

1 **Supporting Information:**

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3 **The marine gastropod *Crepidula fornicata* remains resilient to ocean acidification across two**

4 **life history stages**

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6 Christopher L Reyes¹, Brooke E Benson¹, Morgan Levy², Xuqing Chen¹, Anthony Pires³, Jan A

7 Pechenik² and Sarah W Davies^{1*}

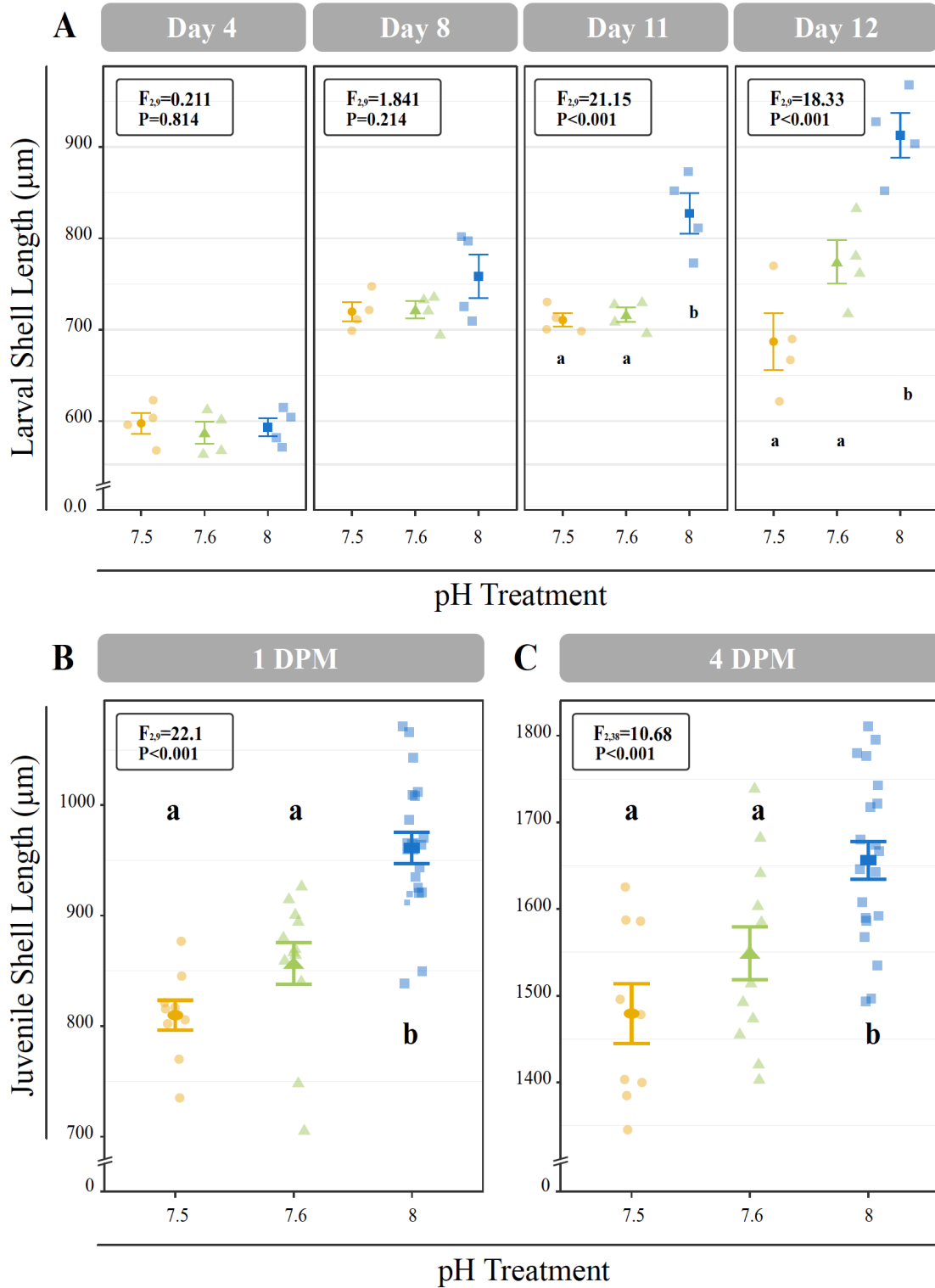
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9 ¹Biology Department, Boston University, Boston, MA, USA

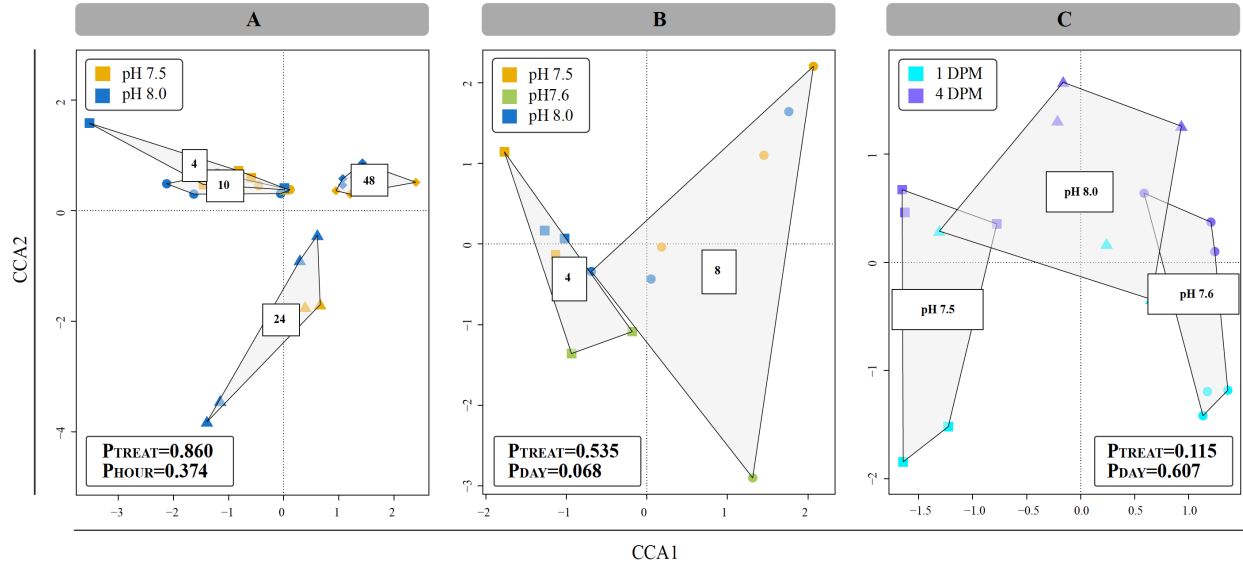
10 ²Biology Department, Tufts University, Medford, MA USA

11 ³Biology Department, Dickinson College, Carlisle, PA

12 Figure S1 | Mean larval shell length (μm) in each pH treatment measured at 4, 8, 11, and 12 days
 13 in treatment. Mean juvenile shell length growth rates ($\mu\text{m}/\text{day}$) measured 24 hours post settlement
 14 (1-DPM) and 4 days later (4-DPM). Error bars represent \pm one standard error and different letters
 15 for pH treatments indicate significantly different means based on Tukey's HSD tests ($P < 0.05$).



17 Figure S2 | Canonical Correspondence Analysis (CCA) of all log transformed isogroups clustered
 18 by time point for larvae in the 48-h experiment (A) and 16-d experiment (B) and clustered by
 19 treatment for juveniles in the 16-d experiment (C). Time point was found to be more impactful on
 20 larvae and treatment more impactful on juveniles, but overall, responses of *C. fornicata* larvae and
 21 juveniles across time points and pH treatments were found to not be significant. For larvae (A-B),
 22 shapes indicate time point (4-, 10-, 24-, and 48- h (A) and 4- and 8- d (B)) and colors indicate pH
 23 treatment condition: blue = pH 8.0, green = pH 7.6, yellow = pH 7.5. For juveniles (C), shapes
 24 indicate pH treatment (7.5, 7.6, 8.0) and colors indicate time point: blue = 1-DPM, purple = 4-
 25 DPM.



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28 Figure S3 | Significantly enriched gene ontology (GO) categories for the pairwise comparison
29 between pH 7.6 and pH 8.0 treatments for larvae and juveniles in the 16-d experiment. Mann-
30 Whitney U (MWU) tests were conducted based on ranking of signed log p-values and the results
31 were plotted as dendograms with an indication of genes shared between categories. Enrichment by
32 'cellular component', 'biological process', and 'molecular function' are shown for 4- and 8-d for
33 larvae and for 1-DPM and 4-DPM for juveniles. Overrepresented categories relative to pH 8.0 are
34 colored as red and underrepresented categories are colored as blue. A blank grid indicates that
35 there were no significantly enriched categories for that division at that time point.
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39 **Supplemental Tables**

40 Table S1 | Characteristics of seawater used for larval culturing (12 days) during the 16 d
 41 experiment. Values of pH are reported (from left) as the nominal treatment target values, the actual
 42 values for new seawater added to cultures, and the values recorded immediately before regular
 43 seawater changes. TA, total alkalinity; Ω_{Ar} , saturation state of aragonite; pCO₂, partial pressure
 44 of carbon dioxide.

Target pH	Value	pH (total)	Salinity (ppt)	Temp. (°C)	TA (μmol/kg)	Ω_{Ar}	pCO ₂ (μatm)	pH at change (total)
8.0	Mean	8.00	28.92	20.12	2071.3	2.14	436.1	7.93
	SD	0.01	0.60	0.11	26.5	0.06	16.1	0.03
	n	6	6	6	4	4	4	6
7.6	Mean	7.59	29.03	20.16	2071.3	0.94	1217.1	7.52
	SD	0.01	0.65	0.08	26.5	0.04	25.2	0.05
	n	6	6	6	4	4	4	6
7.5	Mean	7.53	29.05	20.20	2071.3	0.81	1444.7	7.48
	SD	0.01	0.69	0.14	26.5	0.03	37.4	0.03
	n	6	6	6	4	4	4	6

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47 Table S2 | Characteristics of seawater used during the 48 h experiment. Values of pH are
 48 reported (from left) as the nominal treatment target values, and the actual values for new
 49 seawater added to cultures at the beginning of the experiment (0 h) or measured in 4 replicate
 50 cultures after 4, 10, 24, and 48h. TA, total alkalinity; Ω_{Ar} , saturation state of aragonite; pCO_2 ,
 51 partial pressure of carbon dioxide.

Target pH	time (h)	Value	pH (total)	Salinity (ppt)	Temp. (°C)	TA ($\mu\text{mol/kg}$)	Ω_{Ar}	pCO_2 (μatm)
8.0	0	Initial	8.05	29.6	20.1	2101.7	2.45	378.6
	4	Mean	8.06	29.65	20.38			
		SD	0.01	0.06	0.15			
	10	Mean	8.06	29.65	20.23			
		SD	0.01	0.06	0.10			
	24	Mean	8.02	29.40	20.25			
		SD	0.02	0.41	0.34			
	48	Mean	8.01	29.50	19.50			
SD		0.01	0.16	0.08				
7.5	0	Initial	7.54	29.6	19.9	2101.7	0.86	1398.3
	4	Mean	7.57	29.63	20.23			
		SD	0.02	0.13	0.10			
	10	Mean	7.57	29.63	20.05			
		SD	0.02	0.05	0.06			
	24	Mean	7.52	29.68	19.98			
		SD	0.02	0.10	0.10			
	48	Mean	7.55	29.43	19.50			
SD		0.02	0.13	0.08				

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54 Table S3 | Summary of RNA libraries for the 16-d experiment, including raw single-end reads,
 55 trimmed reads, mapped counts, and mapping efficiencies (%). Samples found to be outliers during
 56 gene expression analyses and excluded from subsequent analyses are colored red.

Day	Sample	Raw Reads	Trimmed Reads	Total Counts	% Mapped
4	7.5A	20031800	2715462	1142969	42.1
4	7.5B	11301574	1477813	665524	45.0
4	7.6B	17231518	3107244	1327316	42.7
4	7.6C	12365225	2108339	932421	44.2
4	8.0B	13650429	2171171	954244	44.0
4	8.0C	20935860	3350460	1468909	43.8
8	7.5B	8655806	2362028	1003391	42.5
8	7.5C	17879591	3135665	1368268	43.6
8	7.5D	8148648	2083059	918446	44.1
8	7.6B	2345757	755538	330871	43.8
8	7.6C	2789212	428839	199558	46.5
8	7.6D	490776	8980	4380	48.8
8	8.0A	13214356	2092572	902746	43.1
8	8.0C	13232434	2450088	1055424	43.1
8	8.0D	13696321	2497771	1063168	42.6
1DPM	7.5A	13917737	2196945	972423	44.3
1DPM	7.5B	10736059	1738802	750239	43.1
1DPM	7.5C	620625	8475	4176	49.3
1DPM	7.6A	9456989	2735258	1156530	42.3
1DPM	7.6B	8785582	2383939	1008800	42.3
1DPM	7.6C	986675	265572	125367	47.2
1DPM	7.6D	6713990	2124722	905133	42.6
1DPM	8.0A	12604899	3440782	1404888	40.8
1DPM	8.0B	13689368	2748730	1154117	42.0
1DPM	8.0D	8562743	2107538	887547	42.1
4DPM	7.5B	5187391	1703006	733385	43.1
4DPM	7.5C	18056592	3395007	1459340	43.0
4DPM	7.5D	15190058	2949961	1255646	42.6
4DPM	7.6A	10159287	3192001	1299882	40.7
4DPM	7.6C	9303499	2718200	1146724	42.2
4DPM	7.6D	12933223	3781562	1557855	41.2
4DPM	8.0A	14494	3855	1829	47.4
4DPM	8.0B	7939351	2523340	1070388	42.4
4DPM	8.0C	7451760	2423257	987887	40.8
4DPM	8.0D	13088795	3411320	1381910	40.5

58 Table S4 | Summary of RNA libraries for the 48-h experiment, including raw single-end reads,
 59 trimmed reads, mapped counts, and mapping efficiencies (%). Samples found to be outliers during
 60 gene expression analyses and excluded from subsequent analyses are colored red.

Hour	Sample	Raw Reads	Trimmed Reads	Total Counts	% Mapped
0	8.0A	3398321	908567	402011	44.2
0	8.0B	3874971	981793	437684	44.6
0	8.0C	4077075	888164	407762	45.9
0	8.0D	1103488	298350	126365	42.4
4	7.5A	10758493	1430476	605458	42.3
4	7.5B	9913935	2087837	916263	43.9
4	7.5C	5944596	733095	314277	42.9
4	7.5D	5287317	724507	324889	44.8
4	8.0A	6539817	2147901	926678	43.1
4	8.0B	956622	98985	36646	37.0
4	8.0C	4901613	203310	94004	46.2
4	8.0D	1008450	46607	16751	35.9
10	7.5A	8118936	903449	377236	41.8
10	7.5B	4652645	1151415	522103	45.3
10	7.5C	4751702	1442681	621347	43.1
10	7.5D	656692	65948	21902	33.2
10	8.0A	7555520	501985	223739	44.6
10	8.0B	4028652	536405	225729	42.1
10	8.0C	4839052	626000	260243	41.6
10	8.0D	5104318	1368157	587962	43.0
24	7.5A	1825175	677711	306236	45.2
24	7.5B	901923	105238	31495	29.9
24	7.5C	2841801	802780	360527	44.9
24	7.5D	1374012	149658	48236	32.2
24	8.0A	3925847	432207	178560	41.3
24	8.0B	3604435	1260590	554924	44.0
24	8.0C	2518079	337301	139452	41.3
24	8.0D	8629343	2027985	891746	44.0
48	7.5A	12084816	1498925	609382	40.7
48	7.5B	10460064	2874416	1235041	43.0
48	7.5C	1517676	431402	178275	41.3
48	7.5D	2569918	680018	297157	43.7
48	8.0A	3683716	1008282	443670	44.0
48	8.0B	9576664	2118374	917558	43.3
48	8.0C	4334377	696262	289920	41.6
48	8.0D	5150192	1408095	620377	44.1