

Supplementary material

| Table S1. Taxonomic groups used for epibiont classification | | | |
|--|------------------------|----------------------------------|---|
| Taxonomic group & Resolution | Sessile/ mobile | Method of enumeration | Present in monthly/ regrowth data? |
| <u>Rhodophyta (phylum)</u> | Sessile | Percent cover & Presence/absence | Monthly & Regrowth |
| <u>Chlorophyta (phylum)</u> | Sessile | Percent cover & Presence/absence | Monthly & Regrowth |
| <u>Phaeophyceae (phylum)</u> | Sessile | Percent cover & Presence/absence | Monthly & Regrowth |
| <u>Bryozoa (phylum)</u> | Sessile | Percent cover & Presence/absence | Monthly & Regrowth |
| <u>Cordata, Tunicata, Ascidiacea (polyphyletic class)</u> | Sessile | Percent cover & Presence/absence | Monthly & Regrowth |
| <u>Cnidaria, Medusozoa, Hydrozoa (class)</u> | Sessile | Percent cover & Presence/absence | Monthly & Regrowth |
| <u>Mollusca, Bivalvia (class)</u> | Sessile | Count & Presence/absence | Monthly & Regrowth |
| <u>Arthropoda, Malacostraca, Amphipoda (order)</u> | Mobile | Count & Presence/absence | Monthly & Regrowth |
| <u>Arthropoda, Malacostraca Mysida (order)</u> | Mobile | Count & Presence/absence | Monthly & Regrowth |
| <u>Arthropoda, Malacostraca Isopoda (order)</u> | Mobile | Count & Presence/absence | Monthly & Regrowth |
| <u>Mollusca, Gastropoda (class)</u> | Mobile | Count & Presence/absence | Monthly & Regrowth |
| <u>Arthropoda, Thecostraca, Cirripedia (subclass)</u> | Sessile | Count & Presence/absence | Regrowth |
| <u>Annelida, Polychaeta and Oligochaeta (Worms) (class)</u> | Mobile | Count & Presence/absence | Monthly & Regrowth |
| <u>Arthropoda, malacostraca, Decapoda (order)</u> | Mobile | Count & Presence/absence | Monthly & Regrowth |
| <u>Arthropoda, Pycnogonida, Pantopoda (order)</u> | Mobile | Count & Presence/absence | Regrowth |
| <u>Cnidaria, Hexacorallia, Actinaria (order)</u> | Mobile | Count & Presence/absence | Regrowth |
| <u>Echinodermata (Phylum)</u> | Mobile | Count & Presence/absence | Monthly & Regrowth |

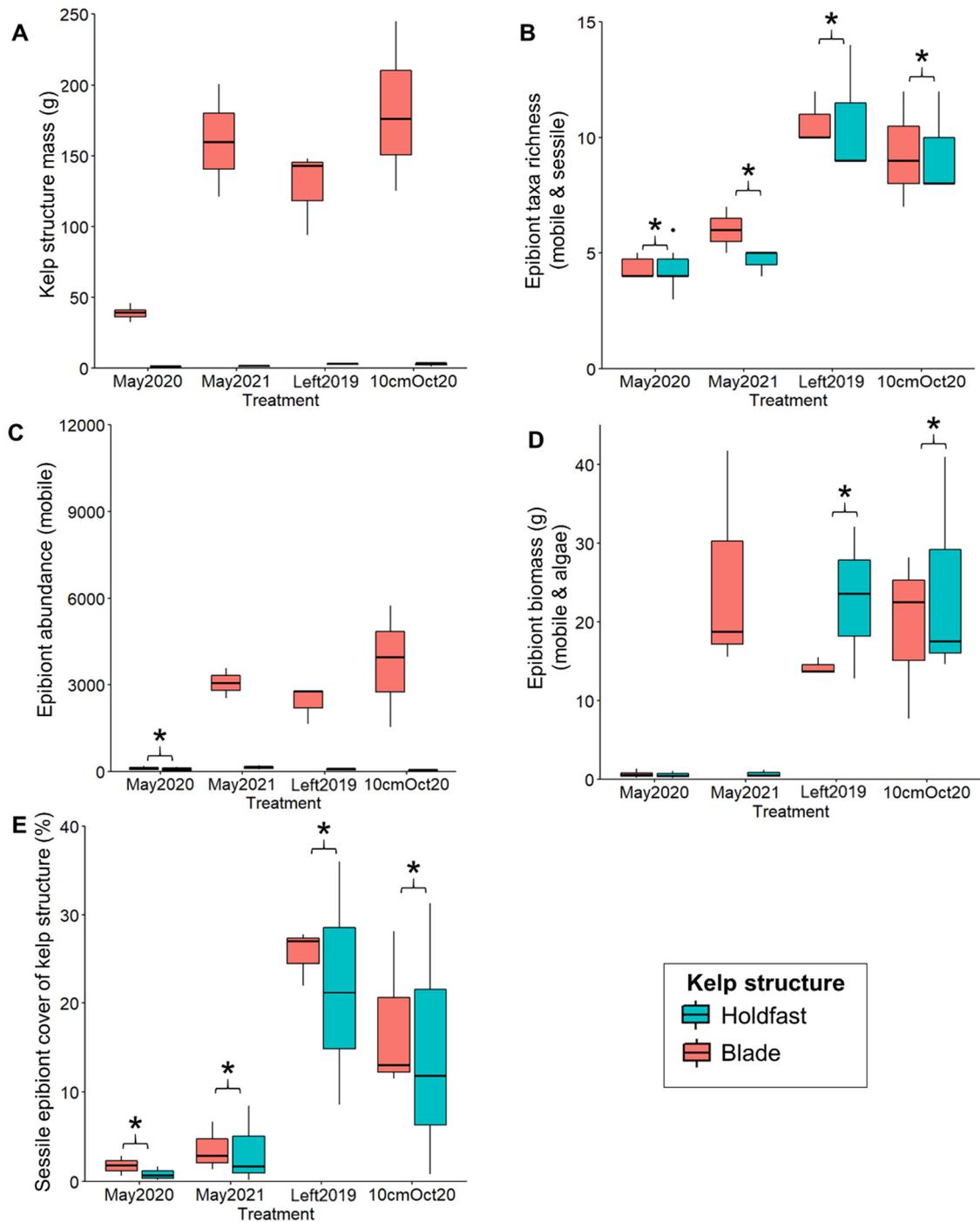


Figure S1. Differences between holdfast (blue) and blades (pink) between regrowth and control treatments for A) kelp mass, B) taxa richness, C) Epibiont abundance, D) Epibiont biomass, E) percent cover of kelp part by sessile epibionts. For box and whisker plots A-E, the box represents the upper and lower quartiles of the data with the horizontal thicker line representing the median, the vertical line represents the greatest and lowest values, excluding outliers (dots). Asterisks denote no significance between kelp structures.

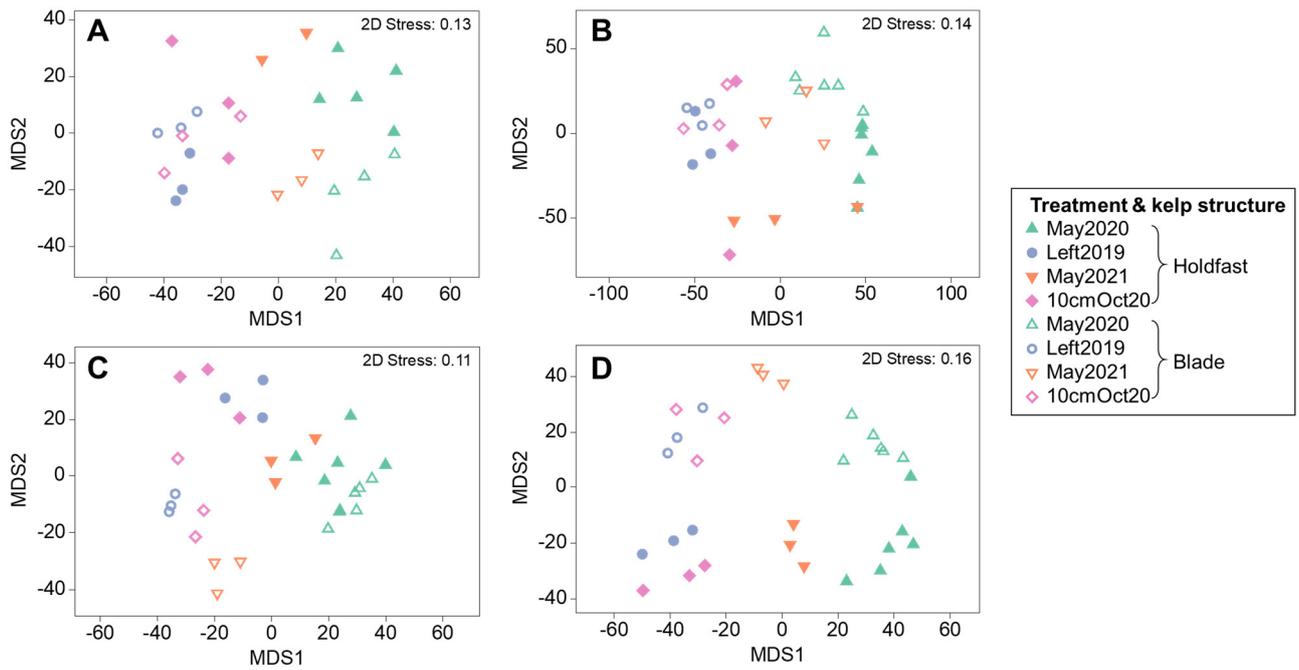


Figure S2. Metric MDS plots depicting multivariate analyses of epibiont assemblages on kelp plant holdfasts and blades across regrowth and control treatments for A) presence-absence of total assemblage including mobile and sessile epibionts, B) percent coverage of kelp structure by sessile taxa (square root transformed data) C) abundance of mobile or loosely attached epibionts (fourth-root transformed), D) biomass for mobile or loosely attached epibionts and algae (fourth-root transformed). All plots are ordinated based on Bray-Curtis similarity matrices of taxa at coarse taxonomic level (i.e. Phyla, Class, Order).

Table S2. Results from PERMANOVA and PERMDISP univariate (Uv) and multivariate (Mv) analysis of different regrowth and control treatments' epibiont assemblage matrices for kelp plants split into holdfast and blade structures, with transformation and post-hoc results between treatments and kelp structures detailed.

| Response | Transformation | df | Factors | PERMANOVA | | PERMDISP | | Post hoc significant differences between kelp structures within treatment |
|--|------------------|----|----------------------------|-----------|----------|----------|----------|---|
| | | | | P | F | P | F | |
| (Uv) Taxa richness | N/A | 3 | Treatment | 0.001 | 29.333 | 0.055 | 3.6725 | N/A |
| | | 1 | Kelp structure | 1.4165 | 1.4165 | 0.89 | 0.043146 | N/A |
| | | 3 | Treatment × kelp structure | 0.2892 | 0.2892 | N/A | N/A | No differences |
| (Uv) Mobile epibiont abundance | N/A | 3 | Treatment | 0.012 | 4.1894 | 0.018 | 6.4251 | N/A |
| | | 1 | Kelp structure | 0.001 | 19.234 | 0.001 | 11.627 | N/A |
| | | 3 | Treatment × kelp structure | 0.014 | 4.08 | N/A | N/A | All different except in May2020 |
| (Uv) Mobile and algal epibiont biomass | N/A | 3 | Treatment | 0.001 | 14.125 | 0.005 | 8.1788 | N/A |
| | | 1 | Kelp structure | 0.334 | 0.97453 | 0.671 | 0.26665 | N/A |
| | | 3 | Treatment × kelp structure | 0.004 | 6.0468 | N/A | N/A | Different in May2020 & May2021 |
| (Uv) Sessile epibiont coverage (%) | N/A | 3 | Treatment | 0.002 | 16.642 | 0.005 | 8.5603 | N/A |
| | | 1 | Kelp structure | 0.491 | 0.50747 | 0.935 | 0.010252 | N/A |
| | | 3 | Treatment × kelp structure | 0.958 | 0.088275 | N/A | N/A | No differences |
| (Uv) Kelp structure biomass | N/A | 3 | Treatment | 0.001 | 16.623 | 0.002 | 18.965 | N/A |
| | | 1 | Kelp structure | 0.001 | 193.77 | 0.001 | 46.898 | N/A |
| | | 3 | Treatment × kelp structure | 0.001 | 16.047 | N/A | N/A | All different |
| (Mv) Total assemblage (presence-absence) | Presence-absence | 3 | Treatment | 0.001 | 22.229 | 0.273 | 1.4997 | N/A |
| | | 1 | Kelp structure | 0.001 | 12.113 | 0.792 | 0.06605 | N/A |
| | | 3 | Treatment × kelp structure | 0.009 | 3.2409 | N/A | N/A | All different except in May2020 |
| (Mv) Mobile epibiont abundance | Fourth root | 3 | Treatment | 0.001 | 24.542 | 0.001 | 8.9823 | N/A |
| | | 1 | Kelp structure | 0.001 | 33.36 | 0.055 | 3.9423 | N/A |
| | | 3 | Treatment × kelp structure | 0.001 | 5.6551 | N/A | N/A | All different except in May2020 |
| (Mv) Mobile and algal epibiont biomass | Fourth root | 3 | Treatment | 0.001 | 26.591 | 0.204 | 1.9181 | N/A |
| | | 1 | Kelp structure | 0.001 | 28.948 | 0.047 | 3.863 | N/A |
| | | 3 | Treatment × kelp structure | 0.001 | 7.5708 | N/A | N/A | All different |
| (Mv) Sessile epibiont coverage (%) | Square root | 3 | Treatment | 0.001 | 11.553 | 0.049 | 3.9025 | N/A |
| | | 1 | Kelp structure | 0.002 | 6.4712 | 0.003 | 11.308 | N/A |
| | | 3 | Treatment × kelp structure | 0.012 | 2.5135 | N/A | N/A | All different |