Table S1. Summary of the available experimental data examining the effect of ocean acidification conditions on coral calcification. The table contains information on tropical reef-building corals only. Please note that for some studies level of response to seawater acidification was affected by an additional environmental factor such as nutrients, light intensity, etc. (detailed in `Notes` column). Incubation time and incubation volume are only relevant for experiments that the TA method was used to derive net calcification rates. 0 value, calcification rates were not significantly different from ambient pH; TA, total alkalinity; BW, buoyant weight.

Organism/ System	Approx. % change in calcification when pCO_2 is		References	Method	Acclimation time	Incubation time	Incubation volume	Coral size	Notes
	~1-2x preindustrial	~3-5x preindustrial							
Acropora cervicornis	-9		Renegar and Riegl 2005	BW	N/A	16 weeks			Response described here only for period 1
Acropora cervicornis		45	Enochs et al. 2014	BW	9 days	42 days			Level of response is light-dependent
Acoropora digitifera	0	0	Takahashi and Kurihara 2013	TA and BW	7-35 days	2 h (for TA only. Repeated 3 times through the experiment)	0.45 L	2 cm long	
Acropora eurystoma	-55		Schneider and Erez 2006	TA	N/A	2 h	0.7 L	no information on coral size	Each experiment one of the carbonate parameter kept constant
Acropora hyacinthus	8	-26	Comeau et al. 2014d	BW	6 weeks	N/A			
Acropora horrida	40		Suggett et al. 2013	TA	6 weeks	4 h	0.75 L	5-8 cm long (2 nubbins in each chambers)	Level of response is light-dependent
Acropora intermedia	14	10	Anthony et al. 2008	BW	N/A	8 weeks			Level of response is temperature-dependent
Acropora millepora	0-(-155)		Vogel et al. 2015	TA and BW	16 days	1 h	0.2 L	no information on coral size	Level of response is light-dependent
Acropora millepora	-44		Strahl et al. 2015	TA	Natural environment	1.6-2.5 h	0.64 L	5-6 cm long (3-5 cm^2)	
Acropora nasuta	0-(-)29	27	Huang et al. 2014	BW	No acclimation	94 days			

Organism/ System	Approx. % change in calcification when pCO_2 is		References	Method	Acclimation time	Incubation time	Incubation volume	Coral size	Notes
	~1-2x preindustrial	~3-5x preindustrial							
Acropora pulchra	0	0-(-14)	Comeau et al. 2014b	BW	N/A	20 days			Level of response is light-dependent
Acropora verweyi	-18		Marubini et al. 2003	BW	N/A	8 days			
Fungia sp.	-42		Hossain and Ohde 2006	TA	N/A	3-6 h	~0.5-1 L	7.1-39.5 cm^2 (1.5-3.5 cm radius)	
Galaxea fascicularis	-16		Marubini et al. 2003	BW	N/A	8 days			
Montipora capitata	5		Jokiel et al. 2008	BW	N/A	11 months			BW was measured periodically
Madracis auretenra	0-(+16)		Jury et al. 2010	TA	3 h	2 h	0.25 L	3 cm long	Level of response is depend on SW chemistry
Pavona cactus	-18		Marubini et al. 2003	BW	N/A	8 days			
Pocillopora damicornis	0		Comeau et al. 2013b	BW	N/A	3 weeks			
Pocillopora damicornis	40	48	Huang et al. 2014	BW	No acclimation	94 days			
Pocillopora damicornis	0		Strahl et al. 2015	TA	Natural environment	1.6-2.5 h	0.64 L	5-6 cm long (3-5 cm^2)	
Pocillopora damicornis	0	0	Comeau et al. 2014a	BW	N/A	14 days			
Porites astreoides	-30	-66	Crook et al. 2013	Linear extension and skeleton density (CT of skeletal core)	Natural environment	N/A			
Porites australiensis		3	Iguchi at el. 2012	BW	N/A	8 weeks			

Organism/ System	Approx. % change in calcification when pCO_2 is		References	Method	Acclimation time	Incubation time	Incubation volume	Coral size	Notes
	~1-2x preindustrial	~3-5x preindustrial							
Porites compressa	19		Marubini et al. 2001	BW	N/A	6 weeks			
Porites cylindrica	30		Suggett et al. 2013	TA	7 weeks	5 h	0.75 L	5-8 cm long (2 nubbins in each chambers)	
Porites furcata	-69	-94	Stubler et al. 2014	BW	N/A	51 days			
Porites lobata	-35	10	Anthony et al. 2008	BW	N/A	8 weeks			Level of response is temperature-dependent
Porites lutea	-42		Hossain and Ohde 2006	TA	N/A	3-6 h	~0.5-1 L	40-43 cm^2 (7.1-7.8 cm radius)	
Porites lutea	69		Ohde and Hossian 2004	TA	No acclimation	3-6 h	~0.5-1 L	48-211 cm^2 (3.8-4.5 cm radius)	
Porites rus	0		Comeau et al. 2013a	BW	3 weeks	1 week			Level of response was examined at different light and feeding regime
Porites spp.	0		Strahl et al. 2015	TA	Natural environment	1.6-2.5 h	0.64 L	5-6 cm long (3-5 cm^2)	
Porites sp.		20	Krief et al. 2010	Lateral growth	N/A	13 months			
Porites spp.	0	0	Edmunds 2012	BW	N/A	11 days			
Porites spp.	0-(+40)		Edmunds 2011	BW	N/A	1 month			Level of response depend on feeding regime
Porites spp.	0	0	Comeau et al. 2014a	BW	N/A	14 days			

Organism/ System	Approx. % change in calcification when pCO_2 is		References	Method	Acclimation time	Incubation time	Incubation volume	Coral size	Notes
	~1-2x preindustrial	~3-5x preindustrial							
Stylophora pistillata	0	-14	Gatusso et al. 1998	TA	20 days	2.5 h	0.25 L	3-5 cm long	
Stylophora pistillata	55		Reynaud et al. 2003	BW	N/A	5 weeks			Level of response is temperature-dependent
Stylophora pistillata	0-(-15)	9	Marubini et al. 2008	BW	N/A	8 days			
Stylophora pistillata	0	0	Houlbreque et al. 2012	^{45}Ca uptake	3-6 weeks	7 h	7 L	2 cm long (3 corals in each tank)	
Stylophora pistillata		21	Houlbreque et al. 2015	^{45}Ca uptake	5 weeks	7 h	7 L	5 cm long (5 corals in each tank)	Level of response is feeding-dependent
Stylophora pistillata		42	Krief et al. 2010	Lateral growth and BW	N/A	3 months			
Stylophora pistillata	7		Gagnon et al. 2013	TA and ^{43}Ca uptake-bulk measurements	N/A	5.5 days	0.215 L (flow-through chambers)	1-2 cm long	Water samples for TA were taken every ~10h
Stylophora pistillata	3	-5	Venn et al. 2013	Cross-sectional and lateral growth	> 1 year	4 h for cross-sectional growth and 2 months for lateral growth			
Stylophora pistillata	0	2	Tambutte et al. 2015	BW and skeleton density	>1 year	N/A			
Stylophora pistillata	0	0-(-50)	Holcomb et al. 2014	Cross-sectional and lateral growth	>1 year	4 h for cross-sectional growth and 2 months for lateral growth			
Siderastrea siderea	31	0	Castillo et al. 2014	BW	30-90 days	N/A			

Organism/ System	Approx. % change in calcification when pCO_2 is		References	Method	Acclimation time	Incubation time	Incubation volume	Coral size	Notes
	~1-2x preindustrial	~3-5x preindustrial							
Seriatopora hystrix		-105	Rädecker et al. 2014	TA	20 h	< 2 h	0.25 L	11.75±1.12 cm^2	
Seriatopora hystrix	-38		Strahl et al. 2015	TA	Natural environment	1.6-2.5 h	0.64 L	5-6 cm long (3-5 cm^2)	
Turbinaria reniformis	-13		Marubini et al. 2003	BW	N/A	8 days			
Porites lobata and P. lutea	0		Wall and Edmunds. 2014	TA	No acclimation	4 h	2.47 L	4 cm long	
Siderastrea radians, Solenastrea, hyades	2		Okazaki et al. 2013	TA	Natural environment	1.5 h	2 L	45±17 cm^2 and 138±43 cm^2 respectively	
Psammocora profundacella, Pocillopora verrucosa, Pocillopora damicornis, Pavona cactus	0-(-8%)	~(-17)	Comeau et al. 2014c	BW	N/A	2 weeks			divided in fast and slow growing corals
massive *Porites spp., Porites rus, Acropora pulchra, Porites irregularis*	0-(-17)	~(-19)	Comeau et al. 2014c	BW	N/A	2 weeks			divided in fast and slow growing corals
Acropora pulchra, Pavona cactusand Porites rus	-9		Comeau et al. 2013b	BW	N/A	2 weeks			
Porites australiensis, Isopora palifera	-48(-52)	-66(-128)	Iguchi at el. 2014	BW	N/A	43 and 30 days, respectively			
Porites compressa + Montipora capitata	43		Langdon and Atkinson 2005	TA	2 weeks	1.5 h	Flume area: 3.84 m^3	Community cover: 2.2 m^3	Level of response varies seasonally

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