

Table S1. Physical background of the stations in this work.

Month	Stn	Depth (m)	Surface			Bottom		
			Temp. (°C)	Salinity	Density (kg/m ³)	Temp. (°C)	Salinity	Density (kg/m ³)
May	S5	10.8	18.66	29.10	1020.073	18.66	29.10	1020.073
	S6	11.6	18.64	30.20	1020.918	18.64	30.20	1020.918
July	WH2	12	n.d.	n.d.	n.d.	27.13	24.60	1013.379
	WH1	5.7	26.00	11.60	1004.151	26.04	17.50	1008.547
	TT4	3	n.d.	n.d.	n.d.	26.6	20.10	1010.248
	TT1	3	n.d.	n.d.	n.d.	28.07	23.50	1012.119
Oct.	X5	9.6	n.d.	n.d.	n.d.	25.46	28.85	1017.314
	M3	5.2	n.d.	n.d.	n.d.	23.94	25.01	1015.059
	W2	11.5	n.d.	n.d.	n.d.	24.20	27.58	1016.890
	W1	11.8	n.d.	n.d.	n.d.	24.51	28.06	1017.123
	W4	13.3	24.72	28.59	1017.434	25.09	28.87	1017.488

Table S2. Results of incubation for SOR endmember fractionation factor.

Time (h)	[O ₂] ($\mu\text{mol}\cdot\text{L}^{-1}$)	$\delta^{18}\text{O}$ (‰)
0	182	0.25
18	148	1.01
138	98	2.06
208	64	4.08
ϵ_{SOR} (‰)		-3.57

Table S3. Results of incubation for WCR endmember fractionation factor.

Time (h)	W5		Y2		W2		Y5	
	[O ₂] ($\mu\text{mol}\cdot\text{L}^{-1}$)	$\delta^{18}\text{O}$ (‰)	[O ₂] ($\mu\text{mol}\cdot\text{L}^{-1}$)	$\delta^{18}\text{O}$ (‰)	[O ₂] ($\mu\text{mol}\cdot\text{L}^{-1}$)	$\delta^{18}\text{O}$ (‰)	[O ₂] ($\mu\text{mol}\cdot\text{L}^{-1}$)	$\delta^{18}\text{O}$ (‰)
0	259	0.56	261	0.59	258	0.69	259	0.65
5	252	0.96	252	1.39	254	1.05	253	1.1
7	—	—	251	1.32	253	0.94	251	1.29
126	237	2.22	231	2.92	241	1.81	236	2.48
ϵ_{WCR} (‰)	-19.1		-18.64		-16.16		-19.97	