

**Northwest Atlantic Ocean: Climate Impacts Table (see Appendix A in RVA User Guide)**

Parameter	Change to date	Projected change	Trends in projected change	Confidence	Map
Coastal flooding/ shoreline change	-0.5m (1.6 ft) average rate of long-term shoreline change for New England and Mid-Atlantic coasts in the U.S., with 65% of transects eroding <sup>1</sup>	Current 100-year flood will occur annually by 2100 in most of New England and Mid-Atlantic U.S., due to a combination of SLR and changes in storm patterns <sup>2</sup>	↑	High	County-level projections available for U.S. East Coast <sup>2</sup>
Dissolved oxygen	2% decline in oceanic dissolved oxygen levels globally since 1960 <sup>3</sup>	1–7% decline in ocean oxygen concentrations globally by 2100 <sup>4</sup>	↓	Moderate	None
Precipitation	Increased annual and seasonal precipitation in the Northeast U.S. and Atlantic Canada, with the greatest changes occurring in the fall <sup>5,6</sup>  Increased frequency and intensity of extreme precipitation events since 1901 <sup>5</sup>	Slight to moderate increase (up to 20%) in annual and seasonal precipitation by 2100, with the greatest increases in winter and spring <sup>5,6</sup>	↑	High <sup>6</sup>	Figure 7.5 <sup>5</sup> Figure 4.17–4.19 <sup>6</sup>
Ocean temperature	+0.6°C (2.8°F) in the Northwest Atlantic from 1900–2016 <sup>7</sup>  From 1982-2016, the Gulf of Maine warmed 3 times faster than the global average, at a rate higher than 99% of the world's oceans <sup>8</sup>	+2.0–3.2°C (3.6–5.8°F) in the Northwest Atlantic by 2080 <sup>7</sup>	↑	Very High <sup>7</sup>	Figure 13.3 <sup>7</sup>
Ocean acidification	30% increase in surface water acidity globally since 1850 (pH decline from 8.2 to 8.1 units) <sup>7</sup>	100–150% increase in global surface water acidity by 2100 under high-emissions scenario (decline from 8.1 to 7.8 units) <sup>7</sup>	↑	High <sup>7</sup>	Figure 13.5 <sup>7</sup>

Salinity	Shift towards freshening of surface waters and increased salinity in deeper waters <sup>9,10</sup>	Reduced salinity in the ocean surface, particularly in coastal waters <sup>9</sup> Increased salinity in deeper, off-shelf waters of the Northwest Atlantic <sup>11</sup>	↑	Moderate <sup>9</sup>	Figure 7 <sup>11</sup>
Sea level rise	+16-21 cm (7-8 in) of global sea level rise since 1900 <sup>12</sup>	+0.3–1.2 m (1.0–3.9 ft) of global sea level rise relative to 2000 (90% probability within this range) <sup>13</sup> SLR is likely to be higher than the global average for most of the Northwest Atlantic coast <sup>9,13</sup> , though uplift is likely to result in falling sea levels around Hudson Bay <sup>9</sup> Extreme global scenario of 2.5 m (8.2 ft) possible if Antarctic ice sheet collapses <sup>13</sup>	↑	Low ( <i>upper bounds &amp; extreme scenario</i> ) <sup>12</sup> Very high ( <i>lower bounds</i> ) <sup>12</sup>	Figure 13 <sup>13</sup> Figure 7.6 <sup>9</sup>
Storms	Increases in hurricane activity since the 1970s, although the cause is unclear <sup>14</sup> Increased winter storm frequency and intensity since 1950, with slight northwards shift of storm track <sup>14</sup>	Slight decreases in global hurricane frequency <sup>15,16</sup> Likely increases in hurricane intensity (including frequency of very intense storms), size, and precipitation rates <sup>2,14,15</sup> Changes in the frequency and intensity of severe winter storms are largely unknown <sup>14</sup>	↑	Low ( <i>hurricane frequency/changes in winter storms</i> ) <sup>14</sup> Moderate ( <i>intensity/size</i> ) <sup>14</sup> High ( <i>precipitation rates</i> ) <sup>14</sup>	None

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