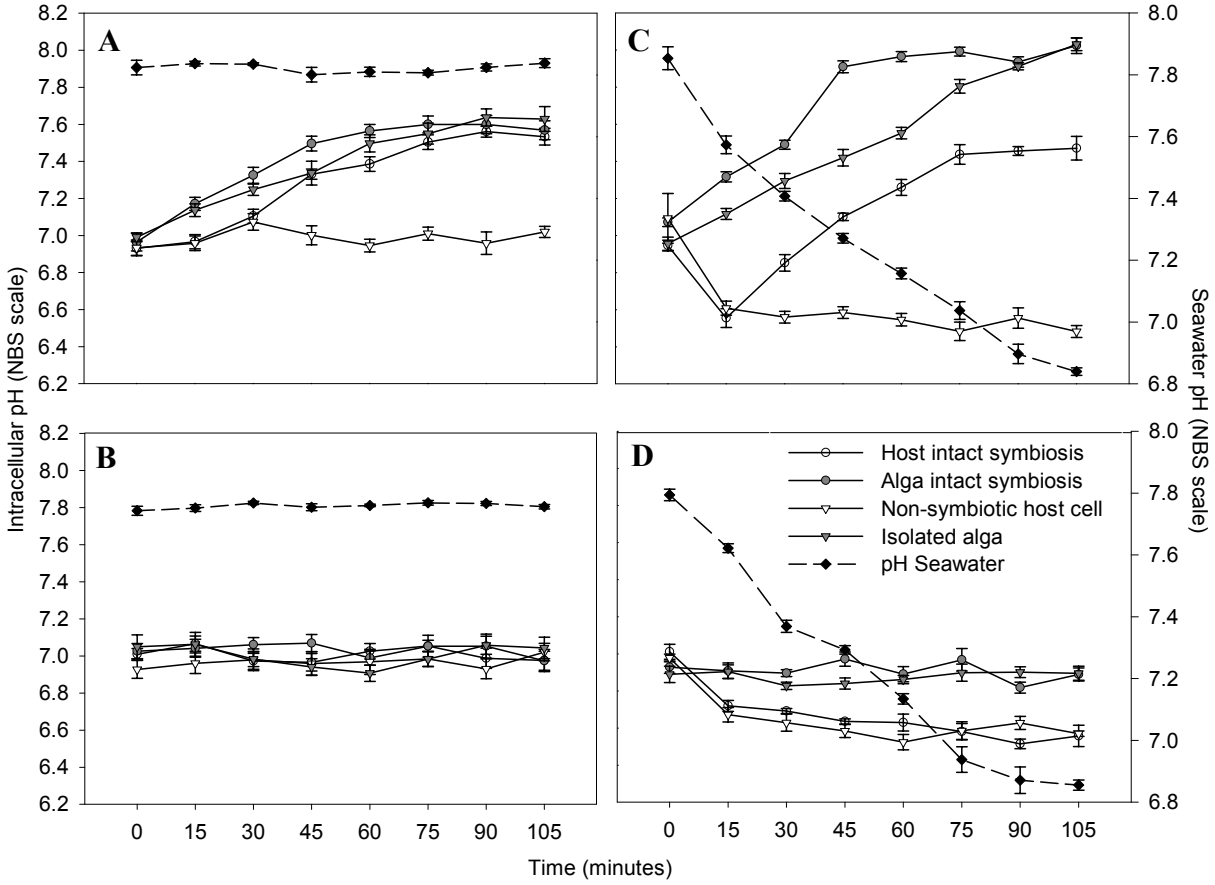

Fig. S1. Absolute change in the intracellular pH (pH_i) of four cell types isolated from the coral *Pocillopora damicornis* (*Symbiodinium* freshly isolated from host coral cell; isolated non-symbiotic host coral cell; isolated host coral cell and its symbiotic algae). These cells were incubated under control (A,B) and CO_2 acidified conditions (C,D) under two treatments: (top) in the light without the photosynthetic inhibitor DCMU; and (bottom) under light in the presence of DCMU. At each time point, the pH_i (NBS scale) of each cell was measured using confocal microscopy (N=5) and the pH (NBS scale) of the surrounding seawater media was measured via the spectrophotometric m-cresol dye method (N=5). Values plotted represent mean ± s.e.m. The dashed line represents the external pH (pH_e) of the surrounding seawater and is plotted on the secondary y-axis.

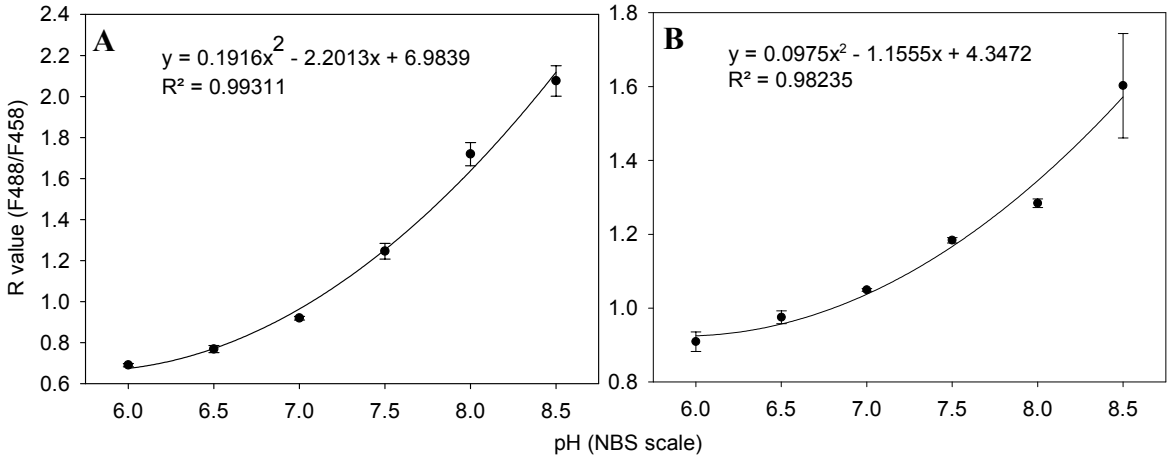

Fig. S2. Calibration of intracellular pH (pH_i) in (A) host coral cell and (B) *Symbiodinium* cells isolated from the coral *Pocillopora damicornis* using the fluorescent dye BCECF-AM ester. pH_i was calculated from the ratio of fluorescence emission, R (F_{488}/F_{458}). R was then linked to pH_i by the following logarithmic equation: $pH=pK_a+\log\{[(R-R_A)/(R_B-R)]\times(F_{A458}/F_{B458})\}$, where pK_a represents the acid dissociation constant and A and B represent the acidic and basic end points of the titration (in this case, 6 and 8.5).

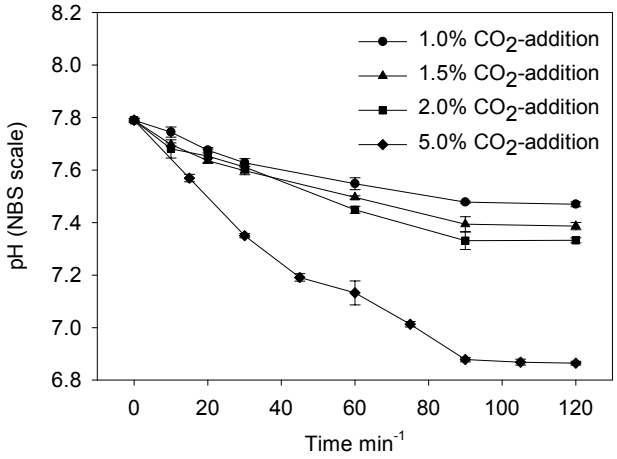

Fig. S3. Stability of the live-cell CO_2 incubator after different levels of CO_2 addition. pH (NBS scale) was calculated using a spectrophotometer following the m-cresol dye method, stipulated in SOP 6B (Dickson et al., 2007).