



Commonwealth of Massachusetts

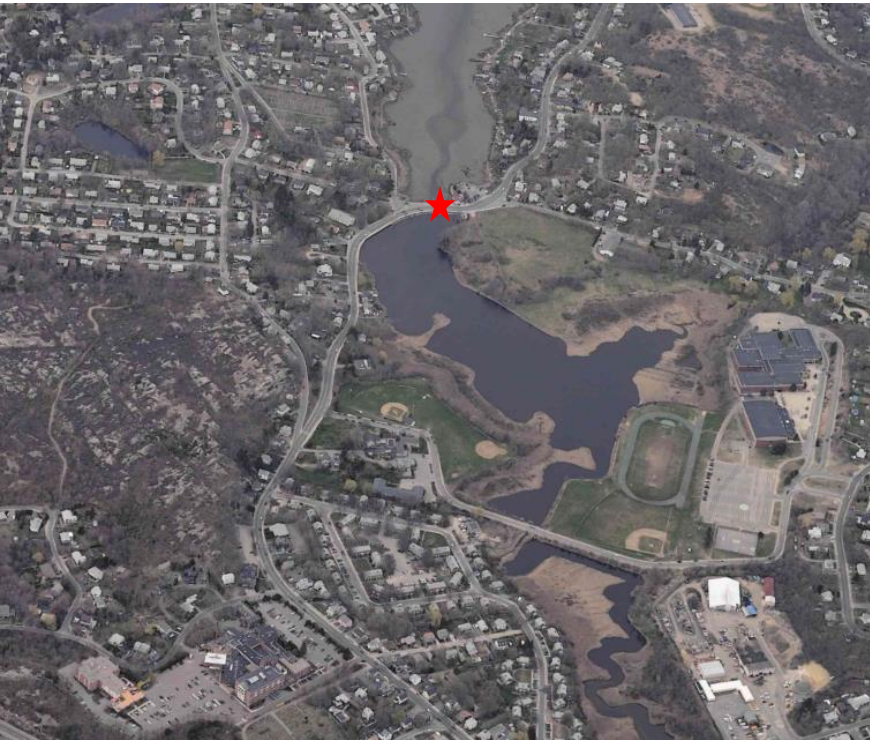
Division of Ecological Restoration

Invested in Nature and Community

The mission of the Division of Ecological Restoration is to restore and protect the Commonwealth's rivers, wetlands and watersheds for the benefit of people and the environment.

Mill River Restoration Project *Gloucester, MA*

Georgeann Keer, DER





Proposed Combination (Sluice/Flap) Gate
Gate to remain open after installation and closed
only for flood risk reduction actions.
Gate to be mounted on north (downstream) side.

Existing Weir
To receive flap gate insert.



Proposed 5 ft x 3 ft Opening

Existing Sluice Gate c.1969
The existing sluice gate will be closed until it is confirmed that the new opening is functioning similar to the sluice gate (by means of post-construction survey). At which time, the sluice gate will be opened 6 inches. Further incremental openings will be made per the O&M



**Mill River, 2012 Configuration
(5.0 ft x 0.5 ft Gate Opening)
March 14 - April 9, 2013**

Tidal Metrics	Upstream Water Elevation (ft.)	Downstream Water Elevation (ft.)
Mean Higher-High Water	3.84	5.05
Mean High Water	3.63	4.71
Mean Tide Level	1.16	1.28
Mean Low Water	-1.30	-2.15
Mean Lower-Low Water	-1.34	-2.18
Tidal Maximum	4.62	6.68
Tidal Minimum	-1.47	-2.23
Mean Tide Range	4.93	6.86

Tidal Metrics	
Tide Range Ratio	72%
Tide Dampening (feet)	2.06
Phase Delay (minutes)	102

**Mill Pond 2015 Gate Configuration
Gloucester, MA
May 13 - June 15, 2015**

Tidal Metrics	Upstream Water Elevation (ft.)	Downstream Water Elevation (ft.)
Mean Higher-High Water	3.69	4.53
Mean High Water	3.41	4.13
Mean Tide Level	0.61	0.70
Mean Low Water	-2.18	-2.72
Mean Lower-Low Water	-2.25	-2.78
Tidal Maximum	4.53	5.93
Tidal Minimum	-2.68	-3.19
Mean Tide Range	5.59	6.85

Tidal Metrics	H1
Tide Range Ratio	82%
Tide Dampening (feet)	0.00
Phase Delay (minutes)	84