ASSATEAGUE ISLAND NATIONAL SEASHORE

Climate Change Projections

Climate Variable	General Change Expected	Range of Change Expected & Reference Period*	Size of Expected Change Compared to Recent Changes	Synoptic Signs	Confidence
Temperature	Increase, but not uniform	1.0 to 1.9 °C (1.8 to 3.5 °F) increase by 2040	Moderate to Large	Trend to milder winters with lengthening periods of above freezing temperatures	Virtually certain that temperature will increase; predictions for rate and magnitude of change vary, but forecasts consistently call for an ecologically significant rise in temperature
Precipitation	Probable decrease in total annual precipitation	1-6% increase in cold half by 2040; 3 to 7% decrease in warm half	Small to Moderate; most changes within the bounds of the observed record	Wetter springs and autumns are a signal of more active mid-latitude cyclones	The model trend is toward drier during the warm season, but this runs contrary to the decadal shift toward more precipitation. Low confidence.
Sea Level	Increase	3.5 to 9 inches (80-220 mm) by 2040*	Large	When coincident with lunar phase, nor'easters and hurricanes will enhance floods. Increase flushing into coastal bays	A moderate degree of confidence though it may take some alignment of storms, tides and winds to have a large scale effect. * IPCC projection is now considered very conservative
Drought	Modest increase in drought frequency in the warm season	Rainfall deficits during the growing season may approach 10-25%; More frequent dry spells	Small to Moderate	Greatest impacts in summer; some effects on DelMarVa crops, likely to lower flows into estuaries (increase toxin concentrations)	Modest level of confidence but will be largely influenced by regional and sectional droughts which are driven by thermal anomalies on the continent and adjacent oceans.
Snow cover	Increase in snow-free days; decreased snow accumulations	Up to >50% reduction in average annual snowfall by 2040	Moderate	Shift in winter storm tracks away from coastal development	High level of confidence since it matches current trend. Should be noted that 'odd' extreme snowfalls are likely.

Length of growing season	Increase	Likely to be two or more weeks longer by 2040	Moderate to large	More large scale stagnant high pressure systems during the spring and fall.	High degree of confidence. Synoptic patterns will also allow the occasional late/early freezes.
Extreme Events: Temperature	Warm Events Increase / Cold Events Decrease	Record minimums less likely in winter; record maximums more likely in winter.	Moderate	Increase frequency of thaws in winter as seen by emergence of subtropical high	Moderate to high degree of confidence since it continues existing trend. The greatest increase in summer heat occurs later in the period
Extreme Events: Precipitation	Possible decrease of frequency of heavy rain, but countered by rise in intensity.	Uncertain	Moderate	Potential for more intense spring and autumn floods due to active storm tracks	Model forecasts show the least skill in precipitation forecasts, though repetitive storms are a common way for excessive precipitation.
Extreme Events: Cold Season Storms	Increased intensity	Uncertain	Moderate to Large	Increase in frequency of transition season storms (Nor'easters)	Low to moderate confidence.
Extreme Events: Warm Season Storms	Increased intensity; possible decrease in frequency	Uncertain	Moderate	Increase in strength of tropical storms. Possibility of two storm strikes in short time scale.	Low confidence.

Table adapted from A1B scenarios:

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