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Project Overview

Beaches are **highly dynamic** landscapes that are constantly changing. With sea levels rising and intense storms becoming **more frequent** due to climate change, the future of many of these sites in the Northeast is **uncertain**. The three main influences on beach profiles are **waves, wind, and timing**.



As part of the Stone Living Lab's inaugural community science project, volunteers were trained to use a simple but effective technique called the **Emery Method** to measure beach profiles. Twelve beaches were visited from April to December of 2021 to help document elevation changes happening on a monthly basis and in response to episodic storms. This project was chosen to compliment **coastal resilience research** being conducted on Rainsford Island in Boston Harbor.

12
BEACH
SITES

35
COMMUNITY
SCIENTISTS

74
SITE
VISITS

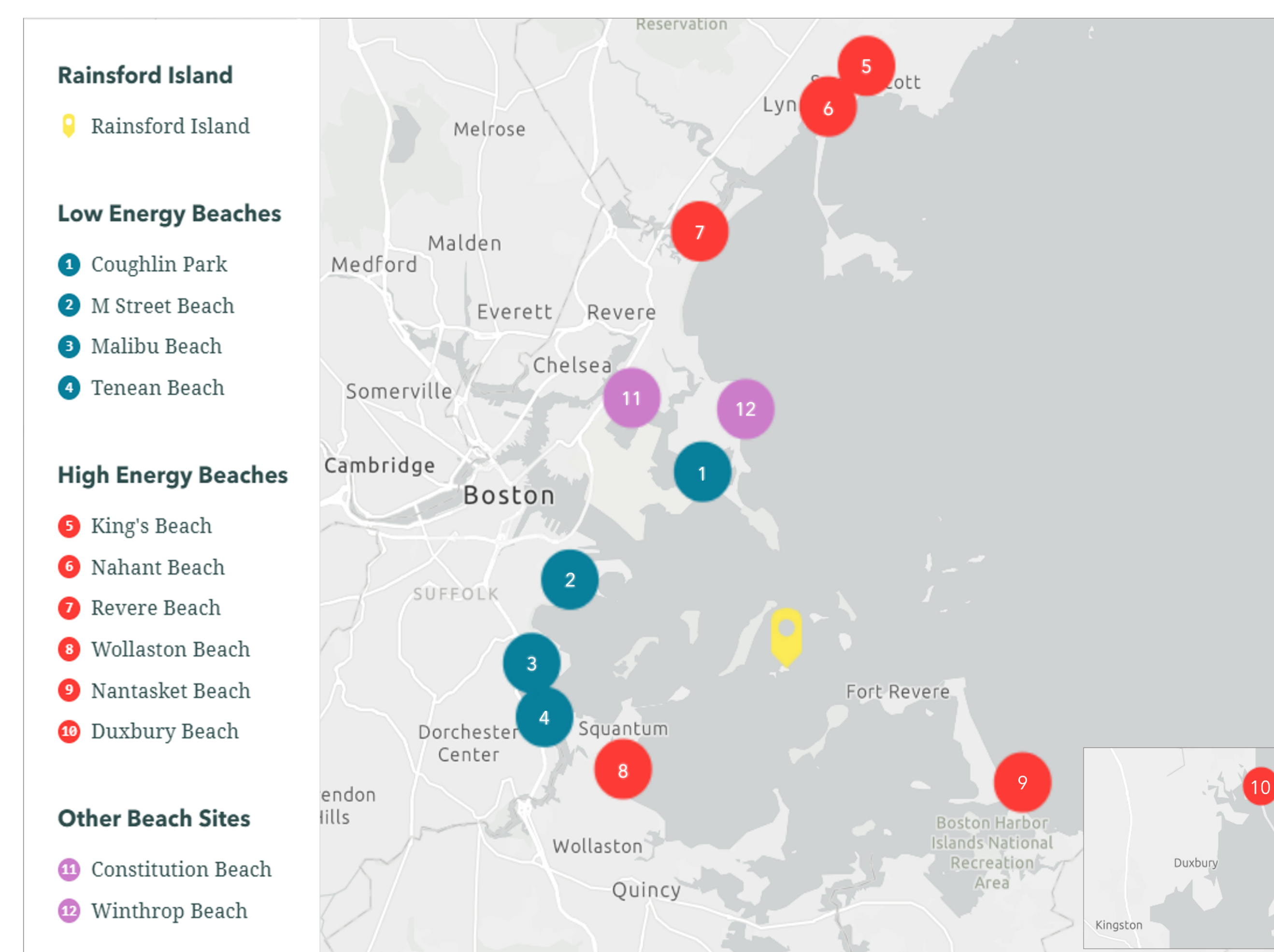
172
INDIVIDUAL
PROFILES

2

Our Beaches

Twelve beach sites were chosen for this project in a variety of areas. **High energy** beach sites were found along the outer harbor, facing the North Atlantic ocean with little protection from storm surges. Profiles at these sites were very dynamic, often changing more than two feet in elevation between visits.

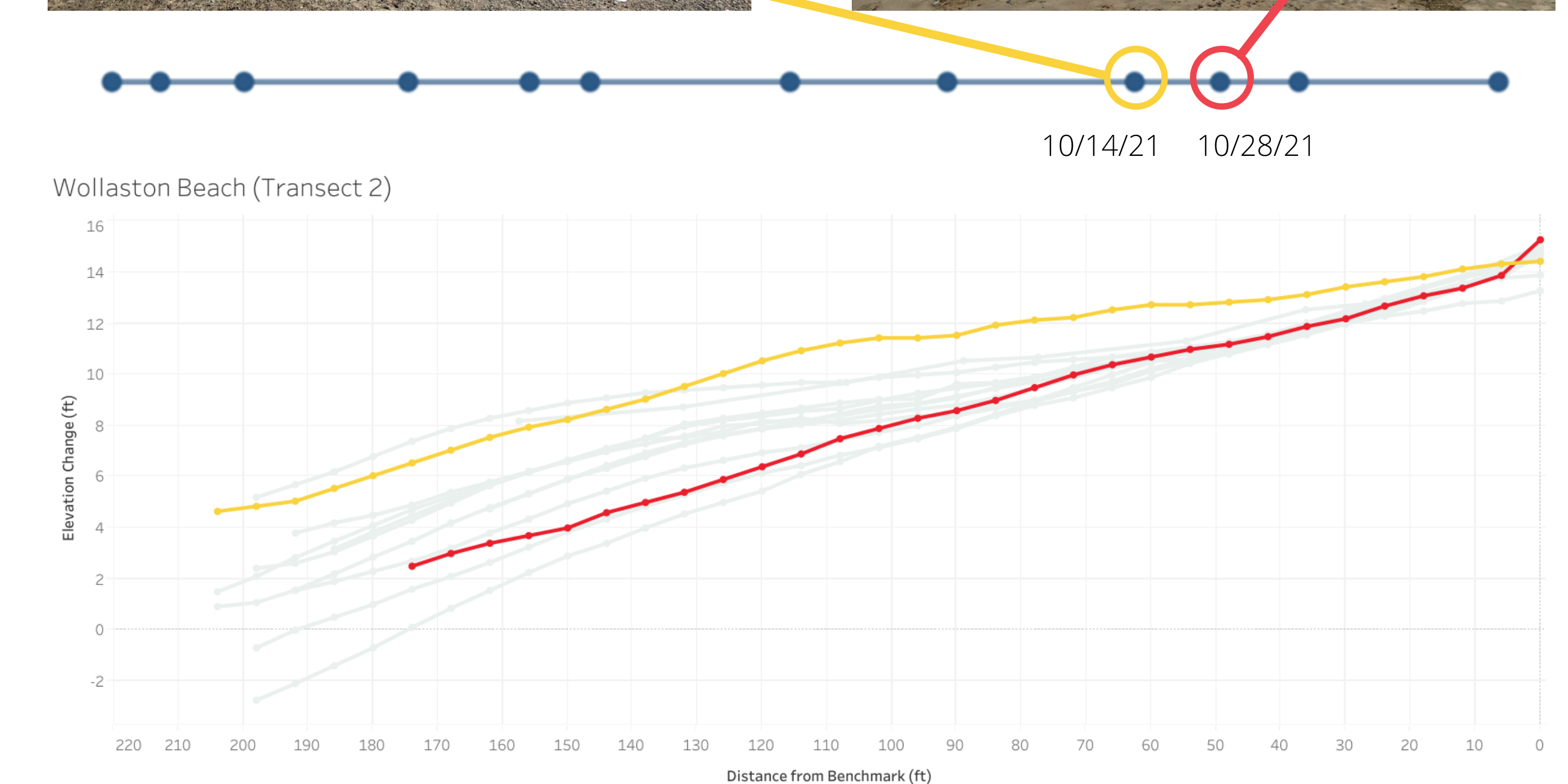
Low energy beaches were partially **protected** from wind and wave action by the harbor islands. Profiles taken at these sites were more static and had a smaller range of elevation changes between visits.



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Spotlight: Wollaston Beach

Wollaston Beach in Quincy was one of the more **dynamic** sites chosen for this project. The elevation profile here built up over the warmer months and was at its highest in mid-October, but a Nor'easter that hit the coast on 10/27/21 **redistributed** the sand. A profile taken the next day revealed the storm had **lowered** the overall beach elevation. Volunteers noted sand had spilled out on to the sidewalk above.



Since Wollaston Beach faces Rainsford Island with **no obstruction** between the two shores, this site is of particular interest to Stone Living Lab researchers. Impacts of storm surges in Quincy could **echo** the impacts further out on the harbor islands. This exemplifies how much change can happen as a result of one storm event.



StoryMap

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Moving Forward

We are continuing work to **finalize** the data gathered by our community scientists. We hope this data set will help us better understand the patterns of elevation change at these beach sites. A handful of volunteers will continue to visit their sites on a seasonal basis, adding to the collection of profiles we have started.

Overall feedback from our volunteers has been very positive, but many requested more frequent project updates and more opportunities to **interact** with researchers. We have developed a StoryMap as an **educational resource** for those wanting to learn about beach profiling, explore our data, and get project updates. Follow along with the QR code.