



THE GREAT MARSH RESILIENCY PLANNING PROJECT

Preparing Communities for the Future

Salisbury • Newburyport • Newbury • Rowley • Ipswich • Essex



Looking Forward

We know that the coastal communities we live and work in experience damage from storms. Flooding, erosion, and sea level rise are inevitable along the coast, and can result in loss of homes and businesses, power outages, and road closures. These climate impacts jeopardize public health and safety, and can be debilitating.

We also know that climate patterns are changing: storms are more intense; rainfall is heavier. The science is clear: the sea level is rising and will continue to do so for generations, and stronger storms are bringing more frequent and destructive flooding to our neighborhoods. Communities recognize that coastal hazard impacts and associated emergency management, debris removal, infrastructure repair, and post-storm recovery costs are escalating.

Our coastal communities and the environments we depend on for quality of life and commerce are increasingly vulnerable to chronic impacts from climate events. Our current approaches to addressing storms may not be sufficient to protect our communities in the future. How can we better prepare for the future?

Our goal is **RESILIENCE**, defined as the long term capacity of our communities and landscape to deal with change and to continue to develop and adapt, while retaining a satisfactory quality of life.

There is a path forward. Salisbury, Newburyport, Newbury, Rowley, Ipswich, and Essex are involved in a community planning project: assessing the risk and vulnerability of coastal communities to sea level rise, storm surge, erosion, and flooding, and developing plans to reduce those risks.



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Preparing the Great Marsh for the Future

What is the Great Marsh?



It is a special place. It is:

- the largest contiguous saltmarsh and barrier beach complex in New England
- more than 20,000 acres of unparalleled ecological resources
- a state-designated Area of Critical Environmental Concern
- critical habitat for commercially important fisheries, including the world-famous soft-shell clam
- home to dozens of rare and endangered species
- an exceptional recreational and economic asset
- an ecosystem that provides critical coastal protection for our communities



However, this special place is threatened.

The Great Marsh as a large-scale landscape system is under stress. Increasingly powerful climate impacts mean that the system is more exposed to extreme weather. The combined effects of rising sea levels, more frequent storms, and increasingly severe storms cause the health of the marsh to deteriorate. The science is clear:

- As documented by tide measurements in Boston since 1921, local sea level has risen approximately one foot over the last century.
- Without aggressive actions to cut emissions, we could likely see an additional six (or more) feet of sea level rise by 2100.
- Heavy downpours have been increasing since the 1950s and are expected to continue.
- According to the Massachusetts Coastal Erosion Commission's December 2015 Report, Salisbury Beach and Plum Island are "erosion hot spots", locations where the combination of erosion, storm surge, flooding, and waves have caused damage to buildings and infrastructure over the past five years.
- From 1954-2012, Essex County had more FEMA-declared riverine and coastal flood disasters than any other county in Massachusetts.

As the marshes and barrier beaches face increased climate impacts, they are less able to be effective buffers to the lands, towns, roads, homes, and businesses that they protect. This will put a major strain on communities in the Great Marsh. Both public and private investments are at risk. The same climate impacts affecting the marsh have the potential to devastate many elements of the local environment and economy.

We will need to adapt to the threats of climate change in order to strengthen our economies, safeguard public wellbeing, and protect our natural and recreational resources.

Who are we?

We are people who care about the Great Marsh, its surrounding communities, and our future.

- Local residents from six coastal towns
- Town officials and volunteers
- Municipal staff, including planners, conservation agents, engineers, emergency and public works managers
- Scientists, teachers, and students
- Professionals from the National Wildlife Federation, the Ipswich River Watershed Association, the Massachusetts Office of Coastal Zone Management, and many other partner organizations



Expanding Our Efforts

Current activities in the Great Marsh are seeking to manage flood waters and restore beach and marsh systems. However, these activities may not be sufficient to protect our communities in the future. We need to expand on our efforts to restore natural systems, while simultaneously providing support for existing infrastructure. The goal of the Great Marsh Resiliency Planning Project is to work together on identifying and prioritizing strategies which will help our communities adapt to future climate changes. We aim to reduce the vulnerability of coastal communities through protection of the marsh and our natural systems.

A Resiliency Adaptation Plan includes all actions taken to build community resiliency and to adjust to the impacts of climate change on society and the environment.

The Great Marsh Resiliency Planning Project is:

- Mapping future storm surge probabilities and sea level rise with the best available scientific data;
- Identifying and evaluating places, people, and public resources in the six towns that are at greatest risk from climate change impacts, including coastal storms, sea level rise, flooding, and erosion;
- Using local knowledge and science to make a plan for the future, and to help coastal communities be better prepared and more resilient;
- Promoting healthy, resilient natural systems, so that human systems will be better able to withstand the dramatic changes in weather patterns anticipated.

We are exploring ways that nature-based strategies can complement engineering solutions to benefit our communities, including strategies such as:

Barrier Beach and Dune Protection: Plum Island, Salisbury Beach, and Crane Beach are barrier islands that provide our first line of defense from coastal storms. When healthy, they bear the brunt of wave attack and flooding and are an effective form of protection for our communities.

Salt Marsh Protection: Healthy, native vegetation in our wetlands slows down flood waters, and the root systems prevent erosion of the marsh during storm events.

Protecting Coastal Habitats: Abundant and healthy clam, mussel, and oyster beds act as buffers to reduce the impact of waves from coastal storms.

Protecting Inland Habitats: Healthy forests and rivers are more resilient to storm damage and can help minimize destructive stormwater and inland flooding.

Planning and Zoning: Communities can implement more effective planning and zoning that can reduce exposure to coastal storms and decrease future damages.



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Where Do We Go From Here?

The focus of the **Great Marsh Resiliency Planning Project** is developing adaptation strategies for the impacts of sea level rise and more extreme climate patterns, so that critical human systems (such as communities, economies, and culture) and natural systems (including wetlands, coastal ecosystems, and fisheries) can continue to function effectively and be resilient in the face of climate change.

Our final adaptation plan will build off of existing work in the towns and will assist the communities with future decision-making and planning.

Implementation of the plans will make our communities safer and better prepared for the future.

Together, Let's Make a Difference

Get involved with the Great Marsh Resiliency Planning Project! Send your email to irwainfo@ipswichriver.org so we can notify you about opportunities to get involved.

Learn more about climate change in Massachusetts.

www.mass.gov/eea/waste-mgnt-recycling/air-quality/climate-change-adaptation/

Ask your municipal leaders what they are doing to address climate change and how you can help.

Support your community's efforts to:

- raise public awareness of climate-driven threats,
- identify cost-effective measures to protect and adapt to changing conditions, and
- implement nature-based and other strategies to reduce vulnerability.

Learn more about how you can manage coastal flooding and erosion on your own property at:

www.mass.gov/eea/agencies/czm/program-areas/stormsmart-coasts/stormsmart-properties/

We can make a difference for our future.

Working together, we can preserve our homes, businesses, coastal environments and communities, and make them more resilient to climate impacts.



For more information, visit
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