Supplement to:
"BUZZARDS BAY SALT MARSHES: Vulnerability and Adaptation Potential" February 2023

Report Data Sources:

The majority of data presented in this report come from original data collections and/or analyses conducted by the Buzzards Bay Coalition and collaborating organizations. Some data presented here originated from previously published analyses. Those metrics derived from existing sources are listed below, and include access links.

Nitrogen – The concentration of total nitrogen was measured in water samples collected near the marsh sites. The samples were collected through the Buzzards Bay Coalition's Baywatchers Program. Data from 2016 – 2020 were averaged.

https://www.savebuzzardsbay.org/bay-health/
https://darchive.mblwhoilibrary.org/handle/1912/25762

Tidal restrictions – Buzzards Bay National Estuary Program (BBNEP) gathered information on the location and status of tidal restrictions around Buzzards Bay in 2002 and 2009. We used the BBNEP atlas of tidal restrictions to determine when restrictions were present at a site.

https://climate.buzzardsbay.org/longterm-marsh-monitoring.html

Unvegetated-Vegetated Ratio (UVVR) – The U. S. Geological Survey (USGS) used computer software to analyze 2018 aerial images from the National Agricultural Imagery Program to classify areas as vegetated with plants, or as bare surface or water. The unvegetated to vegetated ratio (UVVR) is a measure of how much of the overall marsh is covered by bare areas (including water-filled channels, ponds, and bare mudflats) versus the amount covered with marsh plants.

https://www.sciencebase.gov/catalog/item/60f79c4dd34e9143a4ba4e04

References/Further Reading:

The following scientific articles provide further information on some of the concepts introduced in the "Buzzards Bay Salt Marshes: Vulnerability and Adaptation Potential" including the impact of various stressors, both historic and current, on salt marshes.

Burdick, D. M., Moore, G. E., et al. (2020) Mitigating the legacy effects of ditching in a New England salt marsh. *Estuaries and Coasts*. https://doi.org/10.1007/s12237-019-00656-5

Deegan, L. A., Johnson, D. S., et al. (2012) Coastal eutrophication as a driver of salt marsh loss. *Nature*. https://doi.org/10.1038/nature11533

Ganju, N. K., Couvillion, B. R., et al. (2022) Development and application of Landsat-based wetland vegetation cover and UnVegetated-Vegetated marsh Ratio (UVVR) for the conterminous United States. *Estuaries and Coasts*. https://doi.org/10.1007/s12237-022-01081-x

Gedan, K. B., Silliman, B.R., et al. (2009) Centuries of Human-Driven Change in Salt Marsh Ecosystems. *Annual Review of Marine Science*. https://doi.org/10.1146/annurev.marine.010908.163930

Raposa, K. B., Cole Ekberg, M. L., et al. (2017) Elevation change and the vulnerability of Rhode Island (USA) salt marshes to sea-level rise. *Reg. Environ. Change*. https://doi.org/10.1007/s10113-016-1020-5

Raposa, K. B., McKinney, R. A., et al. (2018) Top-down and bottom-up controls on southern New England salt marsh crab populations. *PeerJ*. https://doi.org/10.7717/peerj.4876

Roman, C. T. (2016) Salt marsh sustainability: Challenges during an uncertain future. *Estuaries and Coasts*. https://doi.org/10.1007/s12237-016-0149-2

Watson, E. B., Wigand, C., et al. (2017) Wetland loss patterns and inundation-productivity relationships prognosticate widespread salt marsh loss for southern New England. *Estuaries and Coasts*. https://doi.org/10.1007/s12237-016-0069-1