

# Case Study – Lessons Learned and Accomplishments

**Municipality:** Town of Marblehead

**Project Title:** Increasing Resilience through Community Engagement: Facilitating Implementation of Climate Adaptation Strategies for Marblehead and its Harbor

**Grant Award:** \$93,545

**Match:** \$31,650

**Community Overview:** Marblehead is a coastal community of 19,808 residents in Essex County, 18 miles north of Boston. Its land area is 4.4 square miles, while its ocean boundary covers 15.2 square miles. Marblehead has always been a “harbor town” with a rich nautical, seafaring history. Today, a thriving commercial fishing and boating community continues. Its deep, sheltered harbor is home to six yacht clubs, 1800 moorings, nine public dock facilities, a large commercial fishing fleet, and 35 private docks and boat operations. The Causeway is the only road access to the Neck where 3000 people live.

**Introduction to the Project:** The development of a more resilient, cohesive response to protecting its coastal assets, while addressing some very real and immediate threats, was set as a high priority for Marblehead Harbor in the Town’s MVP 2018 Action Plan. This project included community engagement, modeling of sea level rise and storm surge, assessment of municipal seawalls, and a public forum.

**Climate Impact:** Marblehead is no stranger to the fierceness of the ocean, destructive storms and coastal erosion along its 14.2 miles of coastline, but there is a growing awareness that climate change is a driver of a new future and it is time to plan and implement climate resilient adaptation measures.

**Project Goal:** The Town and its residents will understand its climate vulnerabilities, begin to evaluate adaptive options that will lead to constructive public/private partnerships and informed decisions.

**Project Objectives:**

1. Assess coastal flood risk and determine flood pathways for the 2030, 2050 and 2070 scenarios
2. Identify vulnerable areas at risk of coastal flooding around the Harbor under present day and projected future climate change conditions
3. Prioritize public infrastructure at risk under current, 2030, 2050 and 2070 scenarios
4. Develop preliminary strategies to protect the most vulnerable areas from storm surge flooding, sea level rise and more intense storms
5. Communicate climate change impacts and Marblehead’s vulnerabilities to the community
6. Explore public/private partnerships

**Approach and Result:**

**Stakeholder Engagement** was conducted throughout the project by Salem Sound Coastwatch Director, Barbara Warren. Meetings were held to gather information, build understanding of the Town’s climate vulnerabilities and prepare stakeholders to become involved in future planning and adaptation design decisions. Residents shared their personal stories of damage from past storms and their current concerns. The stakeholder conversations was summarized and shared with the Town and presenters.

**Public Presentations** were held and are now available for viewing:

- I. [Mapping Future Flooding Risks for Marblehead Harbor](#) – 2/3/20 – Detailed coastal flood modeling under changing climatic conditions (present, 2030, 2050, 2070) was shared by Kirk Bosma, Woods Hole Group, to 282 people at the Marblehead High School Theater.

- II. [The Future of Marblehead Harbor: Climate Adaptation: Themes and Concepts](#) – 8/17/20 – Kirk returned to provide potential, conceptual adaptive strategies to address increasing sea level and storm surge at Front Street, Fort Beach and Little Harbor; State Street Landing and Harbormaster Area; Marblehead Municipal Light Department; Devereux and Riverhead Beaches, Goldthwait Reservation, Ocean Avenue and the Causeway. Specific adaptation approaches were introduced that could be implemented overtime based on the following themes:
  - *Natural Resources* emphasizes ecosystem health and resilience
  - *Protection* focuses on protection and maintenance of infrastructure and current use
  - *Transformation* balances current uses with a potential transformation vision.
- III. [Marblehead Harbor - Partnerships for Adaptation and Resilience](#) – 9/15/20 – Jim Newman of Linnean Solutions and Sarah Slaughter of Built Environment Coalition presented potential public and private partnerships to move resiliency planning and adaptations forward.
- IV. **Overview, Conclusions and Next Steps Presentation** to the Selectmen was prepared by Barbara Warren – 9/30/20. All deliverables can be found at [salemound.org/climateAdaptMH.html](http://salemound.org/climateAdaptMH.html)

[Marblehead Harbor Municipal Structures Visual Assessment Report](#), June 2020, evaluates current condition of seawalls and potential future resiliency options for each structure.

**Lessons Learned:** The Covid shut-down forced the cancellation of the April public forum where resiliency practitioners were to share potential resiliency strategies that stakeholders would explore in breakout groups. Instead, conceptual adaptive strategies were presented online. These strategies will be useful in the new Marblehead Harbor Plan update. Stakeholder conversations continued via online zoom meetings and the phone. A third presentation focused on public/private partnerships, but again the inability for people to engage in give and take discussions about possible strategies limited priority and partnership building. Seeing this limitation, the **Marblehead Coastal Resilience Planning Survey** was developed. Survey results will be used in future coastal and community resiliency projects. Stakeholder dialogue resulted in some key takeaways. Most expressed that they are ready to take resiliency actions but do not know what to do and are looking for guidance. People want to know how to protect their assets to minimize storm damage, without precluding actions that will be needed in the future. They want to learn more about flood proofing, dune restoration and “living with water without going up on stilts” and are concerned about unintended consequences - one action resulting in negative impacts somewhere else. Topics discussed included permitting, zoning, funding, insurance, and working with neighbors and the Town. Many wanted to find opportunities for public and private entities to work together to improve community resilience for their mutual benefit.

**Partners and Other Support:** Salem Sound Coastwatch worked with the Town to implement this project. Marblehead TV played a vital role by filming the first presentation and advertising all events and the survey. Municipal MVP Core team participated in distributing information. The Town Administrator shared on his LinkedIn, and the Harbormaster sent out notices to boaters and commercial operators and added the survey link to his Facebook. Outreach was augmented by many local organizations who willingly shared events and the survey. This included Sustainable Marblehead, All Marblehead Facebook, SPUR, Boston and Corinthian Yacht Clubs’ leadership, Old and Historic Commission, Old Marblehead Improvement Society, Fort Beach Way Homeowners Association, individuals, and the Marblehead High School National Green School Society.