

Supplementary Tables

Table S1a-b. All **a)** biological and **b)** physical substratum functional groups included in PCA. Algae were grouped based on similar size and morphology, and were measured as percent dominant cover.

a) Algae

Functional Group	Algal species
Articulated coralline algae	
Encrusting coralline algae	
Foliose brown algae	<i>Colpomenia sinuosa</i> <i>Cystoseira osmundacea</i> <i>Dictyota binghamiae</i> <i>Dictyopteris undulata</i> <i>Halidrys dioica</i> <i>Hydroclathrus clathratus</i> <i>Zonaria farlowii</i> <i>Pachydictyon coriaceum</i> <i>Scytosiphon lomentaria</i>
Foliose red algae	<i>Chondracanthus</i> spp. <i>Cryptopleura</i> spp. <i>Laurencia pacifica</i> <i>Rhodomenia californica</i> <i>Prionitis lanceolata</i>
Foliose green algae	<i>Codium</i> spp.
Filiform red algae	Filiform red algae <i>Gelidium</i> spp. <i>Pterocladia</i> spp. <i>Plocamium pacificum</i> <i>Microcladia glandulosa</i> <i>Asparagopsis taxiformis</i>
<i>Phyllospadix</i>	<i>Phyllospadix</i> spp.
Turf	Brown turf Green turf Red turf
Bare	Bare Bare live (sessile invertebrate)

B) physical substratum

Bedrock
Large boulder
Medium boulder
Small boulder
Cobble
Sand
Shell

Table S2a-d. Habitat predictor models of the multivariate fish assemblage from DistLM analysis of **a)** summer 2014, **b)** fall 2014, **c)** summer 2015, and **d)** winter 2016. Predictor variables incorporated into the analysis for **a-c** were (1) algal principal component (PC) 1, (2) algal PC2, (3) algal PC3, (4) algal PC4, (5) physical substrate PC1, (6) physical substrate PC2, (7) physical substrate PC3, and densities of (8) *Macrocystis*, (9) *Eisenia arborea*, (10) *S. horneri* recruits, (11) *S. horneri* immature, (12) *S. horneri* senescent, (13) *S. muticum* immature, (14) *S. palmeri* immature, (15) *S. palmeri* mature, and (16) *S. palmeri* senescent. Predictor variables for **d)** were the same except 4, 8, 9, 12, 15, and 16 were not included; 10, 11, 13, and 14 were measured as % cover rather than density; and % cover of (17) *S. muticum* recruit and (18) *S. palmeri* recruit were added.

a) Summer 2014			b) Fall 2014		
AICc	r^2	Predictor variables	AICc	r^2	Predictor variables
504.3	0.37	1, 5, 8	423.2	0.62	1, 3, 9, 11, 14
504.3	0.37	1, 5, 8, 13	423.2	0.62	1, 3, 9, 11, 12, 14
504.3	0.37	1, 5, 8, 14	423.2	0.62	1, 3, 9, 11, 14, 15
504.3	0.37	1, 5, 8, 16	423.2	0.62	1, 3, 9, 11, 14, 16
504.3	0.37	1, 5, 8, 13, 14	423.2	0.62	1, 3, 9, 11, 12, 14, 15
504.3	0.37	1, 5, 8, 13, 16	423.2	0.62	1, 3, 9, 11, 12, 14, 16
504.3	0.37	1, 5, 8, 14, 16	423.2	0.62	1, 3, 9, 11, 14, 15, 16
504.3	0.37	1, 5, 8, 13, 14, 16	423.2	0.62	1, 3, 9, 11, 12, 14, 15, 16
504.6	0.34	1, 8	423.8	0.63	1, 3, 5, 9, 10, 14
504.6	0.34	1, 8, 13	423.8	0.63	1, 3, 5, 9, 10, 12, 14
c) Summer 2015			d) Winter 2016		
AICc	r^2	Predictor variables	AICc	r^2	Predictor variables
296.7	0.64	1, 6, 7, 10, 15, 16	174.1	0.27	11
296.7	0.62	1, 6, 10, 15, 16	174.4	0.31	6, 11
296.8	0.64	1, 5, 6, 7, 10, 15	174.8	0.30	5, 11
296.8	0.62	1, 5, 6, 10, 15	174.9	0.36	5, 6, 11
296.8	0.67	1, 5, 6, 7, 10, 15, 16	175.0	0.30	10, 17
296.9	0.64	1, 5, 6, 10, 15, 16	175.1	0.30	1, 11
296.9	0.60	1, 5, 6, 10	175.3	0.35	6, 11, 17
297.0	0.60	1, 6, 10, 15	175.4	0.29	2, 11
297.0	0.62	1, 6, 7, 10, 15	175.5	0.34	1, 6, 11
297.0	0.62	1, 5, 6, 10, 16	175.5	0.34	6, 11, 18

Table S3. Densities (no. fish m⁻³) (± SE) of fish species observed during the *S. horneri* removal experiment during the pre-removal (6 February 2015) ($n = 14$ plots treatment⁻¹) and post-removal (27 February – 23 July 2015) ($n = 84$ plots treatment⁻¹) trips within control and *S. removal* plots at Howland and Lion Head reefs.

Fish species	Common name	Pre-removal		Post-removal	
		Control	Removal	Control	Removal
<i>Alloclinus holderi</i>	Island kelpfish	0.027 (± 0.014)	0.054 (± 0.036)	0.001 (± 0.001)	0.003 (± 0.002)
<i>Brachyistius frenatus</i>	Kelp surfperch	0.002 (± 0.001)	0.001 (± 0.001)	0.00 (± 0.000)	0.000 (± 0.000)
<i>Chromis punctipinnis</i>	Blacksmith	0.251 (± 0.054)	0.244 (± 0.054)	0.157 (± 0.022)	0.249 (± 0.039)
<i>Clinocottus analis</i>	Wooley sculpin	0.000 (± 0.000)	0.000 (± 0.000)	0.001 (± 0.001)	0.000 (± 0.000)
<i>Embiotoca jacksoni</i>	Black surfperch	0.001 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)
<i>Gibbonsia elegans</i>	Spotted kelpfish	0.009 (± 0.009)	0.018 (± 0.012)	0.007 (± 0.003)	0.006 (± 0.003)
<i>Girella nigricans</i>	Opaleye	0.002 (± 0.001)	0.001 (± 0.001)	0.004 (± 0.002)	0.000 (± 0.000)
<i>Gymnothorax mordax</i>	California moray	0.045 (± 0.017)	0.009 (± 0.009)	0.012 (± 0.004)	0.010 (± 0.004)
<i>Halichoeres semicinctus</i>	Rock wrasse	0.021 (± 0.003)	0.030 (± 0.006)	0.027 (± 0.002)	0.029 (± 0.002)
<i>Heterodontus francisci</i>	Hornshark	0.027 (± 0.027)	0.000 (± 0.000)	0.004 (± 0.003)	0.000 (± 0.000)
<i>Heterostichus rostratus</i>	Giant kelpfish	0.002 (± 0.001)	0.002 (± 0.001)	0.001 (± 0.000)	0.000 (± 0.000)
<i>Hypsypops rubicundus</i>	Garibaldi	0.014 (± 0.003)	0.011 (± 0.001)	0.016 (± 0.001)	0.020 (± 0.001)
<i>Lythrypnus dalli</i>	Bluebanded goby	9.893 (± 2.009)	10.429 (± 2.232)	11.01 (± 0.805)	13.272 (± 0.954)
<i>Lythrypnus zebra</i>	Zebra goby	0.000 (± 0.000)	0.009 (± 0.009)	0.006 (± 0.003)	0.001 (± 0.001)
<i>Medialuna californiensis</i>	Halfmoon	0.000 (± 0.000)	0.001 (± 0.000)	0.000 (± 0.000)	0.002 (± 0.001)
<i>Neoclinus sephensae</i>	Yellow fringehead	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)	0.001 (± 0.001)
<i>Oxyjulis californica</i>	Senorita	0.010 (± 0.004)	0.014 (± 0.003)	0.005 (± 0.001)	0.002 (± 0.001)
<i>Oxylebius pictus</i>	Painted greenling	0.009 (± 0.009)	0.000 (± 0.000)	0.001 (± 0.001)	0.000 (± 0.000)
<i>Paralabrax clathratus</i>	Kelp bass	0.044 (± 0.005)	0.041 (± 0.005)	0.056 (± 0.003)	0.041 (± 0.002)
<i>Rhacochilus toxotes</i>	Rubberlip surfperch	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)
<i>Rhacochilus vacca</i>	Pile surfperch	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)
<i>Rhinogobiops nicholsii</i>	Blackeye goby	0.009 (± 0.009)	0.054 (± 0.017)	0.013 (± 0.005)	0.036 (± 0.018)
<i>Scorpaena guttata</i>	California scorpionfish	0.000 (± 0.000)	0.018 (± 0.012)	0.021 (± 0.016)	0.013 (± 0.016)
<i>Scorpaenodes xyris</i>	Rainbow scorpionfish	0.000 (± 0.000)	0.000 (± 0.000)	0.003 (± 0.002)	0.003 (± 0.003)
<i>Sebastes atrovirens</i>	Kelp rockfish	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)
<i>Sebastes rastrelliger</i>	Grass rockfish	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)
<i>Sebastes serriceps</i>	Treefish	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)
<i>Semicossyphus pulcher</i>	California sheephead	0.000 (± 0.000)	0.000 (± 0.000)	0.001 (± 0.000)	0.001 (± 0.000)
<i>Trachurus symmetricus</i>	Pacific jack mackerel	0.000 (± 0.000)	0.000 (± 0.000)	0.001 (± 0.001)	0.000 (± 0.000)
<i>Triakis semifasciata</i>	Leopardshark	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)	0.000 (± 0.000)
<i>Xenistius californiensis</i>	Salema	0.001 (± 0.001)	0.002 (± 0.002)	0.004 (± 0.002)	0.005 (± 0.003)

Note: Average densities of fish that were reported as “0.000” are values that are <0.000 no. fish m⁻³.