Sea Level Rise

Bottom Line

Even under low emissions scenarios, the combination of ocean circulation changes, sinking land, and Antarctic ice melt will result in greater than average sea level rise in the Northeast, so far tracking at 3 to 4 times the global average rate. Sea level rise and changes in hurricane activity would raise annual property damage estimates to $11-17 billion per year by 2100.

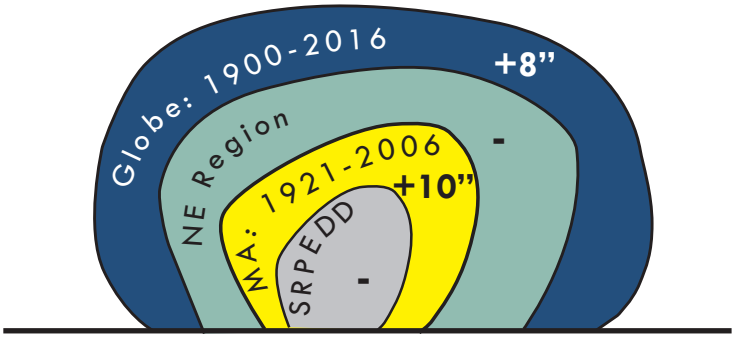
This Change Will Impact

- Flooding frequency, depth, extent
- Real estate investments
- Floodprone infrastructure
- Emergency protocols
- Coastal marsh extents
- Land conservation targets
- Drinking water salinity
- Forced coastal out-migration
- Loss of historic structures
- Livable coastal areas

Visualization Tools

MA SLR & Coastal Flooding Viewer
NOAA Sea Level Rise Viewer
Climate Central Surging Seas Risk Map
Sea Level Rise Tools Comparison Matrix

Changes That Have Already Occurred: Sea Level Rise



Of the 8” of sea level rise that have occurred since 1900, **half** of that rise has occurred in the last 25 years alone. Sea level rise of 1’ to 2.3’ would be sufficient to turn nuisance high tide events into major destructive floods in many places.

Global Average Sea Level by 2100 - Very Likely Ranges

L	M	H
0.7’-2.6’	1’-3’	1.6’-4’

Sea Level Rise in Buzzards Bay by 2100 (relative to avg 1999-2017)

L	M	H
+4’	+5.1’	+7.7’

MITIGATION LOOKS LIKE...

- Eliminating risk-prone building in coastal areas and adjusting building codes
- Abandoning inundated infrastructure such as roads
- Conserving uplands for saltwater marsh migration

ADAPTATION LOOKS LIKE...

- Managed retreat buy-outs of buildings in high risk areas
- Infrastructure retrofits and planning new infrastructure investments with sea level rise in mind
- Monitoring saltwater intrusion into water supply wells

Future warming and its effects depend upon how much greenhouse gas we continue to emit into the atmosphere. We speak of 3 possible emissions scenarios relative to the 1986-2015 average: very low (RCP2.6 - assumes that carbon emissions have already peaked); low (RCP4.5 - assumes emissions peak around 2050 and then decrease); and higher (RCP8.5 - assumes carbon emissions continue to increase through 2100). These are the L-M-H scenarios identified above.