

**Table S 1.** Summary of the Kruskal–Wallis test statistics comparing temperature, salinity, and pH between SML and ULW. (n = sample size;  $\chi^2$  = chi-square statistic (df = 1)).

	<b>Cycle</b>	<b>n</b>	<b><math>\chi^2</math></b>	<b>p-value</b>
Temperature	Cycle 1	638	1.3	0.25
	Cycle 2	978	2.8	0.10
	Cycle 3	978	16.1	$2.12 \cdot 10^{-10}$
Salinity	Cycle 1	645	105.4	$<2.20 \cdot 10^{-16}$
	Cycle 2	996	109.5	$<2.20 \cdot 10^{-16}$
	Cycle 3	-	-	-
pH <sub>T25</sub>	Cycle 1	630	28.9	$7.47 \cdot 10^{-8}$
	Cycle 2	977	36.6	$1.42 \cdot 10^{-9}$
	Cycle 3	326	2.9	0.08

Table S 2. Summary table with mean values, standard deviation, and n of temperature, salinity,  $\text{pH}_{\text{T25}}$ , and  $\text{pCO}_2$  at SML and ULW for each cycle. In addition, the p-value of the statistical analysis performed when comparing day and night data at each depth is added.

		Temperature [°C]						Salinity [g kg <sup>-1</sup> ]					
		SML			UWL			SML			UWL		
		Mean	n	pval	Mean	n	pval	Mean	n	pval	Mean	n	pval
Cycle 1	Day	25.66 ± 0.30	177	1.46 · 10 <sup>-53</sup>	25.47 ± 0.36	177	1.27 · 10 <sup>-53</sup>	38.73 ± 0.14	606	3.40 · 10 <sup>-20</sup>	38.94 ± 0.24	606	3.36 · 10 <sup>-45</sup>
	Nigth	24.08 ± 0.43	142		24.18 ± 0.26	142		39.12 ± 0.35	426		39.41 ± 0.21	426	
Cycle 2	Day	25.80 ± 0.48	312	5.47 · 10 <sup>-53</sup>	25.93 ± 0.55	310	1.36 · 10 <sup>-61</sup>	39.18 ± 0.28	972	1.49 · 10 <sup>-4</sup>	39.34 ± 0.24	972	1.52 · 10 <sup>-3</sup>
	Nigth	24.83 ± 0.26	180		24.57 ± 0.42	176		39.26 ± 0.19	559		39.41 ± 0.37	559	
Cycle 3	Day	26.69 ± 0.82	365	5.91 · 10 <sup>-39</sup>	26.77 ± 0.78	349	6.93 · 10 <sup>-21</sup>	NA	NA	NA	38.95 ± 0.29	370	0.77
	Nigth	24.80 ± 0.94	132		26.14 ± 0.18	132		NA	NA		38.93 ± 0.26	133	
		pH <sub>T25</sub>						pCO <sub>2</sub> [µatm]					
		SML			UWL			SML			UWL		
		Mean	n	pval	Mean	n	pval	Mean	n	pval	Mean	n	pval
Cycle 1	Day	8.037 ± 0.026	175	4.11 · 10 <sup>-4</sup>	8.042 ± 0.020	189	2.69 · 10 <sup>-43</sup>	514 ± 18	3	0.18	525 ± 47	3	0.18
	Nigth	8.031 ± 0.009	140		7.993 ± 0.026	142		416	1		465	1	
Cycle 2	Day	8.025 ± 0.022	324	7.01 · 10 <sup>-12</sup>	8.014 ± 0.030	321	0.01	478 ± 24	4	0.64	490 ± 40	4	1
	Nigth	8.012 ± 0.014	184		8.011 ± 0.006	180		477	2		469	2	
Cycle 3	Day	8.032 ± 0.029	141	6.87 · 10 <sup>-19</sup>	8.020 ± 0.035	129	0.75	500 ± 35	4	1	522 ± 56	4	0.64
	Nigth	7.987 ± 0.014	53		8.013 ± 0.020	53		500	2		508	2	