differences in C. rubrum height among the different depth-categories considered in this study.

	90-110	**111-130**	**131-150**	**> 150**
90-110		0.92760	0.24580	**0.01325**
111-130	0.92760		0.37240	**0.02965**
131-150	0.24580	0.37240		0.11890
>151	**0.01325**	**0.02965**	0.11890	

Table S3. Output of the Mann-Whitney pairwise comparison on differences in *C. rubrum* basal diameter among the different depth-categories considered in this study.

	90-110	**111-130**	**131-150**	**>151**
90-110		**0.04399**	0.09740	**0.01951**
111-130	**0.04399**		0.88780	0.25860
131-150	0.09740	0.88780		0.25120
>151	**0.01951**	0.25860	0.25120	

Table S4. Output of the Mann-Whitney pairwise comparison on differences in *C. rubrum* maximum branching pattern among the different depth-categories considered in this study.

	90-110	**111-130**	**131-150**	**>151**
90-110		0.43890	**1.93E-06**	**8.46E-07**
111-130	0.43890		**0.00001**	**6.63E-06**
131-150	**1.93E-06**	**0.00001**		0.25650
>151	**8.46E-07**	**6.63E-06**	0.25650	

Table S5. Output of the Mann-Whitney pairwise comparison on differences in *C. rubrum* orientation among the different depth-categories considered in this study.

	90-110	**111-130**	**131-150**	**>151**
90-110		**2.64E-13**	**1.86E-01**	**2.27E-04**
111-130	**2.64E-13**		**1.73E-13**	**0.00002**
131-150	**1.86E-01**	**1.73E-13**		**0.00865**
>151	**2.27E-04**	**0.00002**	**0.00865**	

Table S6. Output of the Mann-Whitney pairwise comparison on differences in *E. cavolini* density among the different depth-categories considered in this study.

	90-110	**111-130**	**131-150**	**>151**
90-110		**3.60E-05**	**4.34E-06**	**2.45E-06**
111-130	**3.60E-05**		0.43480	0.16530
131-150	**4.34E-06**	0.43480		0.45890
>151	**2.45E-06**	0.16530	0.45890	

Table S7. Output of the Mann-Whitney pairwise comparison on differences in *E. cavolini* height among the different depth-categories considered in this study.

	90-110	**111-130**	**131-150**	**>151**
90-110		0.25130	**0.02636**	**0.04949**
111-130	0.25130		0.12060	0.24600
131-150	**0.02636**	0.12060		0.78110
>151	**0.04949**	0.24600	0.78110	

Table S8. Output of the Mann-Whitney pairwise comparison on differences in *E. cavolini* orientation among the different depth-categories considered in this study.

	90-110	**111-130**	**131-150**	**>151**
90-110		**0.00315**	**0.00007**	**2.03E-26**
111-130	**0.00315**		**2.01E-24**	**1.68E-68**
131-150	**0.00007**	**2.01E-24**		**8.03E-19**
>151	**2.03E-26**	**1.68E-68**	**8.03E-19**	

Table S9. Results from the sequential test of the Distance based multivariate analysis for a Linear Model (DistLM) based on AIC criterium. The following abbreviations are used: *** = P < 0.001; * = P < 0.05; ns = not significant; Prop. (%) percentage of explained variation; Cumul. (%) cumulative percentage of total variation.

Variable	AIC	P-value	Prop. (%)	Cumul. (%)
A) *C. rubrum* density				
Density of *E. cavolini*	-176,95	***	26.7	26.7
Height of *E. cavolini*	-175,07	ns	0.1	26.7
Depth	-177,71	*	3.2	29.9
B) *E. cavolini* density				
Height of *C. rubrum*	-189,9	ns	3.5	3.5
Density of *C. rubrum*	-208,08	***	16.9	20.3
Depth	-209,73	*	2.7	23.1