S1 File

S1 Fig. Pre-experiment design. Seawater from 48 glass flasks with polyps and 48 glass flasks without polyps were used at each temperature treatment (18ºC, 24ºC and 30ºC). Of these 48 glass flasks, 24 were bubbled with current ambient air and 24 bubbled with a gas mixture containing 1000 ppm of CO$_2$. Sample collection for biogeochemical analysis of three replicate glass flask was done at the beginning of the pre-experiment ($t_0$), and after 6 h ($t_1$), 12 h ($t_2$), 24 h ($t_3$), 48 h ($t_4$) and 72 h ($t_5$) of the pre-experiment commencing.

S1 Table. Pre-experiment mean physic-chemical parameters for each treatment.

| Treatment                | Flasks  | Time | T (ºC)  | pH$_{T25}$ | DO (mg l$^{-1}$) | $A_T$ ($\mu$mol kg$^{-1}$) | $p$CO$_2$ ($\mu$atm) |
|--------------------------|---------|------|---------|-------------|------------------|---------------------------|-----------------------|
| 18ºC, ambient pH         | Polyps  | $t_0$ | 18.1    | 7.92 (0.004) | 7.42 (±0.12)     | 2491.81 (13.11)           | 535.79 (41.77)        |
|                          |         | $t_72$| (0.015) | 7.91 (0.002) | 7.00 (±0.03)     |                           |                       |
|                          | Seawater| $t_0$ |         | 7.92 (0.004) | 7.42 (±0.12)     |                           |                       |
| Temperature   | Environment  | Time  | pH (Mean SEM) | pCO2 (Mean SEM) | ATP (Mean SEM) |
|---------------|--------------|-------|---------------|----------------|---------------|
| 18°C, future pH | Polyps       | t₀    | 7.71 (0.004)  | 7.59 (±0.13)   | 2498.9 (11.49) |
|               |              | t₂    | 7.71 (0.004)  | 7.59 (±0.13)   | 2498.9 (11.49) |
|               | Seawater     | t₀    | 7.62 (0.01)   | 6.72 (±0.06)   | 1084 (91.51)  |
|               |              | t₂    | 7.71 (0.004)  | 7.59 (±0.13)   | 2498.9 (11.49) |
| 24°C, ambient pH | Polyps       | t₀    | 7.99 (0.002)  | 7.01 (0.12)    | 2516.8 (13.89) |
|               |              | t₂    | 7.88 (0.004)  | 6.83 (0.07)    | 495.6 (22.20) |
|               | Seawater     | t₀    | 7.99 (0.002)  | 7.01 (0.12)    | 2516.8 (13.89) |
|               |              | t₂    | 7.91 (0.009)  | 6.79 (0.10)    | 495.6 (22.20) |
| 24°C, future pH | Polyps       | t₀    | 7.71 (0.001)  | 7.13 (0.11)    | 2507.9 (20.49) |
|               |              | t₂    | 7.68 (0.008)  | 6.97 (0.17)    | 1021 (41.82)  |
|               | Seawater     | t₀    | 7.71 (0.001)  | 7.13 (0.11)    | 2507.9 (20.49) |
|               |              | t₂    | 7.69 (0.011)  | 6.88 (0.21)    | 1021 (41.82)  |
| 30°C, ambient pH | Polyps       | t₀    | 8.03 (0.005)  | 6.34 (0.08)    | 2509.2 (16.07) |
|               |              | t₂    | 7.92 (0.018)  | 6.20 (0.28)    | 1499.1 (25.20) |
|               | Seawater     | t₀    | 8.03 (0.005)  | 6.34 (0.08)    | 2509.2 (16.07) |
|               |              | t₂    | 7.94 (0.031)  | 6.17 (0.23)    | 1499.1 (25.20) |
| 30°C, future pH | Polyps       | t₀    | 7.86 (0.001)  | 6.28 (0.09)    | 2507.9 (20.49) |
|               |              | t₂    | 7.79 (0.009)  | 5.93 (0.11)    | 1003 (77.82)  |
|               | Seawater     | t₀    | 7.86 (0.001)  | 6.28 (0.09)    | 2507.9 (20.49) |
|               |              | t₂    | 7.79 (0.009)  | 5.91 (0.11)    | 1003 (77.82)  |

Mean (SEM) n = 4 per day and treatment.
S2 Fig. Relationship between ephyrae diameter ($n = 13$) and number or size of statoliths. Ephyrae diameters represented correspond to well-formed individuals used for statolith analyses that were released at the end of experiment 2.

S3 Fig. Zooxanthellae within the polyps of *Cotylorhiza tuberculata* at the end of Experiment 2. A: Mature polyp reproducing asexually by budding, note shaded areas
in the calix and bud evidencing zooxanthellae presence. B: Newly formed polyp with 
zooxanthellae within the calix. C: Zooxanthellae of the family Symbiodiniceae within 
the gastrovascular system of a new released ephyrae.