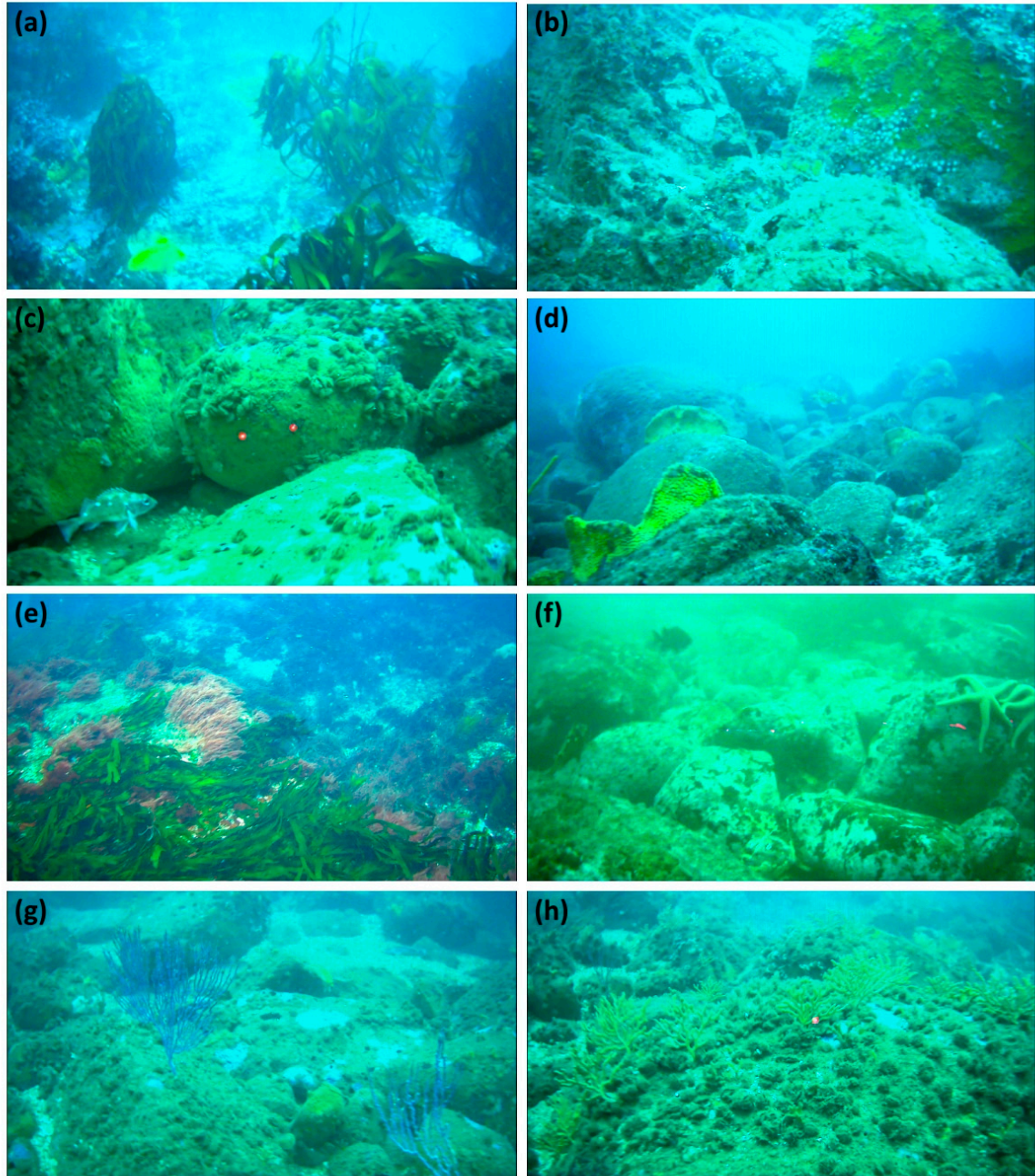
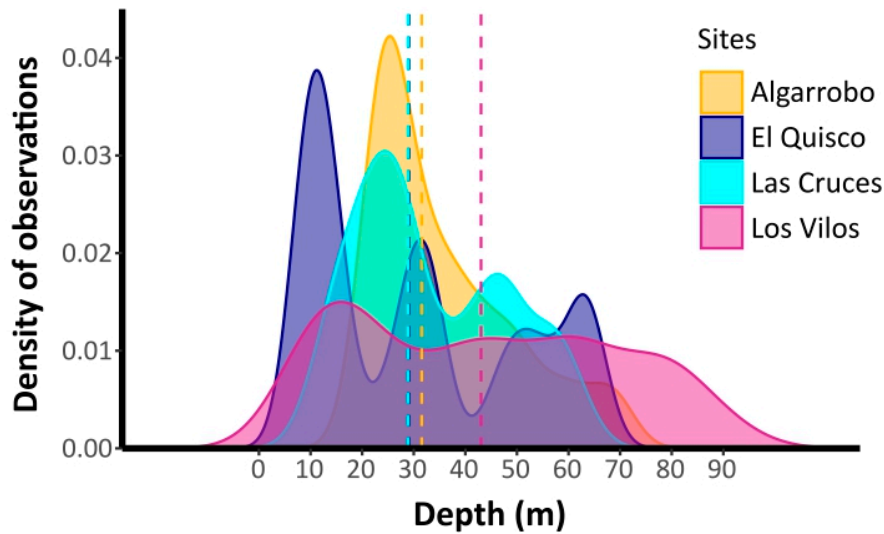


## Supplementary Materials



**Figure S1.** Images extracted from the TUV. Some of the main taxa observed in the TUV are pointed on each image. (a) Kelp. Las Cruces, 12.9 m; (b) Actinaria and Porifera. Los Vilos, 47.6 m. (c) Brachiopoda, Porifera, and *Sebastes oculatus*. El Quisco, 50.7 m. (d) Porifera. Las Cruces, 33.5 m. (e) Canopy-forming algae > 5 cm. El Quisco, 9.9 m. (f) *Stichaster striatus* and *Chromis crasma*. Algarrobo, 25.2 m. (g) *Leptogorgia chilensis*. El Quisco, 38.7 m. (h) *Axinella* sp. El Quisco, 50.5 m.

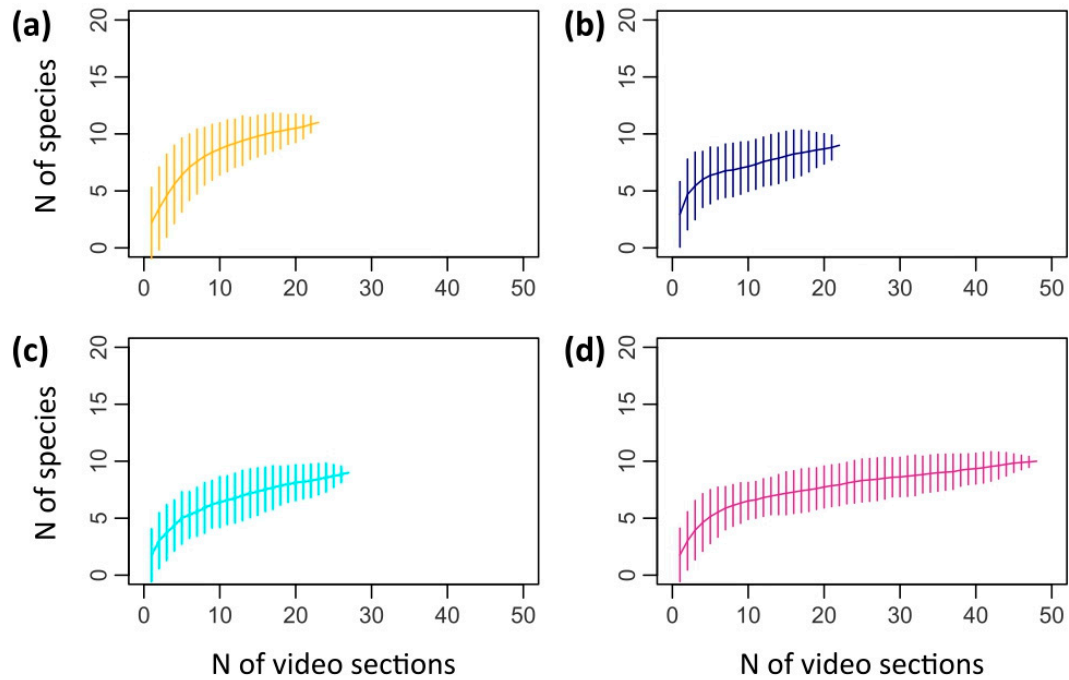


**Figure S2.** Density distribution of sampled depth at each site. Vertical lines represent the median depth sampled at each site (Algarrobo 31.3 m, N=203; El Quisco 28.8 m, N=124 Las Cruces 28.7 m, N=192; Los Vilos 42.8 m, N=259). Observations (N) correspond to 30 sec intervals recorded by the GPS.

**Table S1.** All sites and by-site depth range of fish and benthic taxa, including fish trophic categories. Empty cells correspond to taxon absence, while single depth values are single occurrences. Invert.: invertebrates.

Taxa	Depth range (m)					N
	Algarrobo	El Quisco	Las Cruces	Los Vilos	All sites	
<i>Aplodactylus punctatus</i>	21.7-25.3	8.4-31.6	11.9-24.2	7.02-33	7.02-33	25
<i>Bovichtus chilensis</i>	22.4				22.4	1
<i>Cheilodactylus variegatus</i>	22.4-25.3	9.6-13.2	28.1	24.5	9.6-28.4	12
<i>Chromis crusma</i>	21.7-49.7	9.6-48.2	16.2-47.2	12.8-60.2	9.6-60.2	48
<i>Girella laevisfrons</i>		25.0	19.9		19.9-25.0	2
<i>Graus nigra</i>				12.8	12.8	1
<i>Helcogrammoides chilensis/ H. cunninghami</i>	22.4-32.7				22.4-32.7	2
<i>Paralabrax humeralis</i>				13.0	13.0	1
<i>Pinguipes chilensis</i>	21.7-60.3	11.0-54.4	19.9-56.3	8.5-81.3	8.5-81.3	71
<i>Prolatilus jugularis</i>	21.7-49.7		13.4-55.6	8.74-24.7	8.7-55.6	17
<i>Scartichthys viridis</i>	22.4-40.8	8.4-31.6	21.3-27.7	8.5-34.5	8.4-40.8	32

<i>Schroederichthys chilensis</i>		31.6			31.6	1
<i>Sebastes oculatus</i>	24.7-60.3	22.0-54.4	24.7-56.3	31.7-88.9	22.0-88.9	35
<i>Seriola lalandi</i>				70.5	70.5	1
<i>Seriotelella violacea</i>			41.7		41.7	1
Rajiformes	24.7	25.0			24.7-25.0	2
<i>Trachurus murphyi</i>	55.8				55.8	1
Herbivore detritivores	21.8-40.8	8.4-31.6	11.9-27.7	7.0-34.5	7.02-40.8	59
Generalized carnivores	24.7-60.3	22.0-54.4	24.7-56.3	12.8-88.9	12.8-88.9	42
Mobile invertivores	21.7-60.3	9.6-54.4	13.4-56.3	8.5-81.3	8.5-81.3	104
Planktivores	21.7-49.7	9.6-48.2	16.2-47.2	12.8-60.2	9.6-60.2	48
Kelp		8-32.4		6.7-39.5	6.7-39.5	50
Canopy-forming algae < 5cm	20.8-47.6	8-33.4	12.3-38.3	6.4-81.4	6.4-81.4	127
Canopy-forming algae > 5cm	18-47.6	8-46.6	12.3-55.8	6.4-75.9	6.4-75.9	211
Algal turf-invert.-sediment	18-50.5	8-50.7	12.3-55.8	6.4-91	6.4-91	232
Brachiopoda	21.5	9.8-50.7	46-54.8	6.4-57.7	6.4-57.7	32
Actiniaria	18-36.2	9.1-32	12.3-55.8	6.4-81.4	6.4-81.4	107
<i>Leptogorgia chilensis</i>	30.3-42.8	30.7-50.7	30.1-39.7	25.2-57	25.2-57	27
Porifera	18-50.5	8.2-50.7	12.6-55.8	6.4-81.4	6.4-81.4	209
<i>Axinella sp.</i>	50.1	32-50.5		54.4-57.9	32-57.9	7
<i>Tetrapigus niger</i>	25.4-47.6		36.1		25.4-47.6	3
<i>Stichaster striatus</i>	21.5-37.4	9.1-30.7	30.5-33.1		9.1-37.4	15
<i>Odontaster validus</i>	23.7-42.4	12.1-32.4	21.6	12.1	12.1-42.4	8
<i>Meyenaster gelatinosus</i>		12.6-23.9			12.6-23.9	3



**Figure S3.** Species accumulation curves for the four sampled sites: (a) Algarrobo, (b) El Quisco, (c) Las Cruces and (d) Los Vilos.

**Table S2.** Kruskal-Wallis rank sum test for the density of fish species and trophic categories between depth strata: <20 m (N = 33), 20–40 m (N = 44), 40–60 m (N = 27), >60 m (N = 16). Only species with more than two occurrences on each depth section (N=120) are included, while all recognized fish taxa were grouped in trophic categories. *p*-values <0.05 are highlighted in bold.

	Chi-squared	df	<i>p</i> -value
<i>Aplodactylus punctatus</i>	31.52	3	<b>&lt;0.001</b>
<i>Scartichthys viridis</i>	29.98	3	<b>&lt;0.001</b>
<i>Sebastes oculatus</i>	18.03	3	<b>&lt;0.001</b>
<i>Chromis crasma</i>	10.66	3	<b>0.014</b>
<i>Cheilodactylus variegatus</i>	8.09	3	<b>0.044</b>
<i>Pinguipes chilensis</i>	18.87	3	<b>&lt;0.001</b>
<i>Prolatilus jugularis</i>	4.66	3	0.199
Herbivore detritivores	48.44	3	<b>&lt;0.001</b>
Generalized carnivores	15.19	3	<b>0.002</b>
Mobile invertivores	19.8	3	<b>&lt;0.001</b>
Planktivores	10.66	3	<b>0.014</b>

**Table S3.** Pairwise comparison of fish species and trophic categories that showed a significantly different density among depth bands (<20 m, 20–40 m, 40–60 m, >60 m) using a Bonferroni's correction. *p*-values <0.05 are highlighted in bold.

	Depth band	p-value
<i>Aplodactylus punctatus</i>	<20 – 20-40	<b>0.004</b>
	<20 – 40-60	<b>&lt;0.001</b>
	<20 - >60	<b>0.003</b>
	20-40 – 40-60	0.102
	20-40 - >60	0.362
	40-60 - >60	-
<i>Scartichthys viridis</i>	<20 – 20-40	<b>0.016</b>
	<20 – 40-60	<b>&lt;0.001</b>
	<20 - >60	<b>0.002</b>
	20-40 – 40-60	<b>0.043</b>
	20-40 - >60	0.098
	40-60 - >60	1.000
<i>Sebastes oculatus</i>	<20 – 20-40	<b>0.001</b>
	<20 – 40-60	<b>&lt;0.001</b>
	<20 - >60	<b>&lt;0.001</b>
	20-40 – 40-60	1.000
	20-40 - >60	1.000
	40-60 - >60	1.000
<i>Chromis crusma</i> Planktivores	<20 – 20-40	1.000
	<20 – 40-60	1.000
	<20 - >60	<b>0.037</b>
	20-40 – 40-60	0.622
	20-40 - >60	<b>0.020</b>
	40-60 - >60	0.358
<i>Cheilodactylus variegatus</i>	<20 – 20-40	1.00
	<20 – 40-60	0.11
	<20 - >60	0.38
	20-40 – 40-60	0.24
	20-40 - >60	0.64
	40-60 - >60	-
<i>Pinguipes chilensis</i>	<20 – 20-40	0.179
	<20 – 40-60	1.000
	<20 - >60	0.135
	20-40 – 40-60	0.249
	20-40 - >60	<b>&lt;0.001</b>
	40-60 - >60	<b>0.023</b>
Herbivore detritivores	<20 – 20-40	<b>&lt;0.001</b>
	<20 – 40-60	<b>&lt;0.001</b>

	<20 - >60	<b>&lt;0.001</b>
	20-40 - 40-60	<b>0.005</b>
	20-40 - >60	<b>0.026</b>
	40-60 - >60	1.000
Generalized carnivores	<20 - 20-40	<b>0.006</b>
	<20 - 40-60	<b>0.001</b>
	<20 - >60	<b>0.003</b>
	20-40 - 40-60	1.000
	20-40 - >60	1.000
	40-60 - >60	1.000
Mobile invertivores	<20 - 20-40	1.000
	<20 - 40-60	1.000
	<20 - >60	<b>0.004</b>
	20-40 - 40-60	0.293
	20-40 - >60	<b>&lt;0.001</b>
	40-60 - >60	<b>0.014</b>

**Table S4.** Pairwise comparison of the fish community across sites using PERMANOVA (999 permutations). *p*-values <0.05 are highlighted in bold.

	F	R <sup>2</sup>	<i>p</i> -value
Algarrobo - El Quisco	5.05	0.12	<b>0.008</b>
Algarrobo - Las Cruces	1.70	0.04	0.210
Algarrobo - Los Vilos	0.48	0.01	0.750
El Quisco - Las Cruces	6.31	0.14	<b>0.006</b>
El Quisco - Los Vilos	4.48	0.07	<b>0.008</b>
Las Cruces - Los Vilos	1.01	0.02	0.463

**Table S5.** Permutation test for homogeneity of multivariate dispersions on the fish community across sites.

	Df	Sum Sq	Mean Sq	F	N. perm	<i>p</i> -value
Groups	3	0.11	0.04	1.63	999	0.189
Residuals	99	2.17	0.02			

# Benthic community

**Table S6.** Kruskal-Wallis rank sum test for the percentage cover data between depth bands: <20 m (N = 73), 20–40 m (N = 109), 40–60 m (N = 47), >60 m (N = 8). *p*-values<0.05 highlighted in bold. Inverteb: invertebrates.

	Chi-squared	df	<i>p</i> -value
Kelp	37.57	3	<b>&lt;0.001</b>
Canopy-forming algae <5cm	23.41	3	<b>&lt;0.001</b>
Canopy-forming algae >5cm	17.94	3	<b>&lt;0.001</b>
Algal turf-inverteb-sediment	4.04	3	0.257
Brachiopoda	9.22	3	<b>0.027</b>
Actiniaria	11.78	3	<b>0.008</b>
Porifera	20.06	3	<b>&lt;0.001</b>
<i>Leptogorgia chilensis</i>	15.69	3	<b>0.001</b>
Bare sand	0.79	3	0.852
Bare rock	9.61	3	<b>0.022</b>

**Table S7.** Pairwise comparison of the percentage cover data that showed a significantly different abundance between depth bands (<20 m, 20–40 m, 40–60 m, >60 m) using a Bonferroni's correction. *p*-values <0.05 are highlighted in bold.

	Depth band	<i>p</i> -value
Kelp	<20 – 20-40	<b>&lt;0.001</b>
	<20 – 40-60	<b>&lt;0.001</b>
	<20 – >60	0.125
	20-40 – 40-60	0.012
	20-40 – >60	1.000
	40-60 – >60	-
Canopy-forming algae <5cm	<20 – 20-40	<b>0.006</b>
	<20 – 40-60	<b>0.001</b>
	<20 – >60	1.000
	20-40 – 40-60	0.229
	20-40 – >60	0.149
	40-60 – >60	<b>0.019</b>
Canopy-forming algae >5cm	<20 – 20-40	1.000
	<20 – 40-60	0.122
	<20 – >60	<b>0.022</b>
	20-40 – 40-60	<b>0.011</b>
	20-40 – >60	<b>0.013</b>
	40-60 – >60	0.654
Brachiopoda	<20 – 20-40	1.000
	<20 – 40-60	0.263
	<20 – >60	1.000

	20-40 – 40-60	<b>0.049</b>
	20-40 - >60	1.000
	40-60 - >60	0.698
Actiniaria	<20 – 20-40	0.456
	<20 – 40-60	1.000
	<20 - >60	0.056
	20-40 – 40-60	1.000
	20-40 - >60	<b>0.009</b>
	40-60 - >60	0.054
Porifera	<20 – 20-40	<b>0.001</b>
	<20 – 40-60	<b>0.001</b>
	<20 - >60	0.215
	20-40 – 40-60	1.000
	20-40 - >60	1.000
	40-60 - >60	1.000
<i>Leptogorgia chilensis</i>	<20 – 20-40	<b>0.001</b>
	<20 – 40-60	<b>0.001</b>
	<20 - >60	-
	20-40 – 40-60	1.000
	20-40 - >60	1.000
	40-60 - >60	1.000
Bare rock	<20 – 20-40	1.000
	<20 – 40-60	<b>0.020</b>
	<20 - >60	1.000
	20-40 – 40-60	0.074
	20-40 - >60	1.000
	40-60 - >60	1.000

**Table S8.** Pairwise comparison of the percent cover data across sites using PERMANOVA (999 permutations). *p*-values <0.05 are highlighted in bold.

	F	R <sup>2</sup>	<i>p</i> -value
Algarrobo - El Quisco	2.88	0.03	<b>0.025</b>
Algarrobo - Las Cruces	5.50	0.05	<b>0.001</b>
Algarrobo - Los Vilos	11.71	0.08	<b>0.001</b>
El Quisco - Las Cruces	6.79	0.06	<b>0.001</b>
El Quisco - Los Vilos	8.45	0.06	<b>0.001</b>
Las Cruces - Los Vilos	10.27	0.07	<b>0.001</b>



**Table S9a.** Permutation test for homogeneity of multivariate dispersions on the percent cover data of the benthic community across sites. *p*-value <0.05 highlighted in bold.

	Df	Sum Sq	Mean Sq	F	N. perm	<i>p</i> -value
Groups	3	0.20	0.07	3.01	999	<b>0.036</b>
Residuals	233	5.13	0.02			

**Table S9b.** Pairwise comparison for homogeneity of multivariate dispersions on the percent cover data of the benthic community across sites. Observed *p*-value below diagonal, permuted *p*-value above diagonal. *p*-values <0.05 highlighted in bold.

	Algarrobo	El Quisco	Las Cruces	Los Vilos
Algarrobo	-	0.543	<b>0.013</b>	0.636
El Quisco	0.529	-	<b>0.053</b>	0.850
Las Cruces	<b>0.011</b>	<b>0.049</b>	-	<b>0.016</b>
Los Vilos	0.615	0.837	<b>0.014</b>	-