

Table 1 | Projected median anomalies of ocean climate variables per 20-year reporting period, within and outside marine protected areas (1995–2100)

		SST (°C)		O <sub>2</sub> (µg L <sup>-1</sup> )		pH		MHWs (degree days)	
		MPAs	Outside MPAs	MPAs	Outside MPAs	MPAs	Outside MPAs	MPAs	Outside MPAs
SSP1–2.6	Recent	0.02 (-0.67–0.64)	0.005 (-0.61–0.57)	-7.0x10 <sup>-5</sup> (-2.5x10 <sup>-3</sup> – 2.5x10 <sup>-3</sup> )	-6.9x10 <sup>-5</sup> (-2.5x10 <sup>-3</sup> – 2.7x10 <sup>-3</sup> )	4.9x10 <sup>-5</sup> (-2.3x10 <sup>-2</sup> – 1.8x10 <sup>-2</sup> )	5.9x10 <sup>-4</sup> (-2.2x10 <sup>-2</sup> – 2.0x10 <sup>-2</sup> )	3.7 (0.05–64.6)	6.2 (0.14–80.6)
	Near	0.47 (-0.1–1.22)	0.49 (-0.08–1.27)	-1.5x10 <sup>-3</sup> (-3.4x10 <sup>-3</sup> – 7.7x10 <sup>-5</sup> )	-1.4x10 <sup>-3</sup> (-3.8x10 <sup>-3</sup> – 5.4x10 <sup>-5</sup> )	-5.6x10 <sup>-2</sup> (-7.4x10 <sup>-2</sup> – -3.0x10 <sup>-2</sup> )	-5.6x10 <sup>-2</sup> (-7.4x10 <sup>-2</sup> – -3.2x10 <sup>-2</sup> )	49.1 (1.76–244)	52.2 (5.33–249)
	Mid	0.68 (-0.14–1.66)	0.70 (-0.25–1.62)	-2.4x10 <sup>-3</sup> (-4.4x10 <sup>-3</sup> – 5.6x10 <sup>-4</sup> )	-2.3 x10 <sup>-3</sup> (-4.9x10 <sup>-3</sup> – 1.1x10 <sup>-3</sup> )	-8.2x10 <sup>-2</sup> (-9.4x10 <sup>-2</sup> – -6.9x10 <sup>-2</sup> )	-8.3x10 <sup>-2</sup> (-9.4x10 <sup>-2</sup> – -7.0x10 <sup>-2</sup> )	80.1 (3.0–374)	101 (3.6–362)
	Int	0.80 (0.011–1.68)	0.82 (0.08–1.57)	-2.6x10 <sup>-3</sup> (-4.7x10 <sup>-3</sup> – -1.7x10 <sup>-4</sup> )	-2.7x10 <sup>-3</sup> (-4.6x10 <sup>-3</sup> – -3.5x10 <sup>-4</sup> )	-8.6x10 <sup>-2</sup> (-9.7x10 <sup>-2</sup> – -7.7x10 <sup>-2</sup> )	-8.8x10 <sup>-2</sup> (-9.5x10 <sup>-2</sup> – -8.0x10 <sup>-2</sup> )	113 (4.1–374)	132 (10.3–407)
	Long	0.79 (-0.01–1.51)	0.82 (0.11–1.5)	-2.5x10 <sup>-3</sup> (-4.8x10 <sup>-3</sup> – -3.9x10 <sup>-4</sup> )	-2.7x10 <sup>-3</sup> (-4.9x10 <sup>-3</sup> – -2.1x10 <sup>-4</sup> )	-7.6x10 <sup>-2</sup> (-9.1x10 <sup>-2</sup> – -6.1x10 <sup>-2</sup> )	-7.7x10 <sup>-2</sup> (-9.1x10 <sup>-2</sup> – -6.3x10 <sup>-2</sup> )	115 (4.9–442)	131 (12.6–460)
SSP2–4.5	Near	0.49 (-0.26–1.27)	0.51 (-0.35–1.07)	-1.4x10 <sup>-3</sup> (-3.9x10 <sup>-3</sup> – 8.2x10 <sup>-4</sup> )	-1.8x10 <sup>-3</sup> (-4.1x10 <sup>-3</sup> – 1.4x10 <sup>-3</sup> )	-5.8x10 <sup>-2</sup> (-8.8x10 <sup>-2</sup> – -2.7x10 <sup>-2</sup> )	-5.9x10 <sup>-2</sup> (-8.6x10 <sup>-2</sup> – -2.9x10 <sup>-2</sup> )	41.7 (1.7–246)	57.4 (3.1–217)
	Mid	0.96 (-0.09–2.12)	0.99 (-0.04–1.98)	-3.1x10 <sup>-3</sup> (-5.6x10 <sup>-3</sup> – 7.7x10 <sup>-5</sup> )	-3.5x10 <sup>-3</sup> (-6.2x10 <sup>-3</sup> – 3.8x10 <sup>-4</sup> )	-1.1x10 <sup>-1</sup> (-8.3x10 <sup>-1</sup> – -1.4x10 <sup>-2</sup> )	-1.1x10 <sup>-1</sup> (-8.4x10 <sup>-1</sup> – -1.3x10 <sup>-2</sup> )	156 (3.1–538)	175 (8.3–496)
	Int	1.33 (0.55–2.17)	1.33 (0.45–2.23)	-4.2x10 <sup>-3</sup> (-7.1x10 <sup>-3</sup> – -2.2x10 <sup>-3</sup> )	-4.7x10 <sup>-3</sup> (-8.2x10 <sup>-3</sup> – -2.5x10 <sup>-3</sup> )	-1.5x10 <sup>-1</sup> (-1.7x10 <sup>-1</sup> – -1.3x10 <sup>-1</sup> )	-1.5x10 <sup>-1</sup> (-1.7x10 <sup>-1</sup> – -1.3x10 <sup>-1</sup> )	266 (24.1–683)	280 (25.1–608)
	Long	1.53 (0.51–2.59)	1.52 (0.59–2.5)	-5.1x10 <sup>-3</sup> (-8.1x10 <sup>-3</sup> – -2.3x10 <sup>-3</sup> )	-5.5x10 <sup>-3</sup> (-8.9x10 <sup>-3</sup> – -2.8x10 <sup>-3</sup> )	-1.7x10 <sup>-1</sup> (-1.9x10 <sup>-1</sup> – -1.6x10 <sup>-1</sup> )	-1.7x10 <sup>-1</sup> (-1.9x10 <sup>-1</sup> – -1.6x10 <sup>-1</sup> )	350 (31–720)	352 (45.3–693)
SSP3–7.0	Near	0.49 (-0.3–1.27)	0.46 (-0.15–1.18)	-1.7x10 <sup>-3</sup> (-4.7x10 <sup>-3</sup> – 1.2x10 <sup>-3</sup> )	-1.8x10 <sup>-3</sup> (-4.4x10 <sup>-3</sup> – 1.4x10 <sup>-3</sup> )	-6.3x10 <sup>-2</sup> (-1.0x10 <sup>-1</sup> – -3.0x10 <sup>-2</sup> )	-6.3x10 <sup>-2</sup> (-1.0x10 <sup>-1</sup> – -3.0x10 <sup>-2</sup> )	41.5 (0.9–248)	57.4 (1.7–233)
	Mid	1.05 (0.26–2.02)	1.06 (0.11–2.17)	-3.4x10 <sup>-3</sup> (-6.8x10 <sup>-3</sup> – -7.8x10 <sup>-4</sup> )	-3.8x10 <sup>-3</sup> (-6.8x10 <sup>-3</sup> – -2.4x10 <sup>-4</sup> )	-1.3x10 <sup>-1</sup> (-1.7x10 <sup>-1</sup> – -9.3x10 <sup>-2</sup> )	-1.3x10 <sup>-1</sup> (-1.7x10 <sup>-1</sup> – -9.4x10 <sup>-2</sup> )	168 (13.5–512)	179 (10.4–561)
	Int	1.59 (0.57–2.78)	1.59 (0.59–2.92)	-5.4x10 <sup>-3</sup> (-8.9x10 <sup>-3</sup> – -2.4x10 <sup>-3</sup> )	-5.8x10 <sup>-3</sup> (-1.0x10 <sup>-2</sup> – -3.1x10 <sup>-3</sup> )	-2.0x10 <sup>-1</sup> (-2.5x10 <sup>-1</sup> – -1.6x10 <sup>-1</sup> )	-2.0x10 <sup>-1</sup> (-2.5x10 <sup>-1</sup> – -1.6x10 <sup>-1</sup> )	348 (43.8–790)	372 (62.7–835)
	Long	2.19 (1.03–4.03)	2.31 (1.11–4.13)	-7.7x10 <sup>-3</sup> (-1.1x10 <sup>-2</sup> – -3.7x10 <sup>-3</sup> )	-8.6x10 <sup>-3</sup> (-1.2x10 <sup>-2</sup> – -4.0x10 <sup>-3</sup> )	-2.8x10 <sup>-1</sup> (-3.3x10 <sup>-1</sup> – -2.4x10 <sup>-1</sup> )	-2.8x10 <sup>-1</sup> (-3.2x10 <sup>-1</sup> – -2.4x10 <sup>-1</sup> )	596 (180–1245)	630 (190–1278)
SSP5–8.5	Near	0.58 (-0.18–1.38)	0.55 (-0.19–1.19)	-1.9x10 <sup>-3</sup> (-4.3x10 <sup>-3</sup> – 5.5x10 <sup>-4</sup> )	-2.0x10 <sup>-3</sup> (-4.2x10 <sup>-3</sup> – 1.1x10 <sup>-3</sup> )	-6.4x10 <sup>-2</sup> (-1.1x10 <sup>-1</sup> – -3.1x10 <sup>-2</sup> )	-6.4x10 <sup>-2</sup> (-1.1x10 <sup>-1</sup> – -3.2x10 <sup>-2</sup> )	58.9 (1.3–317)	62.8 (2.5–350)
	Mid	1.21 (0.21–2.31)	1.23 (0.41–2.38)	-4.3x10 <sup>-3</sup> (-7.4x10 <sup>-3</sup> – -1.2x10 <sup>-3</sup> )	-4.5x10 <sup>-3</sup> (-8.6x10 <sup>-3</sup> – -1.5x10 <sup>-3</sup> )	-1.5x10 <sup>-2</sup> (-2.0x10 <sup>-1</sup> – -9.8x10 <sup>-2</sup> )	-1.5x10 <sup>-2</sup> (-2.0x10 <sup>-1</sup> – -9.7x10 <sup>-2</sup> )	224 (24.5–621)	246 (26–637)
	Int	1.96 (0.76–3.59)	2.00 (0.75–3.54)	-6.5x10 <sup>-3</sup> (-1.1x10 <sup>-2</sup> – -3.1x10 <sup>-3</sup> )	-6.9x10 <sup>-3</sup> (-1.1x10 <sup>-2</sup> – -3.1x10 <sup>-3</sup> )	-2.5x10 <sup>-1</sup> (-3.2x10 <sup>-1</sup> – -1.9x10 <sup>-1</sup> )	-2.5x10 <sup>-1</sup> (-3.2x10 <sup>-1</sup> – -1.9x10 <sup>-1</sup> )	486 (62.5–1084)	512 (85.6–1060)
	Long	2.79 (1.64–4.79)	2.83 (1.65–5.05)	-9.8x10 <sup>-3</sup> (-1.5x10 <sup>-2</sup> – -5.8x10 <sup>-3</sup> )	-1.0x10 <sup>-2</sup> (-1.5x10 <sup>-2</sup> – -6.5x10 <sup>-3</sup> )	-3.7x10 <sup>-1</sup> (-4.4x10 <sup>-1</sup> – -3.1x10 <sup>-1</sup> )	-3.7x10 <sup>-1</sup> (-4.3x10 <sup>-1</sup> – -3.1x10 <sup>-1</sup> )	816 (342–1525)	832 (382–1611)

Values represent median anomalies, relative to the recent past (1995–2014), for each reporting period: Near-term (2021–2040); mid-term (2041–2060); intermediate-term (2061–2080); and long-term (2081–2100). Values in brackets are the inter-model range envelopes (the range of annual median trends across all ESMs), for each reporting period.