

Supplementary Tables

Table S1

Calculated $\delta^{18}\text{O}_{\text{predicted}}$ v.s. *Tridacna* $\delta^{18}\text{O}_{\text{YX1}}$. Calculated predicted SST (with varying SSS) v.s. predicted SST (with constant SSS).

Time (year)	SSS (‰)	SST (°C)	$\delta^{18}\text{O}_{\text{water}}$ (‰)	$\delta^{18}\text{O}_{\text{predicted}}$ (‰)	$\delta^{18}\text{O}_{\text{YX1}}$ (‰)	Predicted SST (°C) (with varying SSS)	Predicted SST (°C) (with constant SSS)
1994.00	34.55	24.10	0.37	-0.12	-0.65	26.57	25.48
1994.14	34.61	26.14	0.38	-0.54	-0.82	27.42	26.27
1994.29	33.90	29.53	0.22	-1.43	-1.36	29.21	28.83
1994.43	33.74	29.77	0.18	-1.52	-1.49	29.62	29.41
1994.57	33.76	29.57	0.18	-1.47	-1.11	27.88	27.65
1994.71	33.75	28.26	0.18	-1.20	-0.86	26.69	26.47
1994.86	34.16	26.36	0.28	-0.70	-0.92	27.41	26.74
1995.00	34.50	24.58	0.36	-0.24	-0.65	26.53	25.49
1995.14	34.28	25.91	0.30	-0.57	-0.92	27.52	26.73
1995.29	34.08	28.85	0.26	-1.25	-0.84	26.93	26.35
1995.43	34.38	30.11	0.33	-1.44	-1.56	30.67	29.77
1995.57	33.87	29.17	0.21	-1.36	-1.15	28.18	27.82
1995.71	33.34	27.80	0.09	-1.19	-1.07	27.24	27.46
1995.86	33.71	24.95	0.17	-0.50	-1.28	28.61	28.43
1996.00	34.11	23.43	0.26	-0.08	-0.32	24.52	23.91
1996.14	34.10	25.36	0.26	-0.50	-0.43	25.07	24.48
1996.29	33.49	28.62	0.12	-1.33	-1.32	28.59	28.65
1996.43	33.54	29.97	0.13	-1.61	-1.40	29.00	29.01
1996.57	33.68	29.08	0.17	-1.39	-1.15	27.99	27.84
1996.71	33.21	28.24	0.06	-1.31	-1.03	26.92	27.28
1996.86	33.13	25.83	0.04	-0.82	-1.33	28.21	28.66

Time (year)	SSS (‰)	SST (°C)	$\delta^{18}\text{O}_{\text{water}}$ (‰)	$\delta^{18}\text{O}_{\text{predicted}}$ (‰)	$\delta^{18}\text{O}_{\text{YX1}}$ (‰)	Predicted SST (°C) (with varying SSS)	Predicted SST (°C) (with constant SSS)
1997.14	33.71	26.21	0.17	-0.77	-0.96	27.11	26.93
1997.29	33.67	29.02	0.16	-1.38	-1.25	28.43	28.30
1997.43	33.70	29.81	0.17	-1.54	-1.41	29.20	29.03
1997.57	33.44	29.49	0.11	-1.53	-1.27	28.28	28.39
1997.71	33.05	28.21	0.02	-1.35	-1.33	28.12	28.66
1997.86	33.15	26.39	0.04	-0.93	-1.07	27.04	27.47
1998.00	33.86	26.39	0.21	-0.77	-0.78	26.42	26.08
1998.14	34.27	27.88	0.30	-0.99	-0.98	27.79	27.01
1998.29	33.69	29.53	0.17	-1.48	-1.01	27.31	27.15
1998.43	34.02	30.15	0.24	-1.54	-1.36	29.34	28.83
1998.57	33.63	30.32	0.15	-1.66	-1.72	30.57	30.48
1998.71	33.56	29.00	0.14	-1.39	-1.60	29.96	29.94
1998.86	33.24	26.30	0.07	-0.89	-1.28	28.10	28.44
1999.00	32.97	25.22	0.00	-0.73	-0.55	24.38	25.00
1999.14	33.01	27.48	0.01	-1.20	-0.93	26.23	26.81
1999.29	32.68	29.44	-0.06	-1.69	-1.46	28.34	29.28
1999.43	33.34	29.75	0.09	-1.61	-1.50	29.27	29.49
1999.57	33.07	29.76	0.03	-1.67	-1.64	29.64	30.15
1999.71	32.51	28.58	-0.10	-1.55	-1.52	28.45	29.57
1999.86	32.54	25.82	-0.09	-0.95	-1.07	26.38	27.46
2000.00	33.01	24.74	0.01	-0.61	-0.77	25.46	26.03
2000.14	33.38	26.57	0.10	-0.92	-1.41	28.85	29.03
2000.29	33.33	29.50	0.09	-1.55	-1.47	29.11	29.34
2000.43	33.05	29.49	0.02	-1.62	-1.50	28.94	29.48

Time (year)	SSS (‰)	SST (°C)	$\delta^{18}\text{O}_{\text{water}}$ (‰)	$\delta^{18}\text{O}_{\text{predicted}}$ (‰)	$\delta^{18}\text{O}_{\text{YX1}}$ (‰)	Predicted SST (°C) (with varying SSS)	Predicted SST (°C) (with constant SSS)
2000.57	32.45	29.18	-0.12	-1.69	-1.26	27.16	28.34
2000.71	32.67	28.20	-0.07	-1.43	-1.45	28.30	29.24
2000.86	33.08	25.60	0.03	-0.78	-1.19	27.53	28.04
2001.00	33.39	25.40	0.10	-0.67	-0.51	24.64	24.81
2001.14	32.99	26.76	0.01	-1.05	-1.00	26.53	27.13
2001.29	32.90	29.58	-0.01	-1.67	-1.40	28.32	29.02
2001.43	32.69	29.74	-0.06	-1.75	-1.56	28.82	29.74
2001.57	33.06	29.64	0.02	-1.65	-1.57	29.26	29.79
2001.71	32.72	28.91	-0.06	-1.57	-1.69	29.47	30.36
2001.86	32.74	25.50	-0.05	-0.84	-1.25	27.42	28.28
2002.00	33.20	24.96	0.06	-0.62	-0.58	24.79	25.17
2002.14	33.19	26.65	0.05	-0.98	-0.97	26.61	27.00
2002.29	33.97	29.62	0.23	-1.43	-1.44	29.64	29.19
2002.43	33.72	29.95	0.18	-1.56	-1.84	31.23	31.04
2002.57	33.75	28.88	0.18	-1.33	-1.41	29.25	29.03
2002.71	33.88	27.93	0.21	-1.09	-0.93	27.17	26.81
2002.86	33.53	26.32	0.13	-0.83	-1.04	27.28	27.30
2003.00	33.15	24.76	0.05	-0.59	-0.63	24.99	25.41
2003.14	34.00	27.65	0.24	-1.01	-0.91	27.21	26.72
2003.29	33.84	30.10	0.20	-1.56	-1.24	28.58	28.26
2003.43	33.95	30.28	0.23	-1.58	-1.59	30.35	29.91
2003.57	33.42	30.15	0.11	-1.67	-1.60	29.79	29.92
2003.71	33.53	28.11	0.13	-1.21	-1.43	29.13	29.15

Time (year)	SSS (‰)	SST (°C)	$\delta^{18}\text{O}_{\text{water}}$ (‰)	$\delta^{18}\text{O}_{\text{predicted}}$ (‰)	$\delta^{18}\text{O}_{\text{YX1}}$ (‰)	Predicted SST (°C) (with varying SSS)	Predicted SST (°C) (with constant SSS)
2003.86	33.64	25.13	0.16	-0.55	-0.93	26.88	26.78
2004.00	34.16	24.48	0.28	-0.29	-0.60	25.90	25.24
2004.14	34.37	26.67	0.32	-0.71	-1.04	28.19	27.31
2004.29	34.12	29.97	0.27	-1.48	-0.90	27.27	26.66
2004.43	34.17	30.11	0.28	-1.49	-1.49	30.10	29.43
2004.57	34.10	30.23	0.26	-1.54	-1.38	29.49	28.89
2004.71	33.57	27.46	0.14	-1.07	-0.96	26.97	26.94
2004.86	33.95	25.07	0.23	-0.47	-0.76	26.41	25.98

$\delta^{18}\text{O}_{\text{predicted}}$ and predicted SST are calculated with the combination of two equation: $\text{SST (}^\circ\text{C)} = 21.8 - 4.69 (\delta^{18}\text{O}_{\text{shell}} - \delta^{18}\text{O}_{\text{water}})$ (Grossman and Ku, 1986) and $\delta^{18}\text{O}_{\text{water}}$ (‰) = $0.23 \times \text{SSS} - 7.58$ (Hong et al., 1997).