Using Flood Insurance Rate Maps to Identify Potential Conservation Areas within Floodplains

7th Annual Rhode Island
Land & Water Conservation Summit
March 27, 2010
URI Memorial Union
Kingston, RI

Introductions

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Janet Freedman, Coastal Geologist, RI Coastal Resources Management Council, RIFMA Board

Topics

- What is a floodmap?
- Using floodplains as conservation criteria
- Identifying lands for coastal wetlands migration as sea levels rise
- ARRA funding for floodplain restoration
- How to get the maps

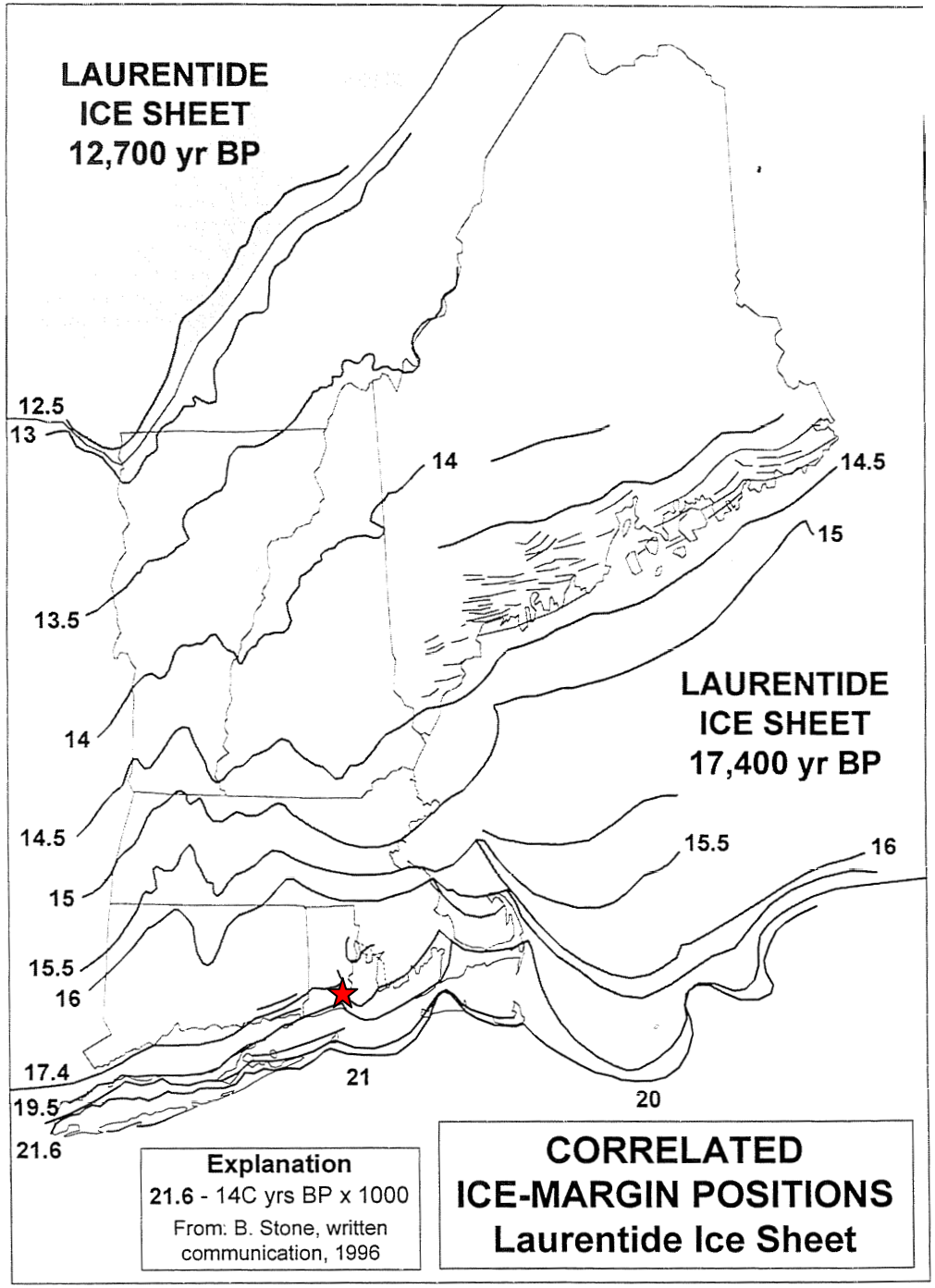
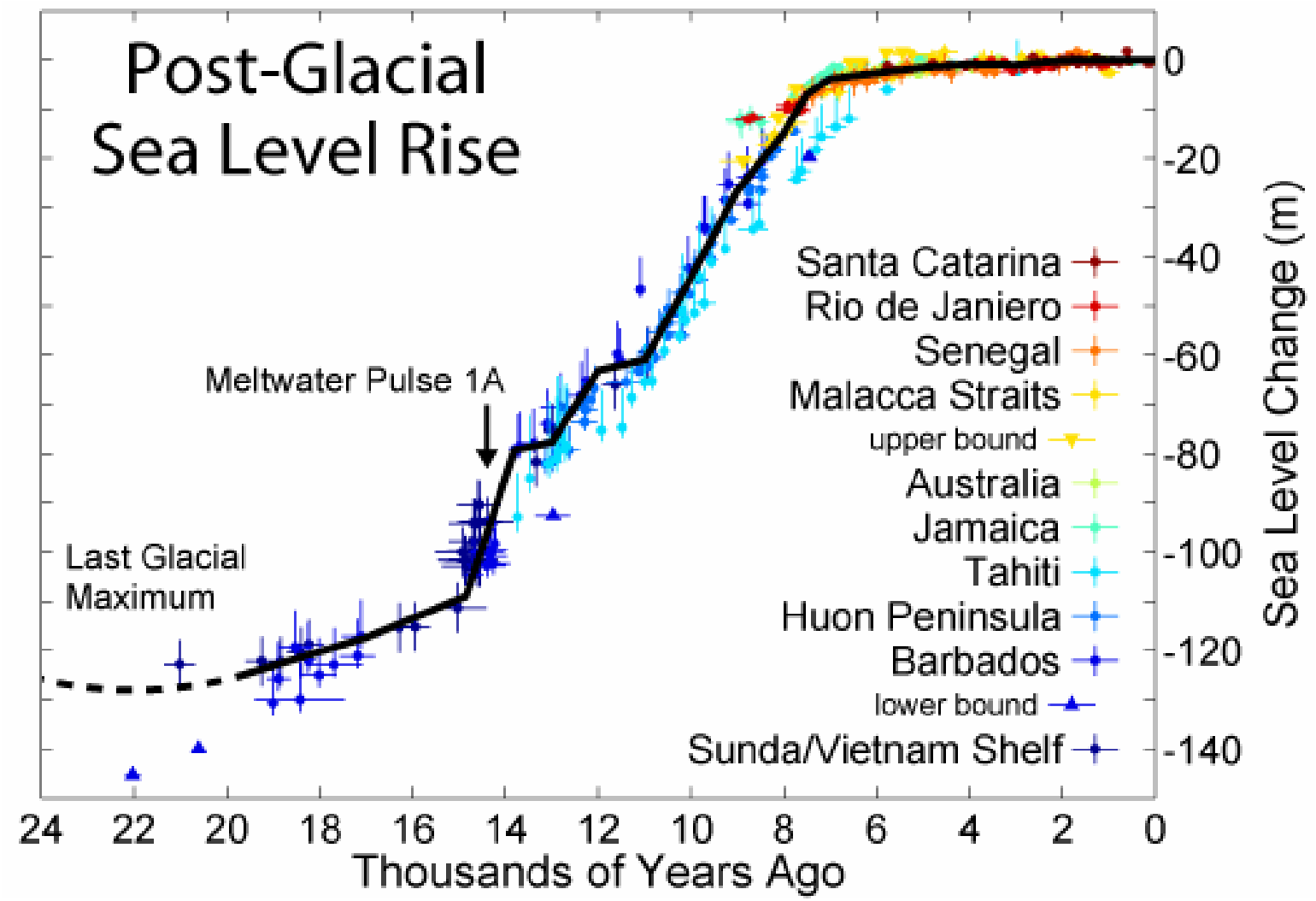
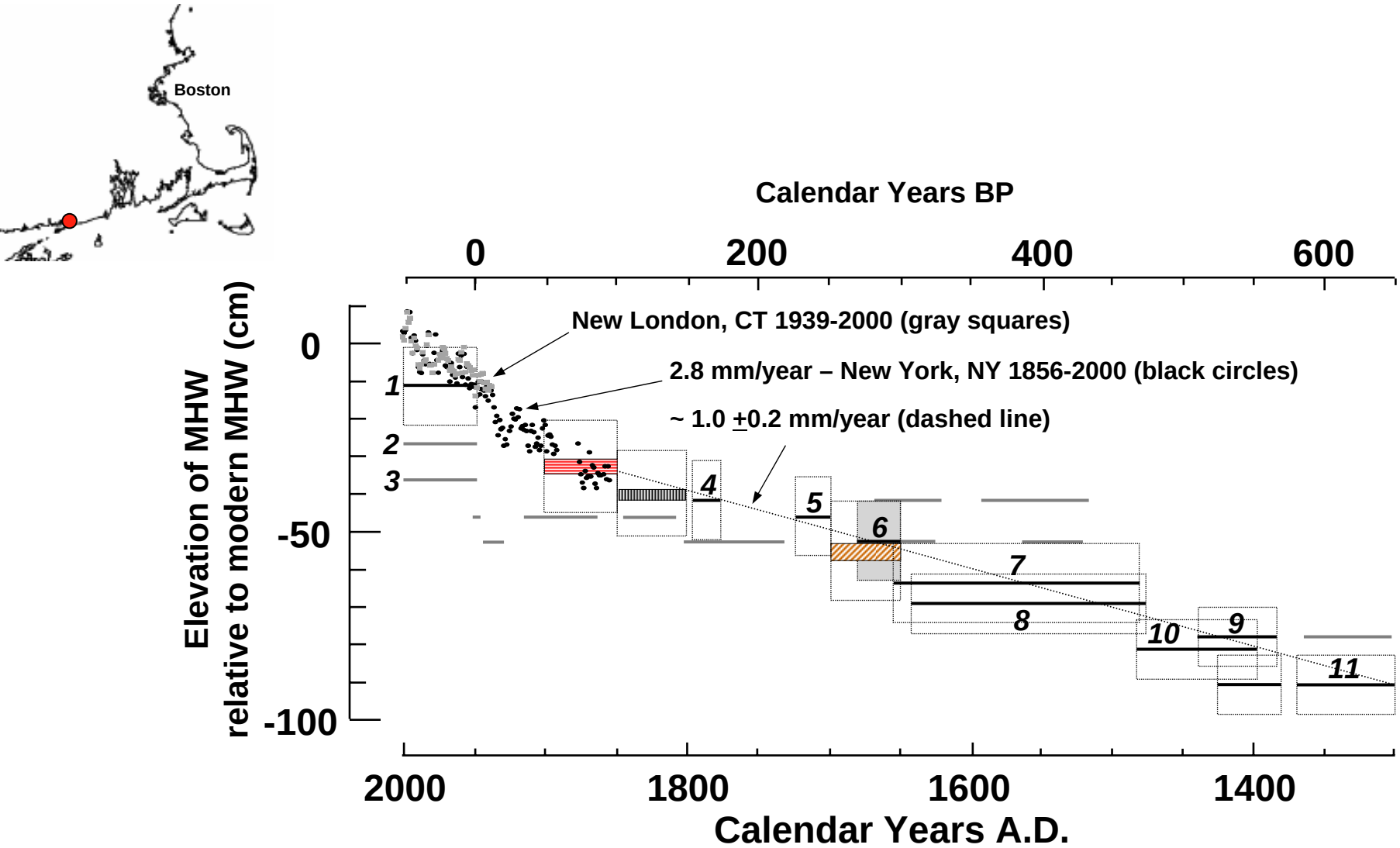


Figure 2. Correlated ice-margins positions for Laurentide ice in New England. From B. Stone (1996).

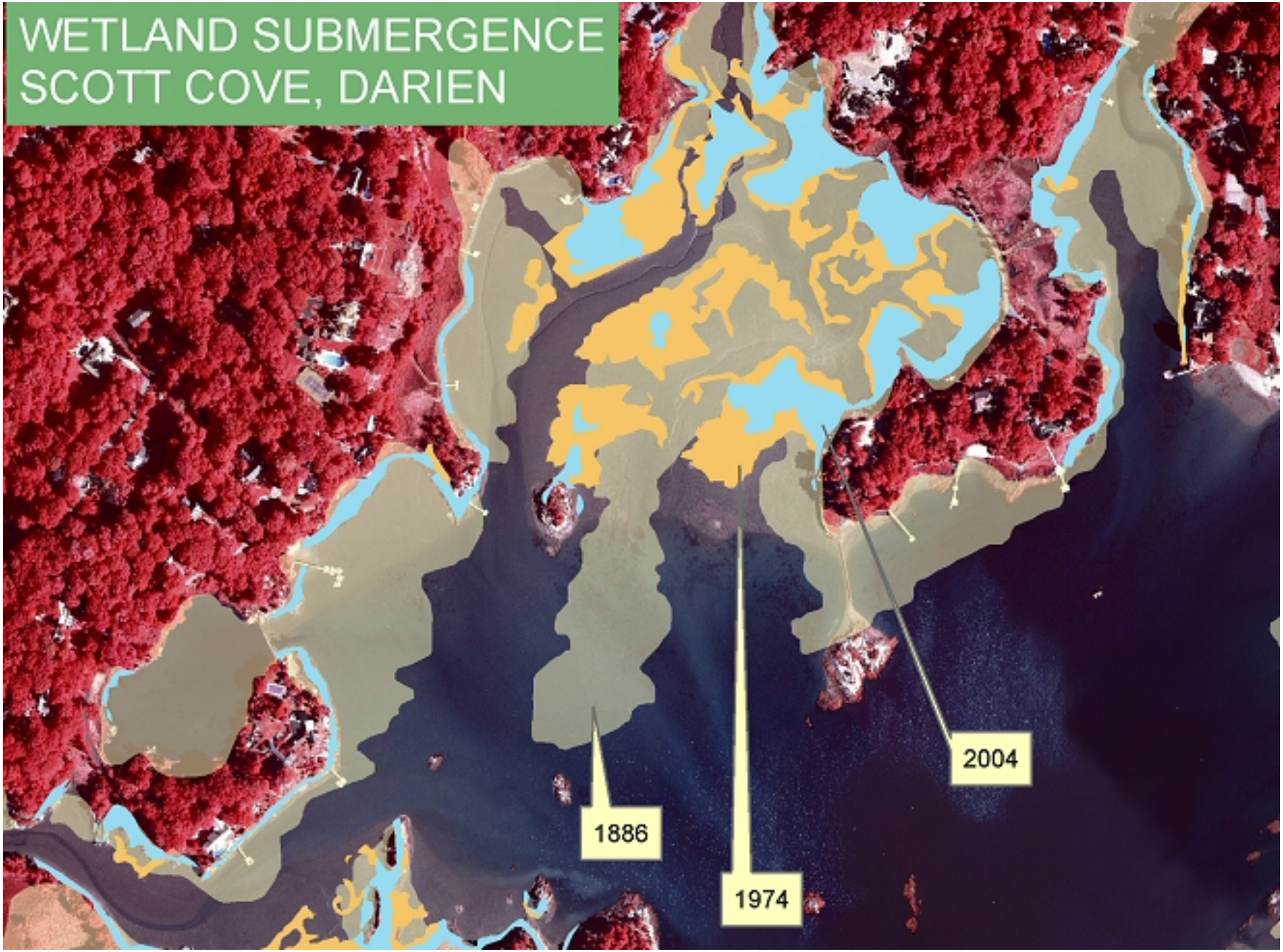


Fleming et al. 1998, Fleming 2000, & Milne et al. 2005.

Barn Island, Stonington, CT, Sea Level Reconstruction

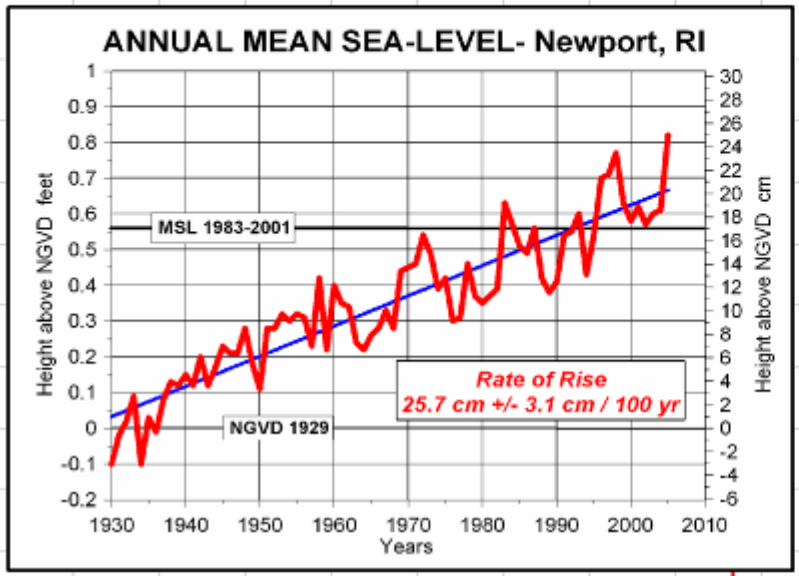


Donnelly et al., 2004 (GRL, v. 31, L05203)



Source: CT Department of Environmental Protection Office of Long Island Sound Programs

ACCELERATED SEA-LEVEL RISE - Newport, RI



GEOLOGICAL SURVEY RHODE ISLAND

COASTAL HAZARDS GROUP
GEOSCIENCES Univ RI
Boothroyd 2007

IPCC 2001
Land Ice

IPCC 2001
Model Avg

HEIGHT NOW

HISTORIC TREND

MSL 1983-2001

2006

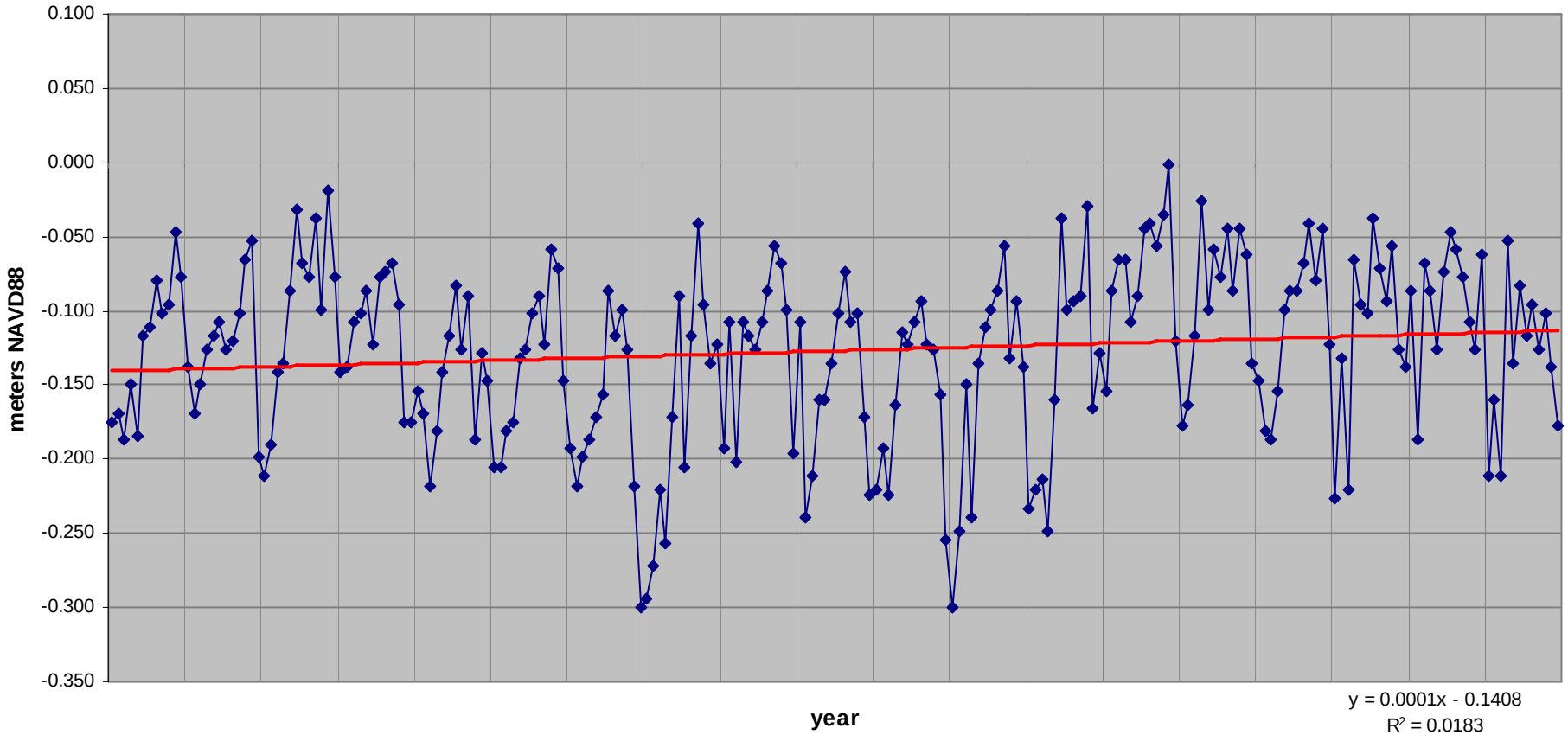
NGVD 1929

Height above NGVD feet

Height above NGVD cm

Years

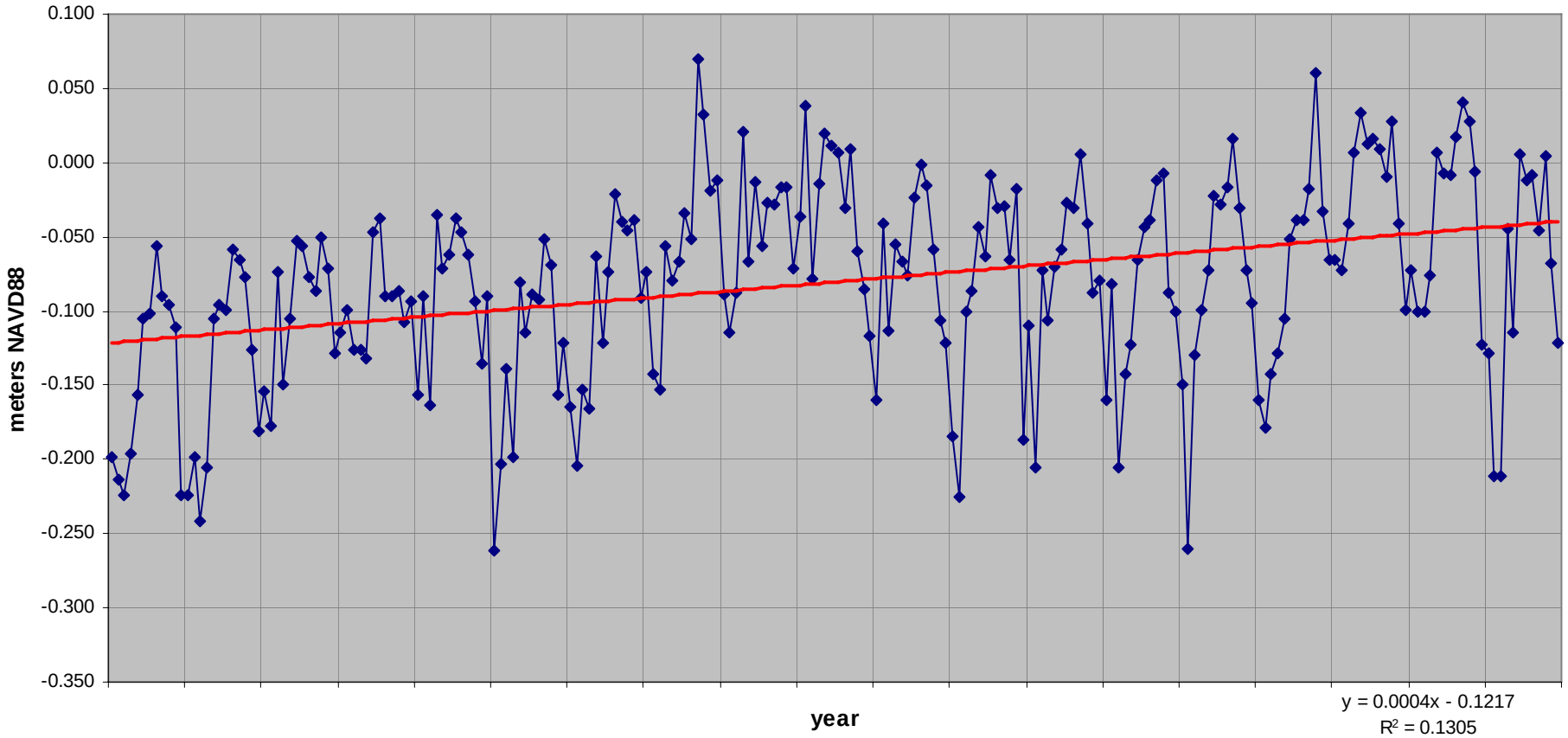
Newport MSL 1970-1988



Mean Relative Sea Level Change +0.05 in/yr (1.27mm/yr)

http://tidesandcurrents.noaa.gov/nwlon.html

Newport MSL 1989-2008



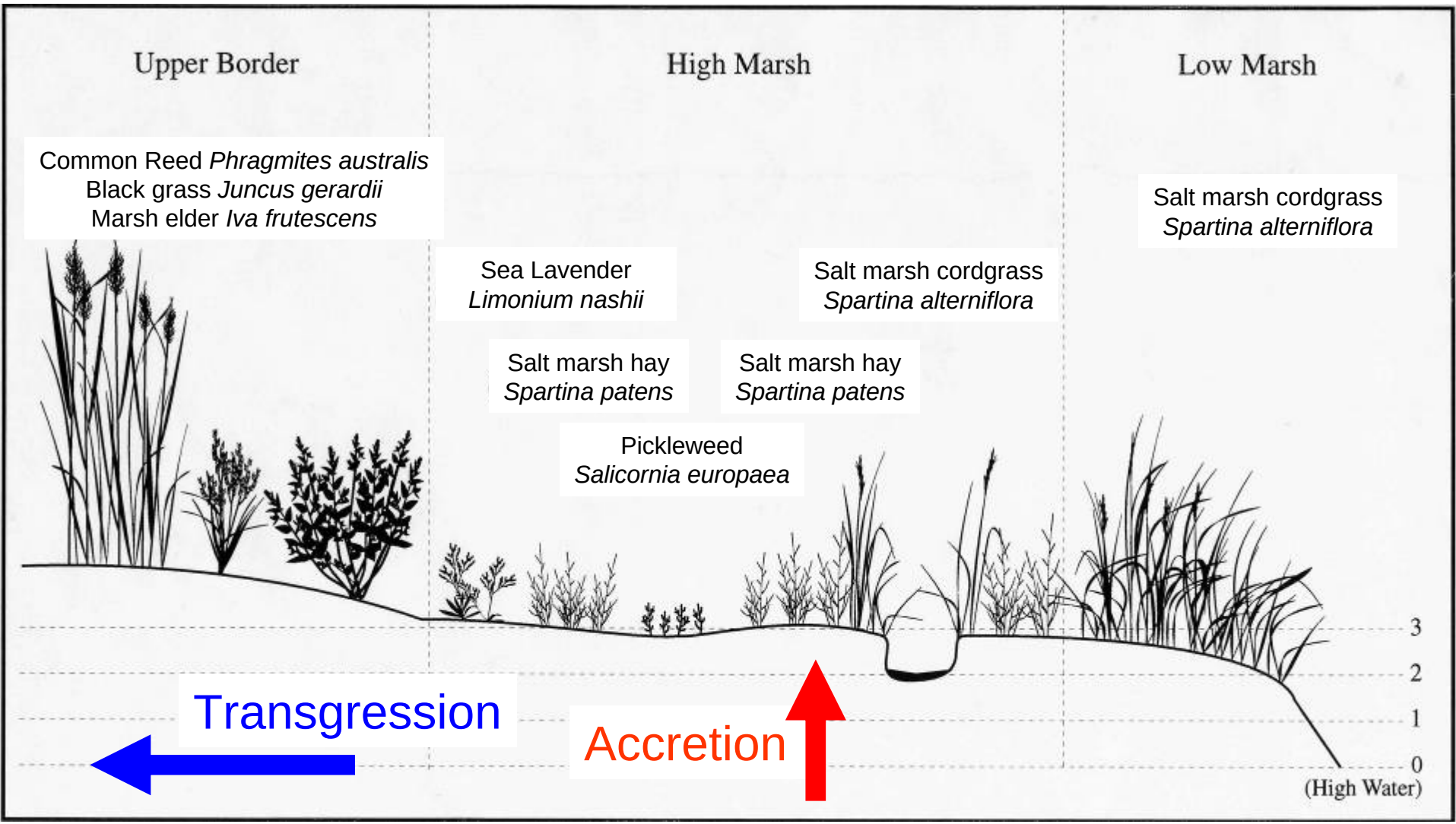
Mean Relative Sea Level Change +0.16 (4.06mm/yr)

http://tidesandcurrents.noaa.gov/nwlon.html

Importance of Salt Marshes

- Nursery for marine organisms (fish, crabs, etc.)
- Important feeding ground for shorebirds and migratory waterfowl
- “Nature’s kidneys”
- Carbon storage

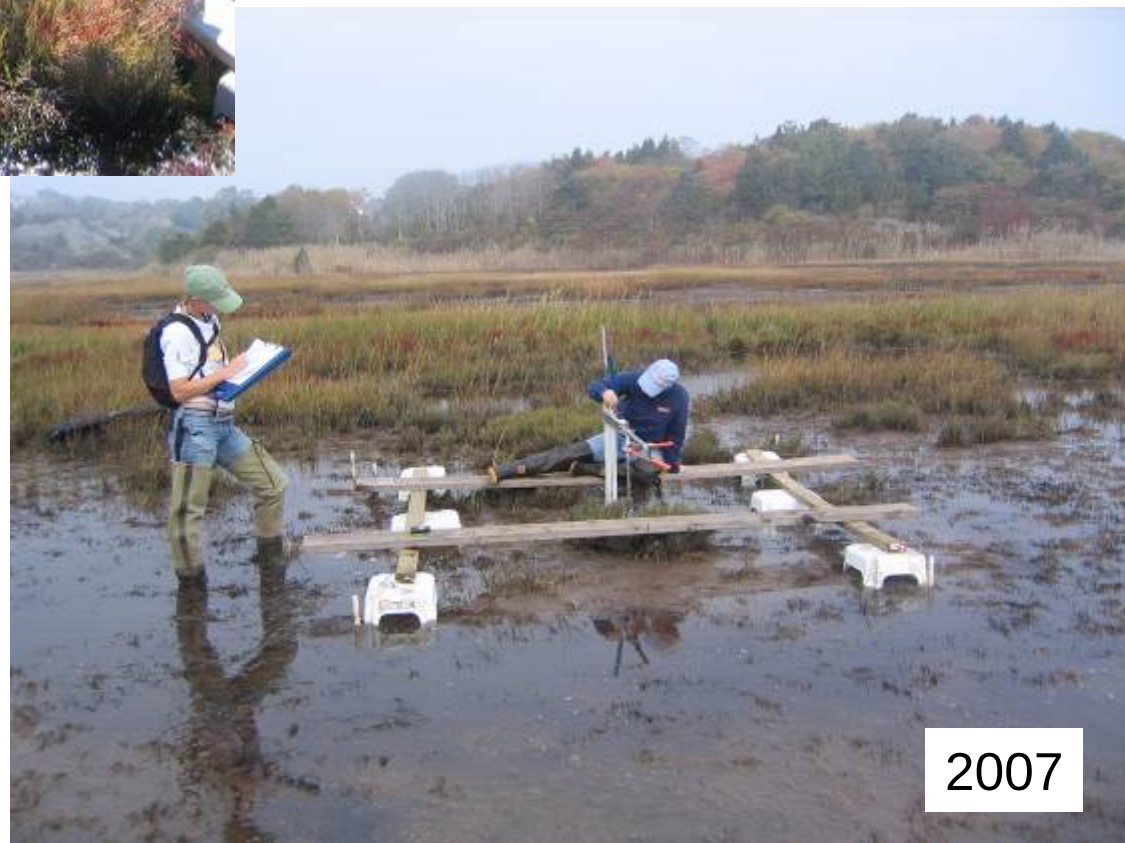
Salt marsh migration



Courtesy of Marci Cole, STB

Courtesy of Marci Cole, STB

Surface elevation table #2
2004 and 2007



Courtesy of Marci Cole, STB

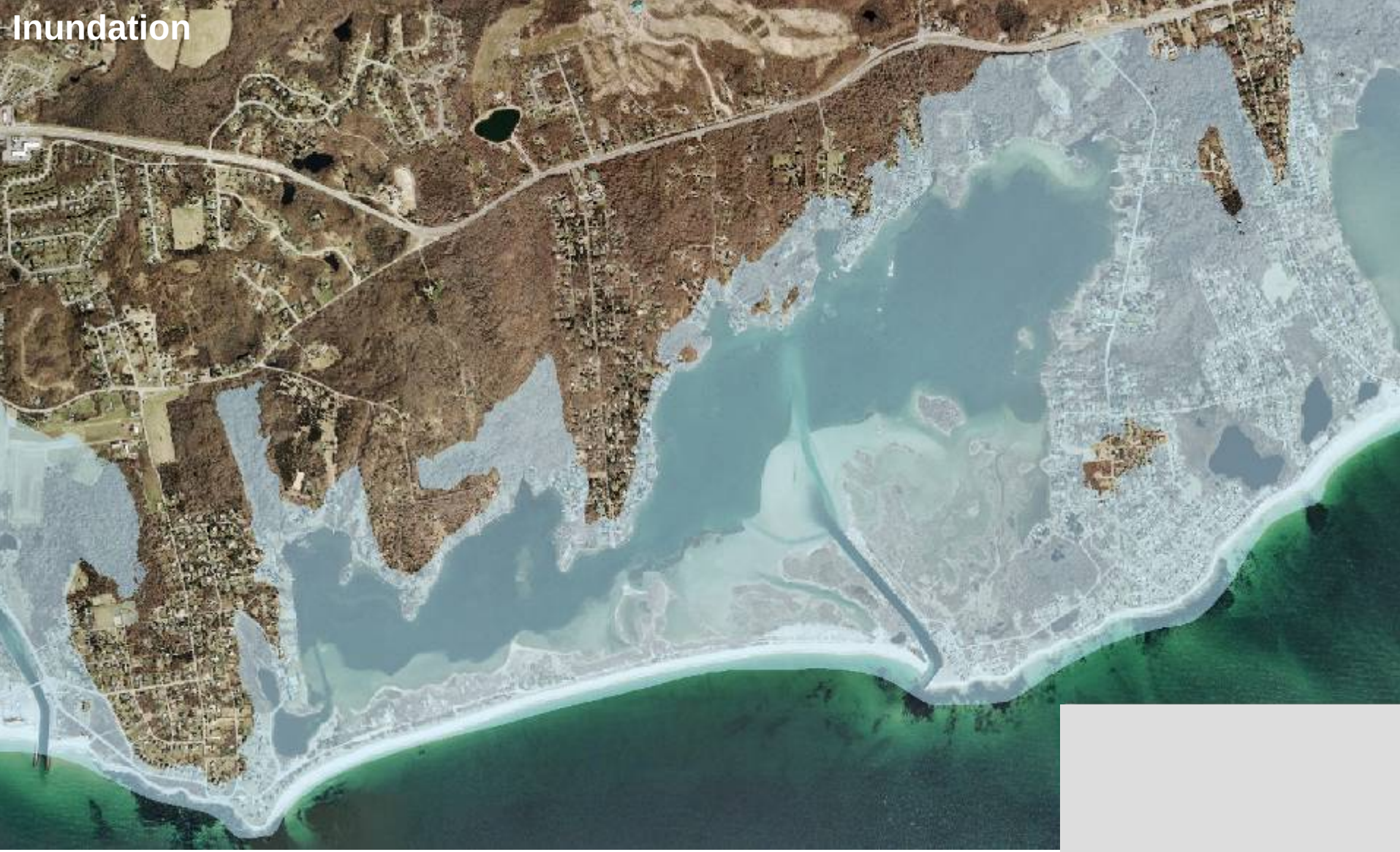
Lands susceptible to **3 feet** of sea level rise - Quonochontaug Pond, Charlestown, RI.

Vinhateiro, 2008

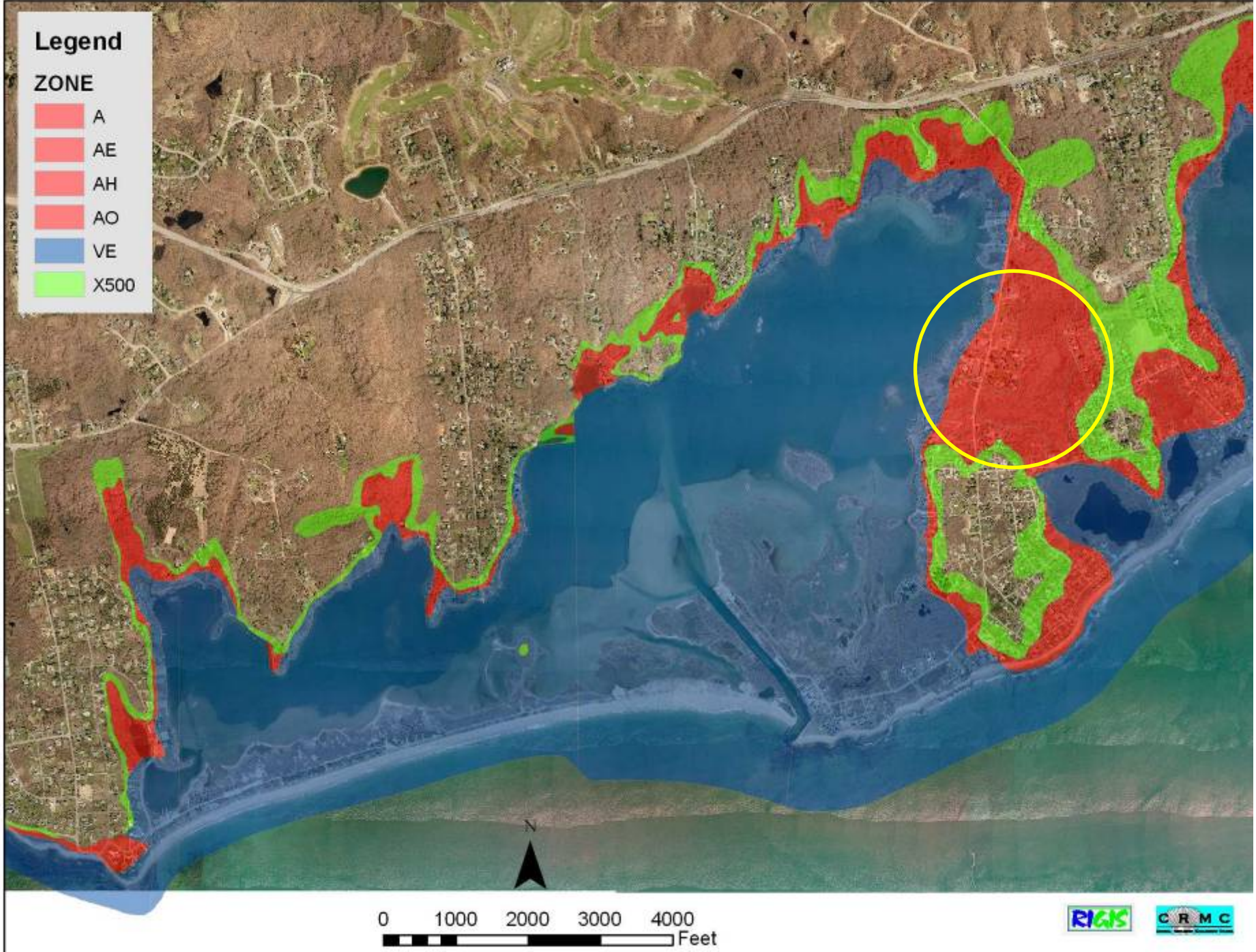
Lands susceptible to **5 feet** of sea level rise - Quonochontaug Pond, Charlestown, RI.

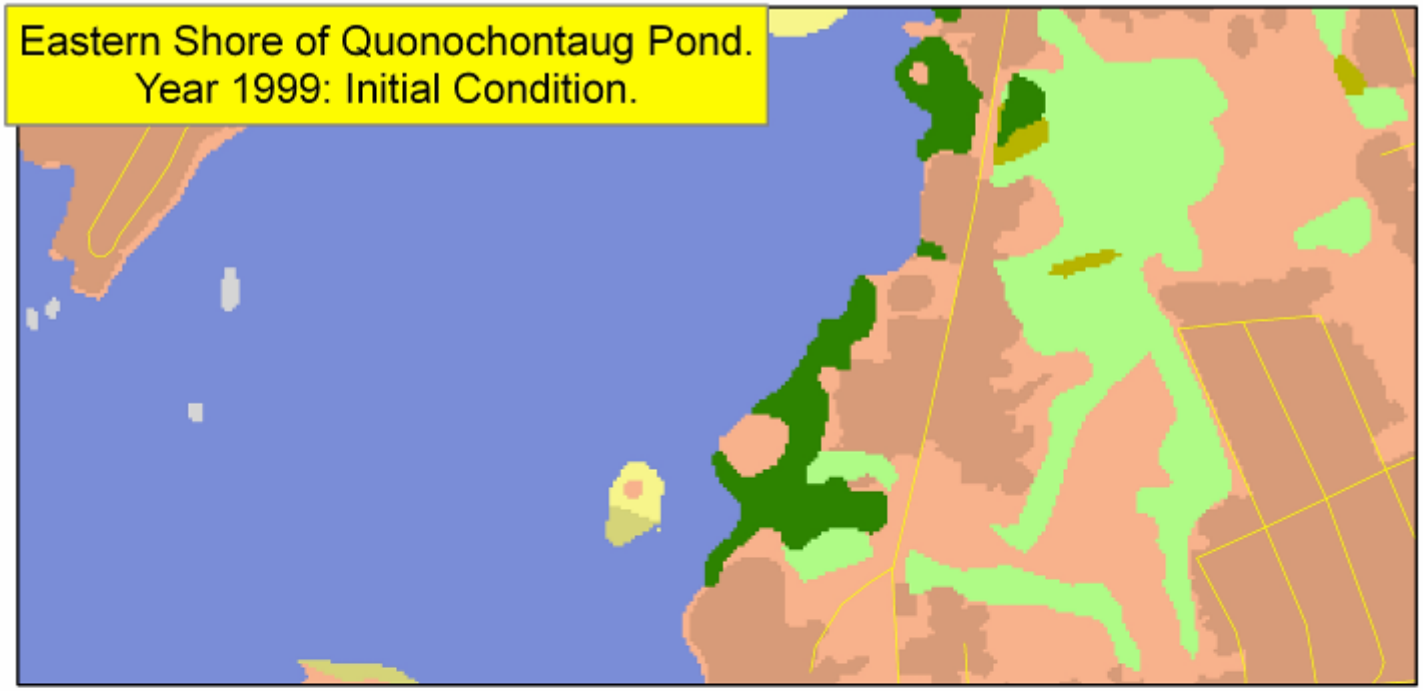
Vinhateiro, 2008

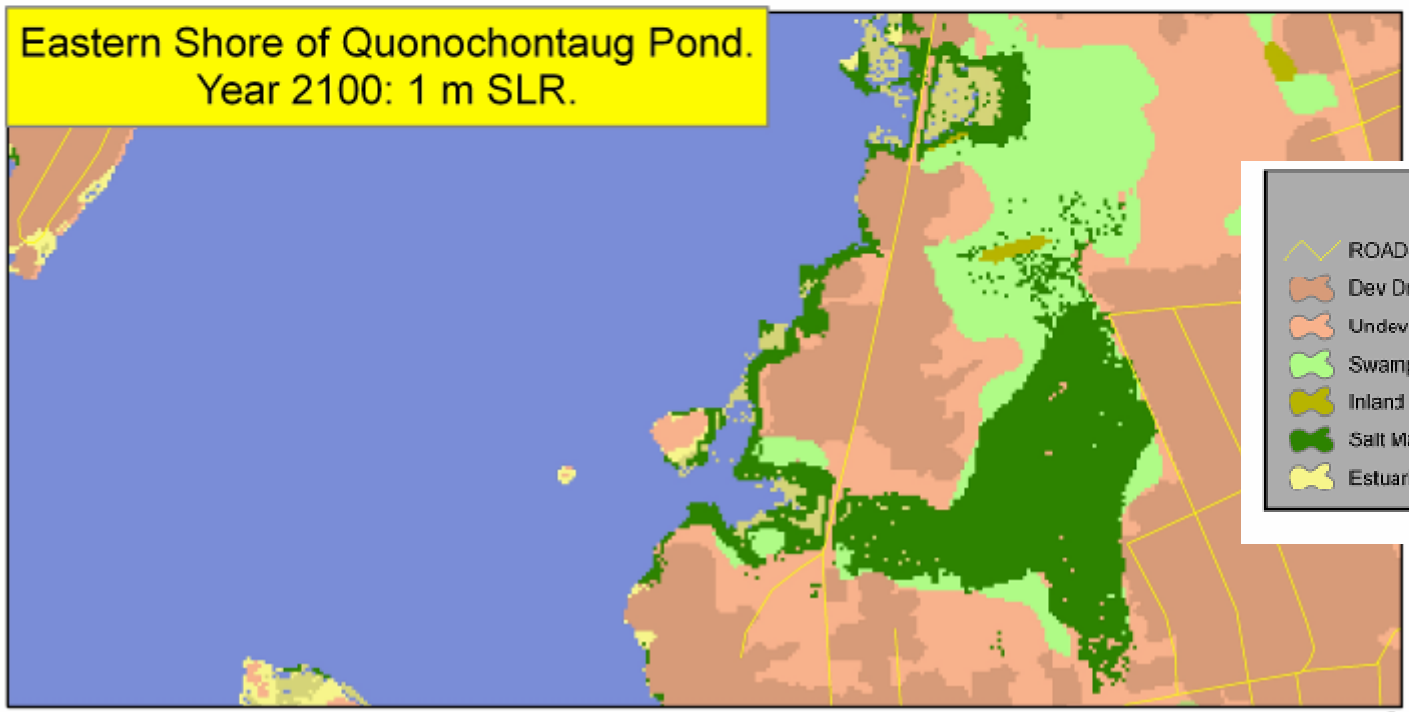
Inundation



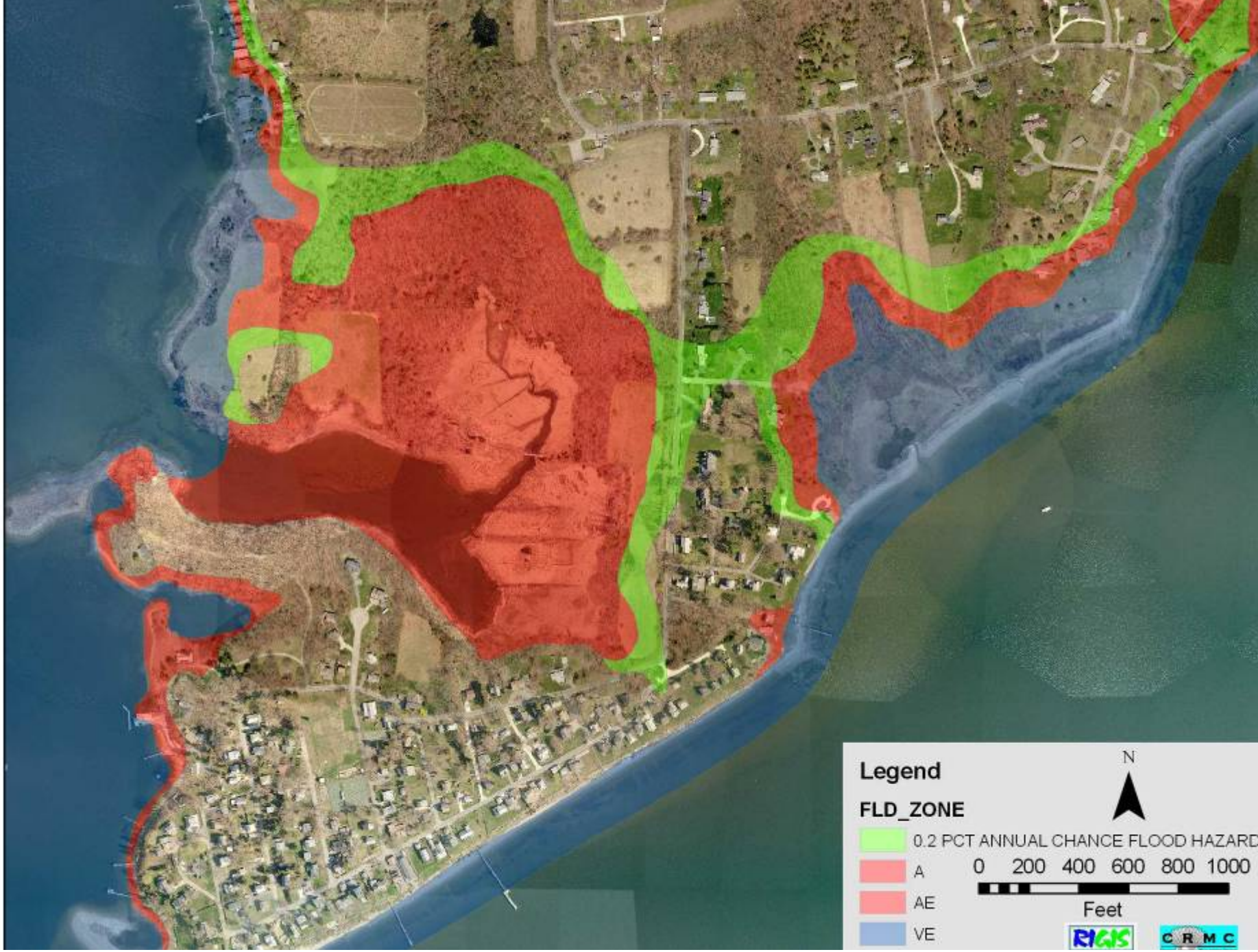
Lands susceptible to 20 feet of sea level rise - Quonochontaug Pond, Charlestown, RI.
Vinhateiro, 2008

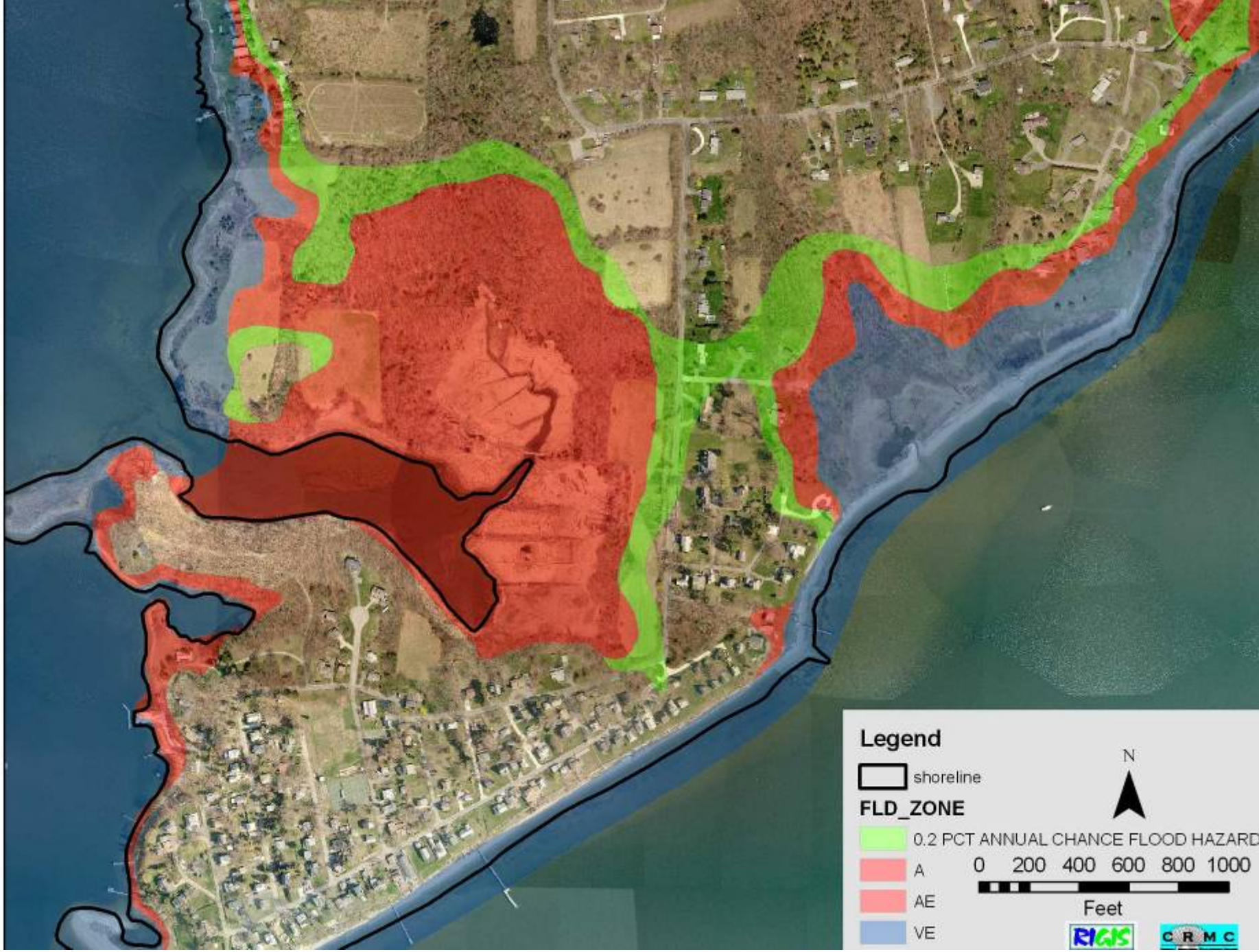

Legend
ZONE
A
AE
AH
AO
VE
X500
N
0
1000
2000
3000
4000
Feet

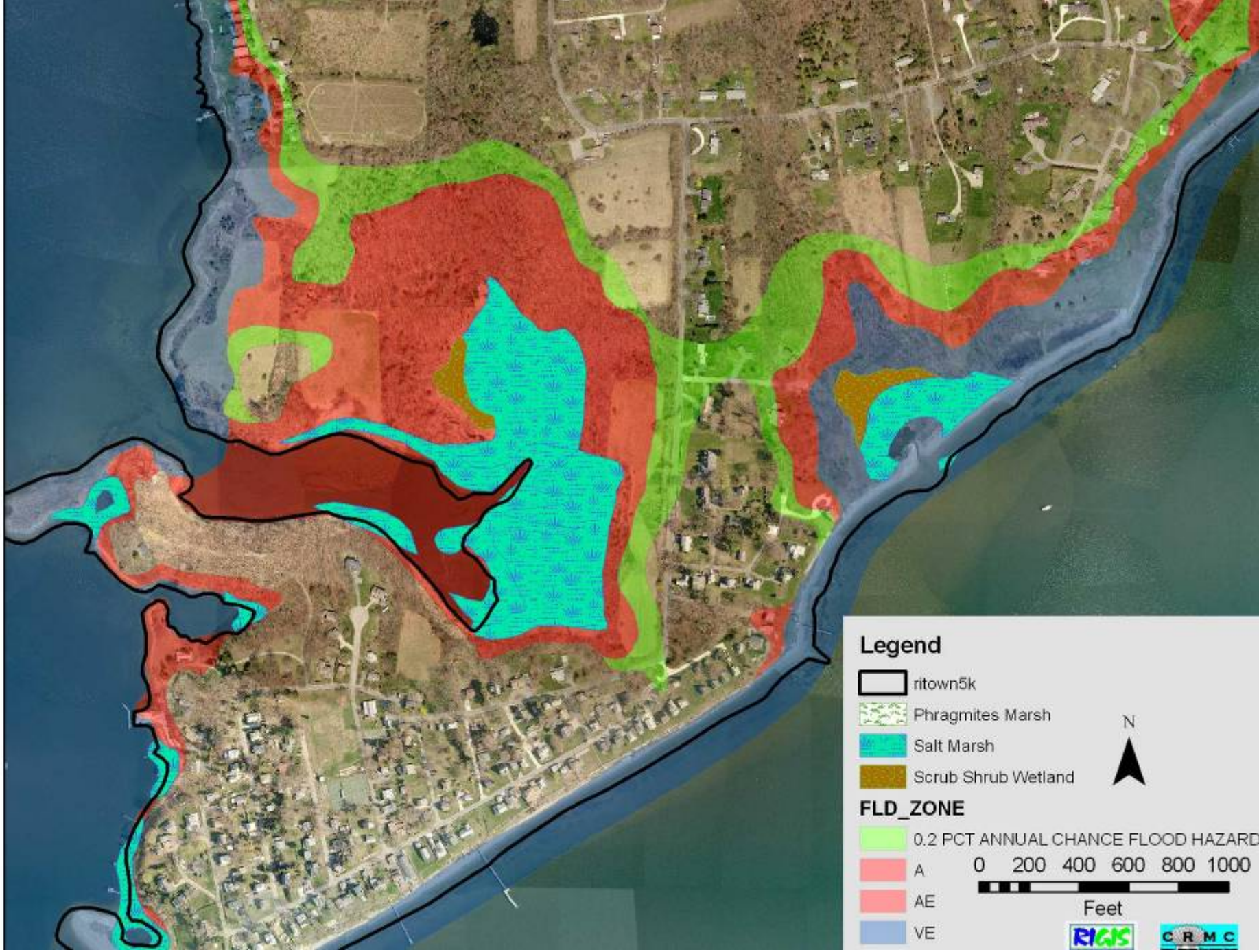




Rob Hancock, 2009


Legend
FLD_ZONE
0.2 PCT ANNUAL CHANCE FLOOD HAZARD
A
AE
VE
N
0 200 400 600 800 1000
Feet
RIGIS
CRMC


Legend
shoreline
FLD_ZONE
0.2 PCT ANNUAL CHANCE FLOOD HAZARD
A
AE
VE
N
0 200 400 600 800 1000
Feet
RIGIS
CRMC


Legend
ritown5k
Phragmites Marsh
Salt Marsh
Scrub Shrub Wetland
FLD_ZONE
0.2 PCT ANNUAL CHANCE FLOOD HAZARD
A
AE
VE
N
0 200 400 600 800 1000
Feet
RIGIS
CRMC