FISH PASSAGE PROJECTS IN NEW ENGLAND DISTRICT

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New England District

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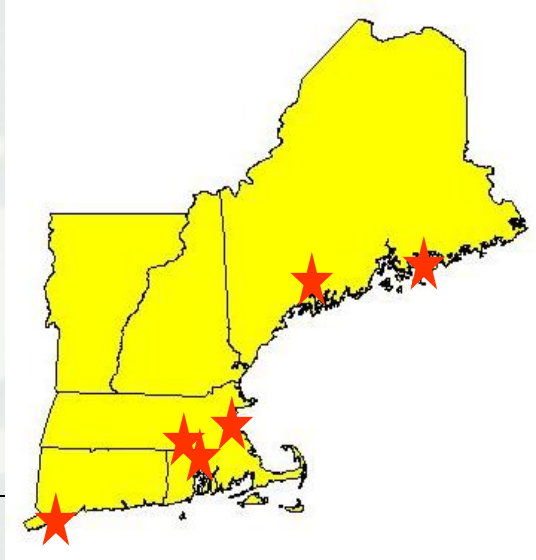
US Army Corps of Engineers

BUILDING STRONG®

New England District Fish Passage Projects

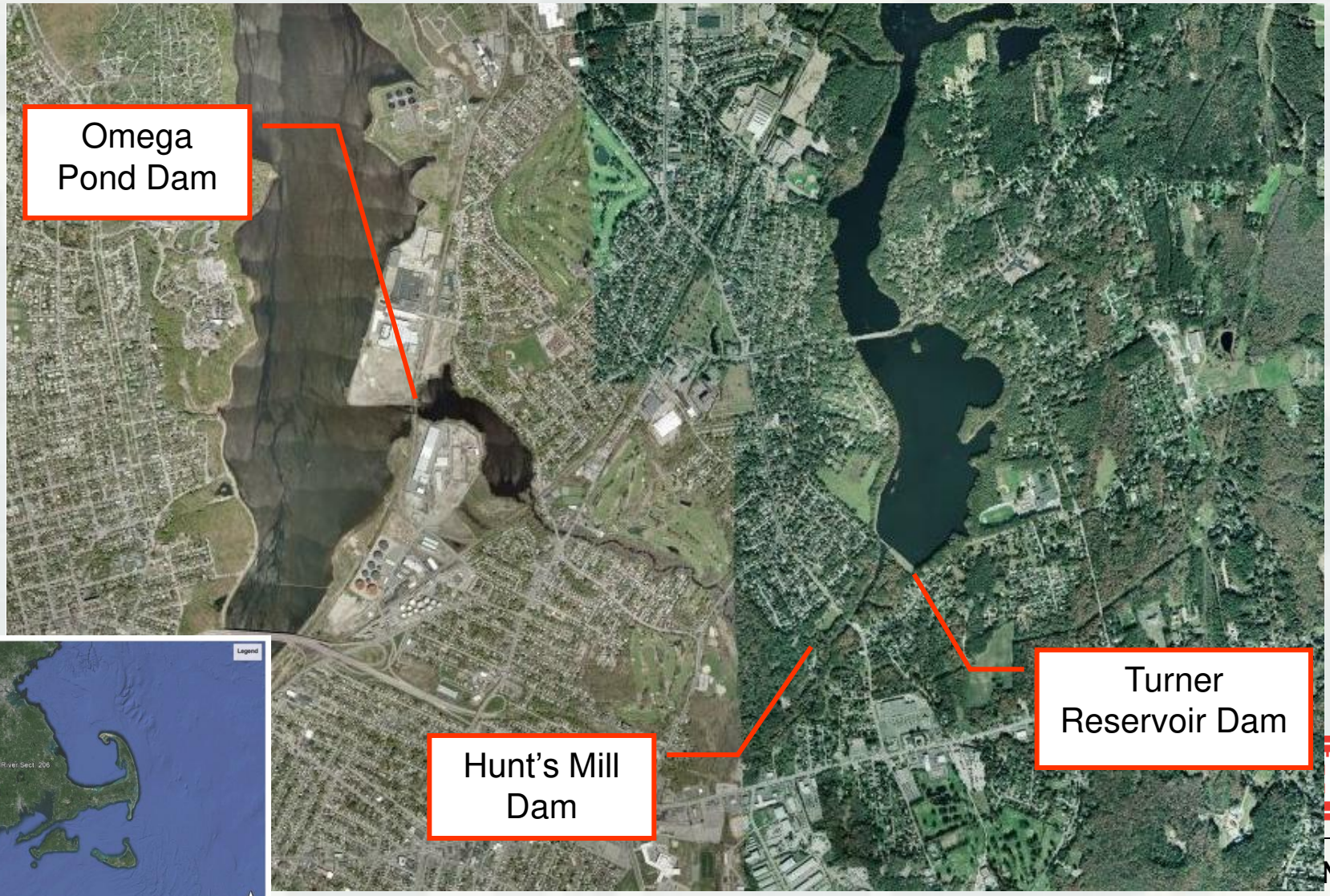
- Fish Ladders
    - Ten Mile River, East Providence, RI – 2012
- Dam Removal/Channel Restoration
    - Presumpscot River, Smelt Hill Dam, Falmouth, ME - 2003
    - Mill River, Stamford, CT – 2011
- Riparian Restoration
    - Lonsdale Marsh, Cumberland, RI – 2003
- Ongoing/upcoming Projects
    - Blackstone River
    - Cherryfield Dam
    - Smelt Brook/Fore River



Galilee Culverts Pre-Project

SRT Gates at Galilee

Ten Mile River



Omega Pond Dam

Omega Pond Ladder Location

Omega Pond Fish Ladder

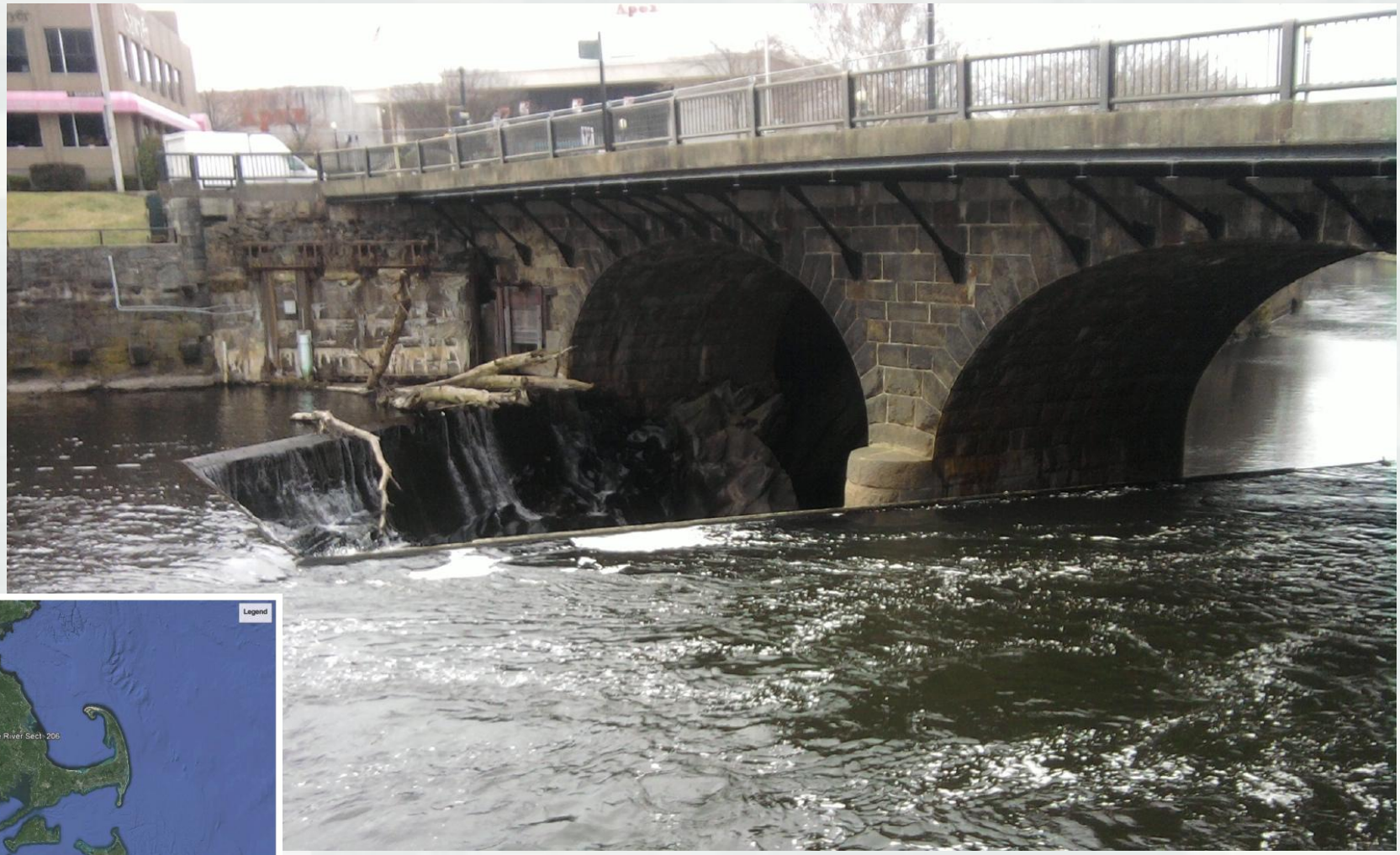
Hunt's Mill Dam

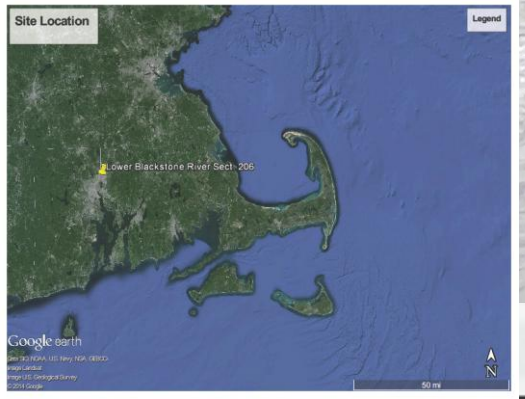
Hunt’s Mill Fish Ladder

Turner Reservoir Fish Ladder


Blackstone, Ten Mile, and Seekonk Rivers
Legend
Sect. 206
Lonsdale Marsh Sect. 206
Blackstone River
Lower Blackstone River Sect. 206
Seekonk River
Ten Mile River
Ten Mile River Sect. 206
Google earth
N
3 mi

Blackstone River – Main Street Dam



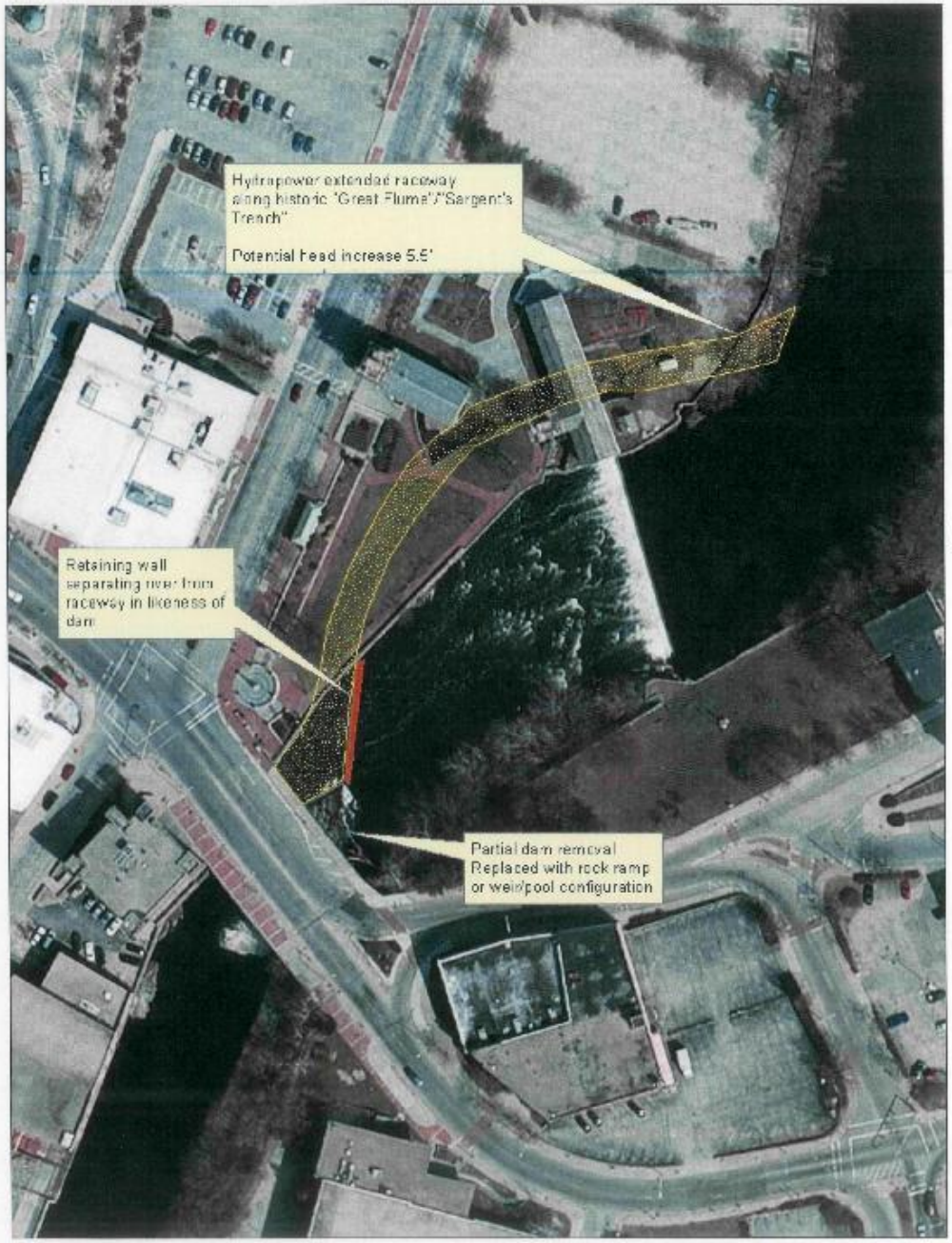


Blackstone River – Main Street Dam

Main Street Dam

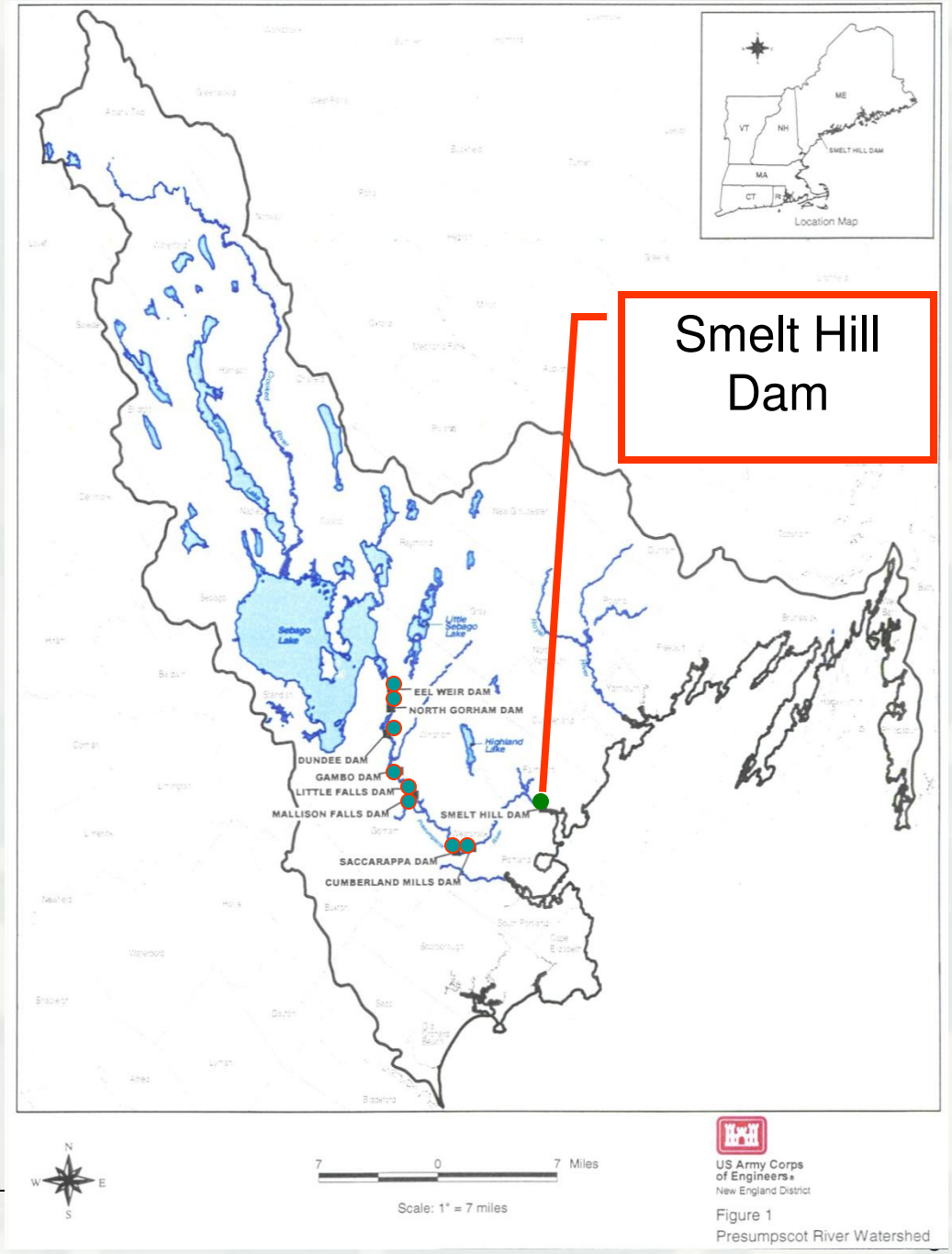
Slater Mill Dam

Sergeant's Trench



Blackstone River – Elizabeth Webbing Dam

Presumpscot River / Casco Bay Watershed



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Smelt Hill Dam

Smelt Hill Dam Removal

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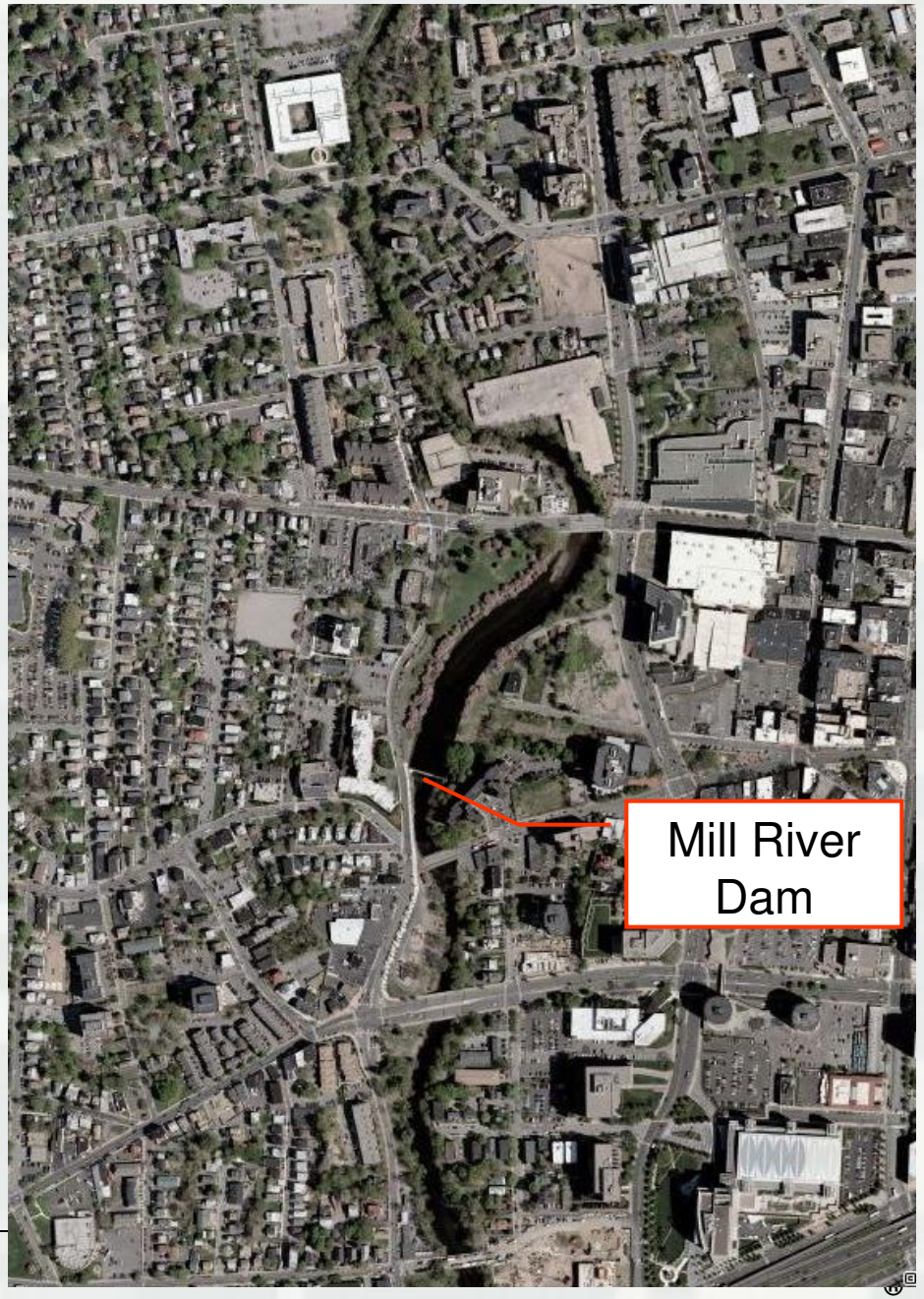
The Presumpscot River

Presumpscot Falls

Mill River
Stamford, CT



U.S.ARMY

Mill River Stamford, CT

U.S.ARMY

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Mill River - April 2010

Mill River
Stamford

Osgood Pond

Atlantic Mills Dam, Providence, RI

Narrow River

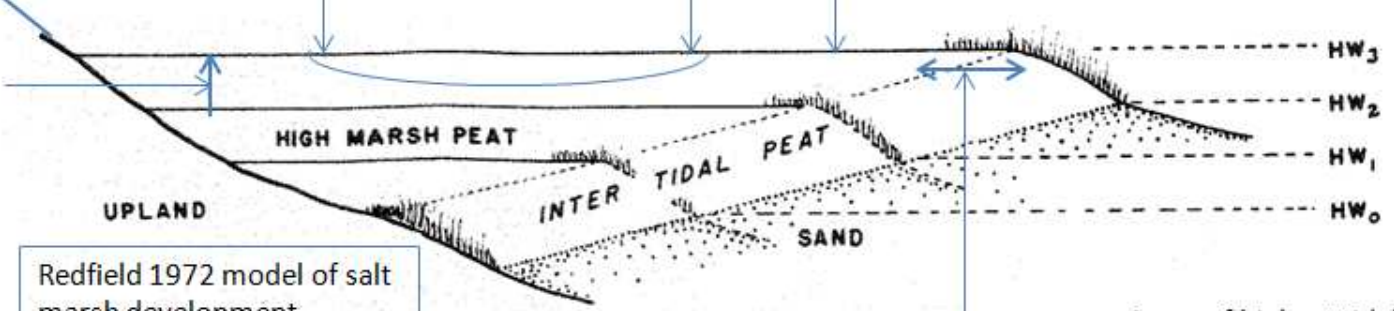
Upland sediment source – influenced by land use and sediment management practices

More than 60% of Barnstable marsh studied by Redfield in 1972 was short *S. alterniflora*.[1] With fertilization, *S. alterniflora* competitively displaces *S. patens*[2] and the alteration of hydrology caused by the change to *S. alterniflora* allows it to persist.[3]

Sediment deposition is limited by the availability of suspended sediment and the opportunity for it to be transported onto the marsh surface.[10]

Estuary sediment source
Suspended sediment concentration decreases with distance from open water.[6]
Storms are significant source of sediment.[6]

Waterlogging decreases plant growth.[9] The driver is whatever causes the waterlogging.



Redfield 1972 model of salt marsh development

High marsh must have sufficient inundation, sediment input (to maintain bulk density), and plant growth to accrete with SLR. High marshes have kept pace with up to 7 mm/yr in the short term.[5]

SLR – ~2.5 mm/yr

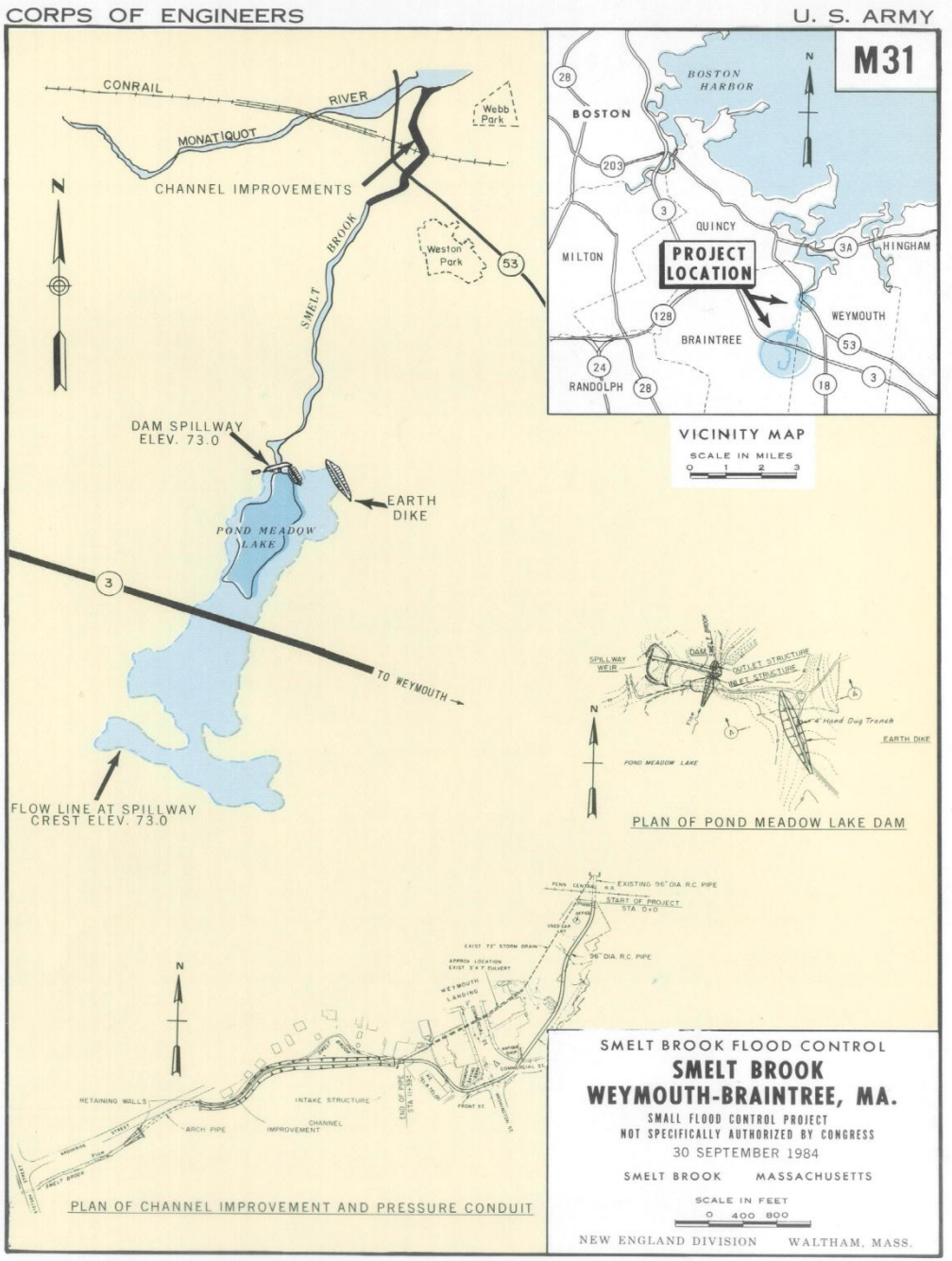
Areas of highest tidal range have the highest sedimentation rates.[4,6] Higher tide range correlates with higher primary productivity.[7] The amount of tidal energy (tide range) is important in determining the rate of marsh accretion.[8]

Creekbank levees cause bi-directional flow of soil water[3]

Cherryfield Dam

Cherryfield Dam

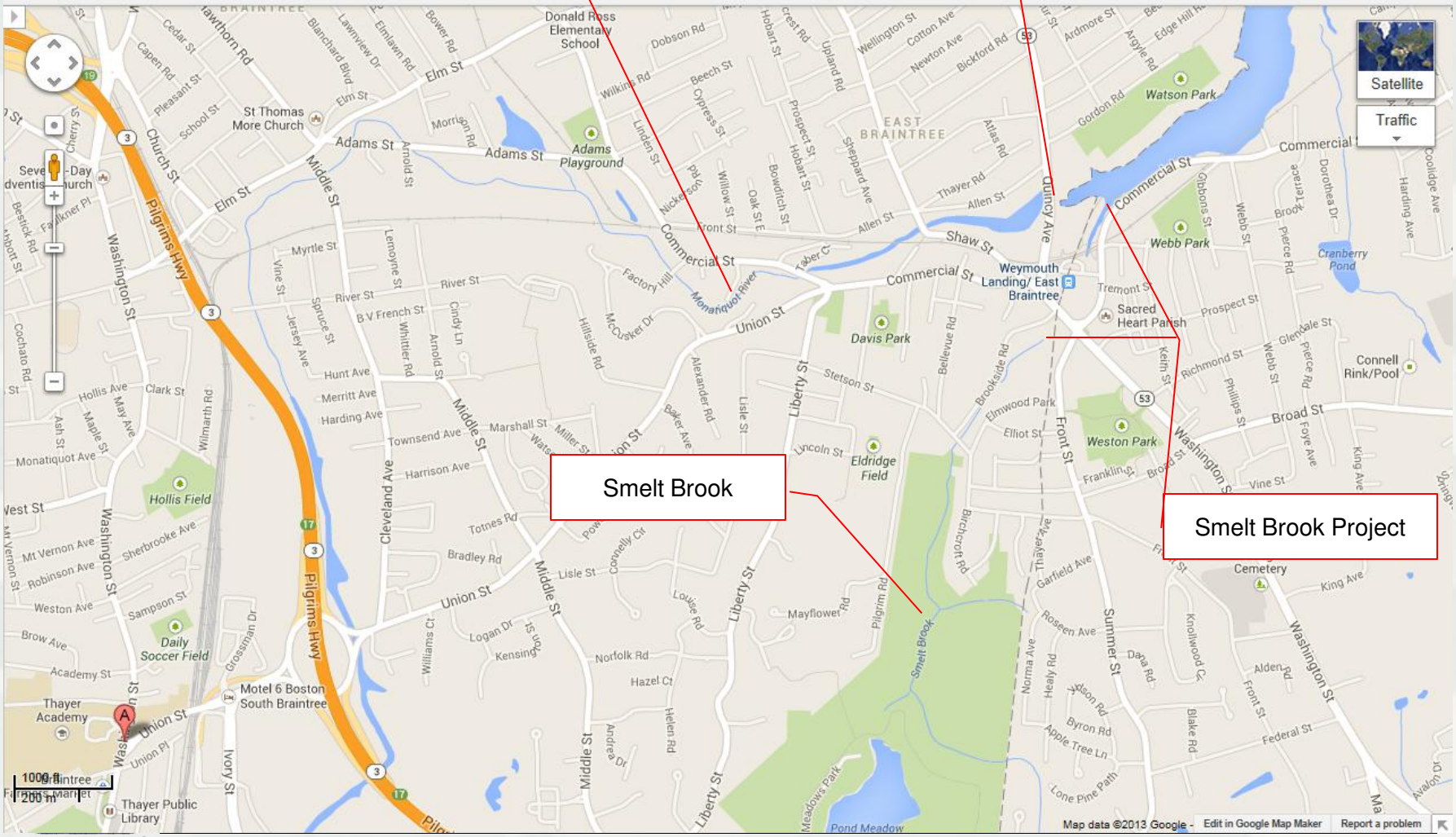
Smelt Brook / Fore River



Smelt Brook / Fore River

Weymouth- Fore River Project Upstream Limit

Monatiquot River



Discussion