

# THE VALUE of Nature

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#2 OF 5



# Coastal

Massachusetts has the second-longest coastline in the eastern United States, including extensive beach and dune systems. Coastal habitats like salt marshes and estuaries are among the most productive ecosystems on earth.

## CLIMATE RESILIENCE

New England's coastal ecosystems provide a buffer against the ocean, reducing wave height and impact.<sup>1</sup> Opting for nature-based solutions when planning for climate change, like protecting and restoring coastal habitats, often saves money long-term.

# 16%

REDUCTION IN ANNUAL FLOOD LOSSES in the northeast due to salt marshes. The greater the extent of a wetland, the more protection it provides.<sup>2</sup>



# 89K

HOMES

in Massachusetts - totaling \$63 billion in value - are threatened by high tide flooding primarily driven by climate change.<sup>4</sup>

## ECONOMIC

COASTAL AREAS ARE AMONG THE MOST ECONOMICALLY VALUABLE AND ECOLOGICALLY PRODUCTIVE IN THE U.S.<sup>8</sup>



# 87K jobs

in the seafood industry in Massachusetts in 2016, the second highest in the U.S., contributing \$7.7 billion in sales, the third highest in the U.S.<sup>9</sup>



Piping plover, left  
Snowy egret, right

## CLEAN WATER

Coastal wetlands like sea-grass beds act as filters, removing nutrients from sediment and the water column.<sup>6</sup>



# \$18M

Potential increase in home values in coastal communities along the Narragansett Bay thanks to reductions in nutrient loads and improved water quality.<sup>7</sup>



# \$403.1M

DECREASE IN HOME VALUES due to tidal flooding from sea level rise in 2005-2017 in MA, ME, NH, and RI, with Massachusetts coastal homes hit hardest.<sup>10</sup>

**KEY TERMS** **Ecosystem Services:** Nature provides countless benefits to people, along with intrinsic values. These components of nature are enjoyed, consumed, or used by humans to support our wellbeing. **Climate Resilience:** The ability of a natural or human community to prepare for and respond to the impacts of climate change.



# Coastal

## CARBON CAPTURE & STORAGE



Although the global area of vegetated coastal habitats is one to two orders of magnitude smaller than that of terrestrial forests, their contribution to long-term carbon sequestration is similar.<sup>11</sup>

### 10x greater

ANNUAL CARBON SEQUESTRATION RATE BY VEGETATED COASTAL ECOSYSTEMS IN THE WORLD (SALT MARSHES, MANGROVES, AND SEAGRASSES) THAN TERRESTRIAL FOREST SYSTEMS.<sup>12</sup>

Salt marshes are one of the most productive ecosystems in the world, sequestering millions of tons of carbon annually.<sup>13</sup> Rapid loss of blue carbon sinks like salt marshes could release large amounts of stored carbon into the atmosphere, further accelerating climate change.<sup>14</sup> Protecting coastal ecosystems helps prevent this by leaving room for salt marsh migration.



## RECREATION & TOURISM

### \$48/day BEACH DAY

Estimated value (town fee revenue and consumer Willingness to Pay) for a New England beach without closure history from poor water quality - \$22/day for a beach with closure history.<sup>15</sup>

### 81%

OF NEW ENGLAND RESIDENTS PARTICIPATE IN SOME FORM OF OCEAN RECREATION.<sup>16</sup>



### \$488M +

Annual value of direct spending on marine recreational boating in Massachusetts in 2012 - the second highest in the U.S. behind NY.<sup>17</sup>



## COMMUNITY SPOTLIGHT

Through 2050, the Damde Meadows and Broad Meadows salt marsh restoration projects in Hingham and Quincy are projected to result in increased carbon burial equivalent to avoiding the combustion of over 800,000 gallons of gasoline.<sup>18</sup>

## Threats

Climate change and development are two of the biggest threats facing coastal areas.

### CLIMATE CHANGE



**2.9°F RISE IN TEMP** since 1895



**11" SEA LEVEL RISE** since 1922, as measured in Boston Harbor



**55% STRONGER STORMS** since 1958<sup>19, 20</sup>

Sea level rise and stronger storms are flooding and eroding coastal and salt marsh habitat, and warmer water temperatures are disrupting food webs and the integrity of coastal ecosystems.

### DEVELOPMENT



In the northeastern US, coastal areas are among the most at-risk communities as they face serious pressures from continuing development.

**See our *Losing Ground* report and community planning resources for ways to reduce development impacts.**

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