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RESTORATION OF TIDALLY RESTRICTED SALT MARSHES AT RUMNEY MARSH, REVERE, MASSACHUSETTS: BALANCING FLOOD PROTECTION WITH MARSH RESTORATION BY USE OF SELF-REGULATING TIDEGATES

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Prior to enactment of legislation regulating such activities, tidegates were typically installed in coastal wetlands to provide flood protection to low-lying property within coastal floodplains. Tidegates operated by unidirectional flow lower salinity in the up-gradient wetlands, often leading to colonization by *Phragmites australis* (common reed). Dense *Phragmites* growth typically impairs freshwater drainage and increases flooding problems. Installing bidirectional flow tidegates can improve drainage conditions, increase saline tidal flow, help control *Phragmites*, and restore normal salt marsh plant assemblages.

Prior to restoration actions, Rumney Marsh, located in Revere, Saugus and Lynn, Massachusetts, had 21 missing, non- or poorly functional tidegates with up-gradient wetlands. These tidegates were located at 15 sites and adversely affected more than 130 acres of wetlands. Between 1997 and 2001, 11 Self-Regulating Tidegates (SRTs) were installed at nine of these sites to provide controlled tidal flow to approximately 86 acres of wetlands. The goals of installing these SRTs were to both restore and enhance salt marsh ecology and provide flood protection.

While flood protection has improved with the installation of these new tidegates, numerous problems such as lack of maintenance of the tidegates and culverts, engineering error, vandalism, and non-compliance with permit conditions have limited the success of these efforts. This work-in-progress requires continued effort to correct deficiencies and achieve the desired flood protection and marsh restoration benefits.

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