**Table S1** Summary of significant main effects and interactions based on factorial analysis of variance for specific growth rate (during light treatment), cell density, chlorophyll *a* and photographic analyses, linear mixed model for fluorescence (EQY) and permutational multivariate analysis of variance for zooxanthellae community.

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| Specific growth rate (during light treatment) |
|  | df | *F* | *p* |
| Light Treatment | 1 | 53.9 | <0.001 |
| Colony | 2 | 41.6 | <0.001 |
| Photographic analysis (Inverted Luminosity) |
|  | df | *F* | *p* |
| Day | 3 | 177.2 | <0.001 |
| Colony | 2 | 36.6 | <0.001 |
| Day:Colony | 5 | 6.5 | <0.001 |
| Photographic analysis (Necrosis/Tissue lost) |
|  | df | *F* | *p* |
| Day | 3 | 158.7 | <0.001 |
| Light Treatment | 1 | 136.5 | <0.001 |
| Colony | 2 | 78.6 | <0.001 |
| Day:Light Treatment | 3 | 2.9 | 0.044 |
| Day:Colony | 6 | 37.1 | <0.001 |
| Light Treatment:Colony | 2 | 25.8 | <0.001 |
| Cell density |
|  | df | *F* | *p* |
| Day | 3 | 21.9 | <0.001 |
| Colony | 2 | 40.9 | <0.001 |
| Day:Colony | 6 | 20.7 | <0.001 |
| Chlorophyll *a* |
|  | df | *F* | *p* |
| Day | 3 | 9.6 | <0.001 |
| Light Treatment | 1 | 13.1 | <0.001 |
| Colony | 2 | 73.4 | <0.001 |
| Day:Light Treatment | 3 | 5.4 | 0.003 |
| Day:Colony | 6 | 4.3 | 0.002 |
| Variable chlorophyll fluorescence Day 1 - 32 |
|  | df | *F* | *p* |
| Day | 12 | 10.1 | <0.001 |
| Light Treatment | 1 | 36.3 | <0.001 |
| Colony | - | - | 0.02 |
| Day:Light Treatment | 12 | 4.5 | <0.001 |
| Variable chlorophyll fluorescence Day 37 - 57 |
|  | df | *F* | *p* |
| Day | 12 | 10.1 | <0.001 |
| Zooxanthellae community |
|  | df | Pseudo-*F* | *p* |
| Colony | 2 | 34.2 | 0.001 |