



*A Nor'easter in February 2013 caused serious erosion on Cape Cod, including damage to this Dennis shoreline. While erosion has always been part of the Cape's natural history, climate change is exacerbating it.
(photo credit MA Office of Coastal Zone Management)*

Cape Cod

Beach access points on Cape Cod are vulnerable to damage from erosion caused by more frequent and severe storms.

(photo courtesy Cape Cod Commission)



Especially Vulnerable Cape Towns Act Regionally on Climate Change

BY LISA CAPONE

Sea-level rise, stronger storm surges, worsening coastal erosion and more frequent storms are breeding concern in cities and towns across Massachusetts. With a combined total of 560 miles of coastline (when you include countless inlets and many islands), the fifteen towns that comprise Cape Cod view these indicators of climate change with particular unease.

Spanning just a mile or so at its narrowest point and jutting sixty-five miles into the Atlantic, the Cape has more than its share of at-risk resources and infrastructure. And, with about a third of its residents over age 65—more than double the statewide percentage—the Cape’s population is more vulnerable, too. (As noted by the [U.S. Centers for Disease Control and Prevention](#), “weather-related events and natural disasters affect older adults disproportionately, especially those with ... conditions that require extra assistance to leave an unsafe area and recover from an event.”)

“We’re obviously at ground zero for the impacts of climate change,” says Barnstable Planning and Development Director Elizabeth Jenkins, noting that the Cape’s reliance on tourism and its large seasonal population create additional challenges, such as keeping people informed about the impacts of and response to weather-related emergencies.

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While erosion has always been part of the Cape’s natural history, climate change is exacerbating it. The Cape Cod Times reported in June that the rate of coastal retreat around Eastham’s Coast Guard Beach is two to three times faster than it was a century ago, due to sea level rise. Nauset Light Beach in Eastham and Marconi Beach in Wellfleet were cited as other recent erosion hot spots, with Nauset Light losing “about fifty feet of beach over a four- or five-year stretch.”

Barnstable Town Manager Mark Ells calls climate change one of the most important issues facing local governments today. “Addressing it calls for a collaborative response from multiple sectors, such as transportation, natural resource management, land use, and economic development,” he said.

Jenkins adds that, “These issues don’t respect municipal boundaries. They are issues that really call for intermunicipal, regional solutions.” She points to the Cape Cod Commission as “a fantastic partner” in pooling ideas, research and resources as the Cape towns work toward resiliency.

The 2019 OneCape Summit, the commission’s signature annual event, focused squarely on the impacts of climate change and the efforts of Cape Cod municipalities to prepare for, mitigate, adapt to, and resist them. While climate resiliency has long been part of the regional planning agency’s work, the commission’s emphasis on climate sharpened in 2019.

ESPECIALLY VULNERABLE CAPE TOWNS ACT REGIONALLY ON CLIMATE CHANGE

Banding Together

Despite their reputation as independent thinkers, there are many reasons Cape Codders are working together on climate change issues. The most obvious is their unique shared geography, separated from the rest of the state by the Cape Cod Canal.

“We spent a significant amount of time addressing wastewater issues,” says commission Executive Director Kristy Senatori, referring to two years of work by her group, all fifteen Cape Cod towns, hundreds of stakeholders, and state and federal partners, which produced a new regional coastal water quality plan. “Watersheds don’t follow municipal boundaries. . . . The same thinking applies to the coast.”

Besides partnering with several towns on climate preparedness planning, the commission recently completed [Resilient Cape Cod](#), a three-year project funded by the National Oceanographic and Atmospheric Administration to develop a public outreach program to investigate the environmental and socioeconomic effects of local and regional coastal resilience strategies. The project included development of the [Cape Cod Coastal Planner](#), an online “decision support” tool that offers information on climate change hazards impacting the coastline, adaptation strategies to address them, and implications for local infrastructure and ecosystems.

On a separate front, the commission



Dennis town officials and community partners identify areas at risk from climate change impacts during a Municipal Vulnerability Preparedness workshop hosted by the Cape Cod Commission in 2019. Dennis is among several communities that partnered with the Commission’s in creating a climate resiliency plan needed to qualify for state MVP grants.

(photo courtesy Cape Cod Commission)

recently completed a [regional greenhouse gas emissions inventory](#), the starting point for town-level discussions about how to reduce emissions that contribute to climate change, and initiated development of the first-ever [Climate Action Plan for Cape Cod](#).

“I think economies of scale are important, and working with your neighbors is critical,” Senatori says.

To that end, the Cape Cod Commission provides common resources that each town can tap to explore possible climate strategies.

The commission’s work through the state’s Municipal Vulnerability Preparedness program is a prime example. (See story on page 8.) All fifteen Cape Cod towns have been designated as MVP communities.

While some Cape communities achieved MVP status independent of the commission, seven pursued the process with the commission’s support. In 2019, the Cape Cod Commission, along with the Cape Cod Cooperative Extension, assisted the towns of Barnstable, Bourne, Dennis, Eastham, Truro and Wellfleet with

planning to identify climate change impacts and vulnerabilities and develop and prioritize strategies to address them. Harwich completed the process with the commission’s assistance in 2020.

Resilient Cape Cod

Towns on the Cape were already laying the groundwork for the MVP program when the state announced the initiative in 2017. In 2016, the Resilient Cape Cod project was one of six region-based proposals selected for funding by the NOAA out of more than 130 received nationwide. With \$780,000 in NOAA Coastal Resilience Grant funding (including a local in-kind match of more than \$250,000) the commission and its partners embarked on a three-year effort that included economic research, a public engagement process, and development of the [Cape Cod Coastal Planner](#) to help towns select strategies to mitigate impacts to coastal resources and infrastructure. The GIS-based tool integrates research on potential adaptation strategies for Cape Cod municipalities and is designed to help decision-makers understand and compare the relative environmental and socioeconomic impacts of implementing various strategies to address sea level rise, storm surge and erosion.

Barnstable partnered with the commission on the NOAA grant. Jenkins says the first two years were spent



Cape Cod Commission staff demonstrate new planning and decision support tools during the OneCape Summit in July 2019, which brought together more than three hundred local, state and federal leaders dedicated to protecting the region’s environment.

(photo courtesy Cape Cod Commission)

building the program, and the town beta-tested the planner in year three.

“One of the huge takeaways was building a collective understanding of the strategies that are out there and are available,” says Jenkins, noting that the Cape Cod Coastal Planner takes an impact such as coastal erosion and provides a range of options the town could deploy.

She says having “that menu of strategies and talking about the benefits and costs of each of them can [lead to] really complicated conversations.” Ultimately, however, evaluating options leads to better decision-making, with solutions tailored to specific marshes, beaches and other resources.

Barnstable is applying for MVP funding to finance implementation of some of its selected solutions, such as tactics to fix low-lying transportation infrastructure and upgrade culverts.

While the Cape Cod Coastal Planner pilot involved just Barnstable, Senatori notes that all Cape Cod towns are covered by the tool and “every strategy in there could be deployed at a variety of scales.”

Charleen Greenhalgh, who retired last November as the town planner in Harwich, said the commission’s proven GIS mapping capabilities—previously employed to help support the region’s water quality management plan (known as the Section 208 Update)—and familiarity with the Cape’s municipalities were the key reasons why Harwich selected the commission for MVP support.

“One of the things down here on the Cape is, yes, we are individual towns, but we really do look to our neighbors to make sure we are all working together toward the same goal,” says Greenhalgh, who retired at the end of November after working as a town planner on the Cape for thirty-three years, in Chatham, Dennis and Truro, as well as Harwich. “Working with the commission was important to that.”

In late January 2020, the commission helped the town of Harwich with a community workshop to understand how the town is affected by natural hazards and a changing climate and to develop a resiliency plan for MVP designation. Attendees included representatives from retailers, banks, marinas, and local health care and assisted living facilities, as well

as town departments such as Police and Fire, the Council on Aging, and the harbormaster.

“We had such cross participation—folks representing a variety of different entities that would be affected here in town,” Greenhalgh says. “It was an awesome day.”

The workshop resulted in identification of Harwich’s biggest climate challenges and a number of ideas to address them. With the meeting being held six months after two tornadoes touched down on Cape Cod (including one in Harwich), causing approximately \$3.7 million in damage, Greenhalgh says those storms and the resulting destruction were still fresh on the minds of participants and prompted recommendations for better communication in times of natural disasters.

Other identified priorities included the need for work on jetties that protect Harwich’s harbors and, like Barnstable, replacement of inadequate culverts to allow more water flow and flushing during storms.

Following the creation of a draft resiliency plan for Harwich, the commission prepared a video and survey to facilitate input from Harwich residents, which informed the final plan submitted to the state for MVP designation last year.

Applying Cape Experience Elsewhere

The Cape’s geography makes it a region like no other in Massachusetts, but Jenkins points out that other areas—notably the North and South Shores and the Berkshires—also have an influx of seasonal residents and related factors that complicate the process of preparing for and withstanding climate change impacts. Communities across the state, she says, can benefit from exchanging information with neighboring communities. She said Barnstable learned from the experience of Falmouth’s Coastal Resiliency Action Committee.

The creation of data-based climate resiliency action plans is another critical factor for communities across the state, she says. To ensure the integrity of such plans, the expertise of local research organizations can be invaluable, Jenkins says, noting how research by organizations such as the Cape Cod Commission and Woods Hole Sea Grant is informing municipal resilience

planning on the Cape. “The fact that we have that base of data that we can base our decisions on is huge for us,” she says.

Barnstable Town Manager Ells agrees. “Municipal departments must work with each other, and with regional and community partners,” he said, “to bring impactful, science-based solutions forward to ensure the long-term health and resiliency of our communities.” 🌟