Table S1. List of native subcanopy and understory algal taxa recorded in the *Sargassum horneri* removal experiment.

Taxonomic Group	Taxon
Subcanopy algae	*Eisenia arborea*
	Sargassum horneri
	Sargassum palmeri
	Stephanocystis neglecta
Understory algae	Articulated coralline spp.
	Asparagopsis taxiformis
	Brown blade spp.
	Callophyllis flabellulata
	Chondria californica
	Cladophora graminea
	Colpomenia sinuosa
	Corallina chilensis
	Corallina spp.
	Dictyopteris undulata
	Dictyota spp.
	Filamentous brown spp.
	Filamentous green spp.
	Filamentous red spp.
	Green foliose spp.
	Halicystis ovalis
	Haliptylon gracile
	Hydroclathrus clathratus
	Laurencia pacifica
	Lithothrix aspergillum
	Plocamium cartilagineum
	Pterocladia capillacea
	Red blade spp.
	Red branching spp.
	Red feathery spp.
	Rhodymenia californica
	Scytosiphon lomentaria
	Ulva spp.
	Zonaria farlowii

Table S2. Coefficients (a = intercept, b = slope), r^2, and P values or SE for formulas to convert size-specific density, or percent cover to damp biomass (g) for species of macroalgae at Santa Catalina Island without existing relationships for a morphologically similar species. The independent variable (either a size measurement, density or percent cover), N (the number of individuals, fronds or quadrats that were analyzed), and the range of values of the independent variable sampled are provided. Methods for developing formulas followed those in Harrer et al. 2013. For relationships best fit by a power function y = axb where y is biomass and x is size, regression coefficients a (intercept) and b (slope) are given. For those best fit by a linear function y = bX, the parameter b (slope) is provided. For linear equations used to estimate biomass from density data when a size-to-biomass formula was known, the size s used in the formula to generate the slope b is provided.

Taxon	Life stage	Independent Variable	Range	s	a	b	r^2	N	p	SE
Sargassum horneri	Adult	Max height cm	8 - 307	-	0.0285	1.5544	0.64	283	< 0.0001	-
Sargassum horneri	Juvenile	Max diameter cm	3 - 18	-	0.0179	1.7633	0.94	35	< 0.0001	-
Sargassum horneri	Adult	Density m^{-2}	-	94 cm	-	33.26	-	-	-	-
Sargassum horneri	Juvenile	Density m^{-2}	-	5 cm	-	0.31	-	-	-	-
Sargassum palmeri	Adult	Frond length cm	5 - 48	-	0.0444	1.9404	0.72	53	< 0.0001	-
Sargassum palmeri	Adult	Number fronds	-	19.3 cm	-	13.8	-	-	-	-
Sargassum palmeri	Adult	Density m^{-2}	-	4 fronds	-	55.2	-	24	-	-
Sargassum muticum[1]	Juvenile	Count	-	-	-	0.38	-	10	-	0.08
Stephanocystis neglecta	Adult	Number fronds	-	18 cm		7.4	-	7	-	-
Stephanocystis neglecta	Adult	Frond length cm	13 - 60	-	0.2229	1.2125	0.66	31	< 0.0001	-
Haliptylon gracile	-	Percent cover m^{-2}	5 - 100	-	-	9.25	0.32	26	0.0018	-
Zonaria farlowii	-	Percent cover m^{-2}	5 - 95	-	-	19.1	0.72	17	< 0.0001	-

[1] *S. muticum* juveniles used as a proxy for *S. palmeri* juveniles

Table S3. Proportion of percent cover of algae adjacent to and away from sea urchin halos.

Taxonomic		Halo				Non-halo			
Group	**Taxon**	**Mean**	**SD**	**SE**	**N**	**Mean**	**SD**	**SE**	**N**
Subcanopy	*Eisenia arborea*	0	0	0	15	0.6	2.2	0.6	15
Algae	*Sargassum horneri*	48.8	39.1	10.1	15	18.9	22	5.7	15
	Sargassum palmeri	28.7	23.4	6	15	22.4	13.5	3.5	15
	Stephanocystis neglecta	0	0	0	15	1.1	2.2	0.6	15
Understory	*Asparagopsis taxiformis*	0.3	1.1	0.3	15	1.2	2.3	0.6	15
Algae	*Colpomenia sinuosa*	0	0	0	15	0.4	0.9	0.2	15
	Corallina chilensis	0.6	1.5	0.4	15	3.5	3.6	0.9	15
	Dictyopteris undulata	2	3.5	0.9	15	1.4	2.8	0.7	15
	Dictyota spp.	0.1	0.6	0.1	15	0.2	0.6	0.2	15
	Haliptylon gracile	1.9	4.2	1.1	15	23.4	20.5	5.3	15
	Laurencia pacifica	0	0	0	15	0.4	0.8	0.2	15
	Lithothrix aspergillum	0	0	0	15	2.1	2.5	0.7	15
	Plocamium cartilagineum	0	0	0	15	2.4	6	1.6	15
	Pterocladia capillacea	0	0	0	15	0.4	1.5	0.4	15
	Rhodymenia californica	0	0	0	15	0.1	0.4	0.1	15
	Zonaria farlowii	17.6	15.2	3.9	15	21.3	14.9	3.9	15

Table S4. Depth distribution of *Sargassum horneri* and other native algae measured. Data are g damp biomass (mean ± SE). N indicates number of sites sampled per depth bin.

Depth (m)	N	*Sargassum horneri*	*Sargassum palmeri*	*Halidrys dioica*	*Stephanocystis neglecta*	*Eisenia arborea*	*Agarum fimbriatum*
< 5	4	330.4 ± 122.9	285.5 ± 119	281.3 ± 84.9	27 ± 27	263.2 ± 127.1	0 ± 0
5 - 10	4	1836.7 ± 372	30.3 ± 21.7	0 ± 0	27 ± 27	0 ± 0	0 ± 0
10 - 15	4	1108 ± 379	54.5 ± 38	0 ± 0	27 ± 27	76.3 ± 76.3	0 ± 0
15 - 20	4	756.3 ± 93.3	55.2 ± 39	0 ± 0	0.1 ± 0.1	203.4 ± 117.4	0 ± 0
20 - 25	4	150.3 ± 23.9	0 ± 0	0 ± 0	13.5 ± 13.5	185 ± 185	319.6 ± 63
25 - 30	3	52.5 ± 51.5	0 ± 0	0 ± 0	12 ± 12	507 ± 247.1	438.1 ± 268.4