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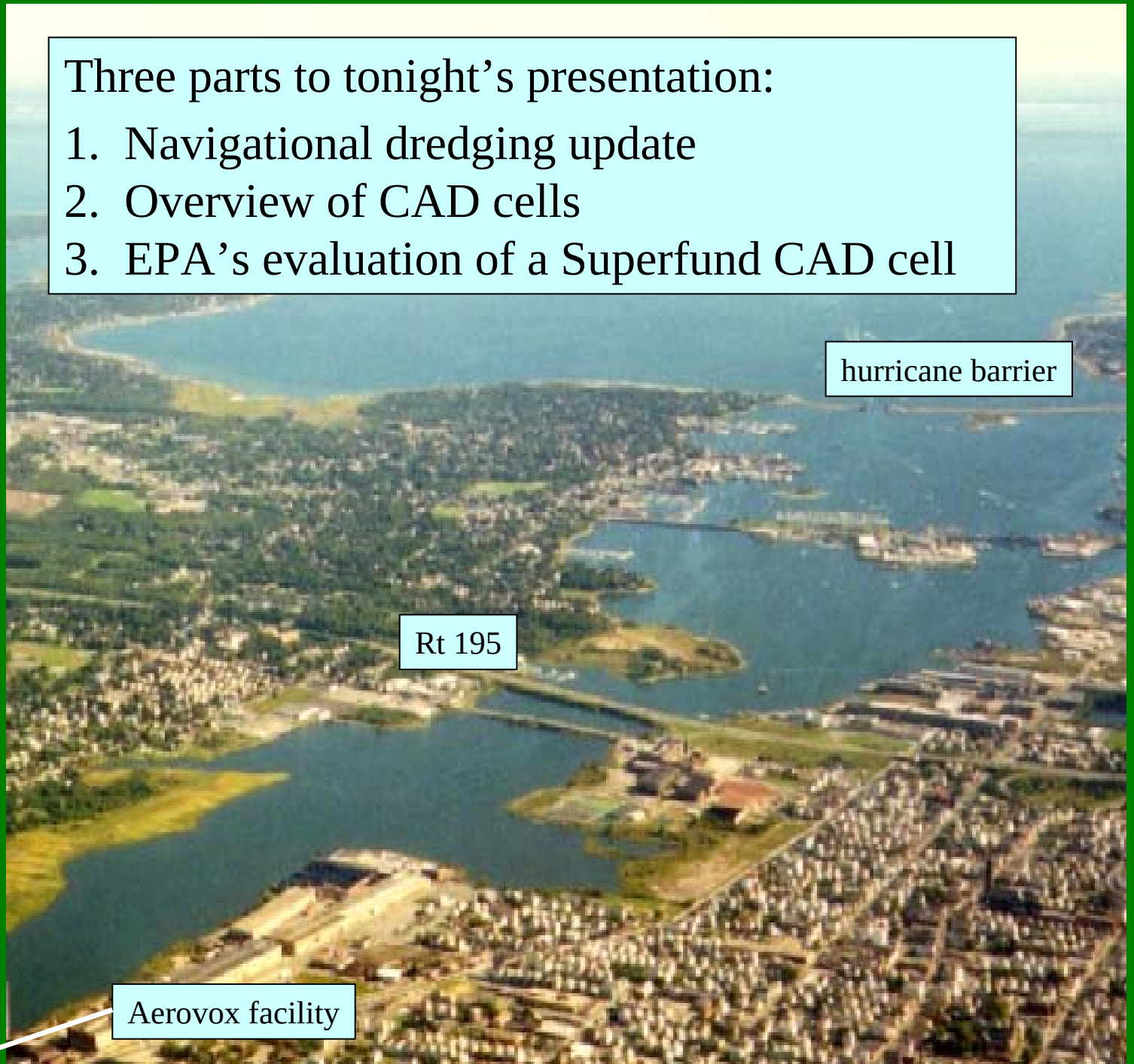
NEW BEDFORD FAIRHAVEN HARBOR

Three parts to tonight's presentation:

1. Navigational dredging update
2. Overview of CAD cells
3. EPA's evaluation of a Superfund CAD cell



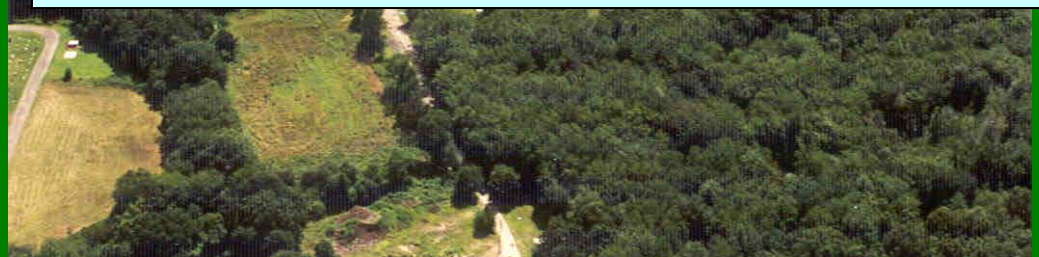
Cornell-Dubilier

Second capacitor facility in outer harbor

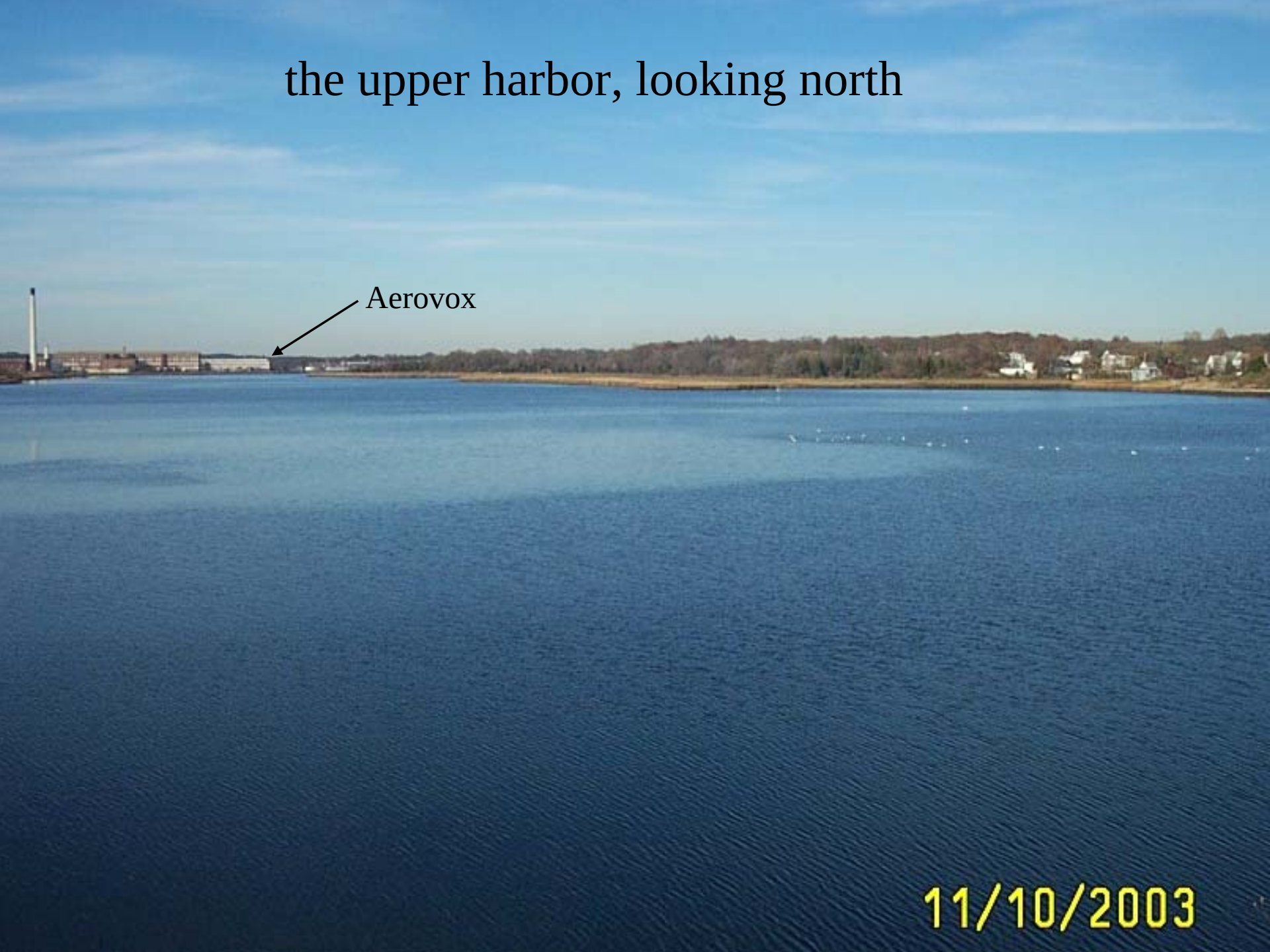
Aerovox

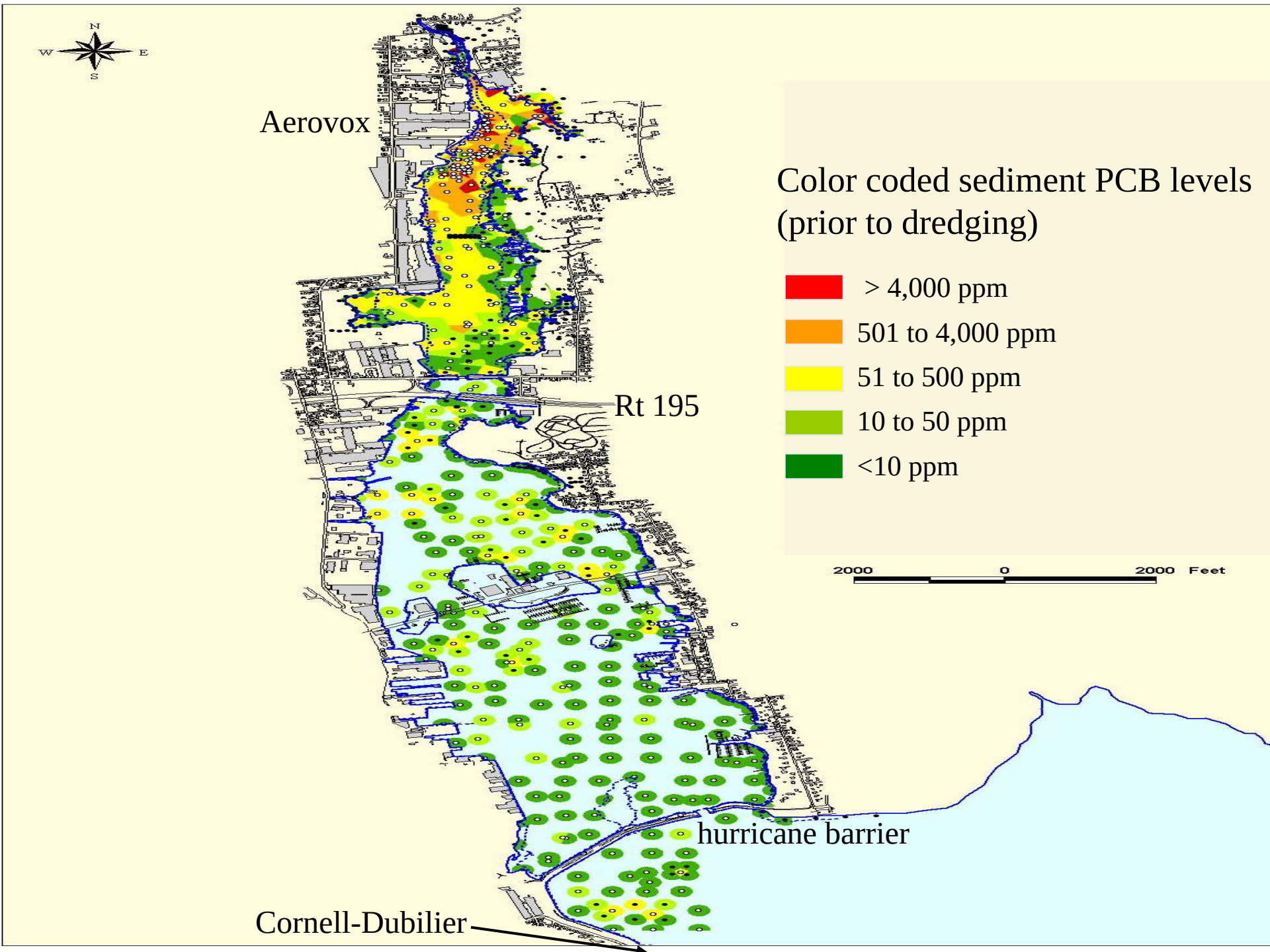
Electronic capacitor facility released an estimated 275 tons of PCBs from the 1940s to the 1970s

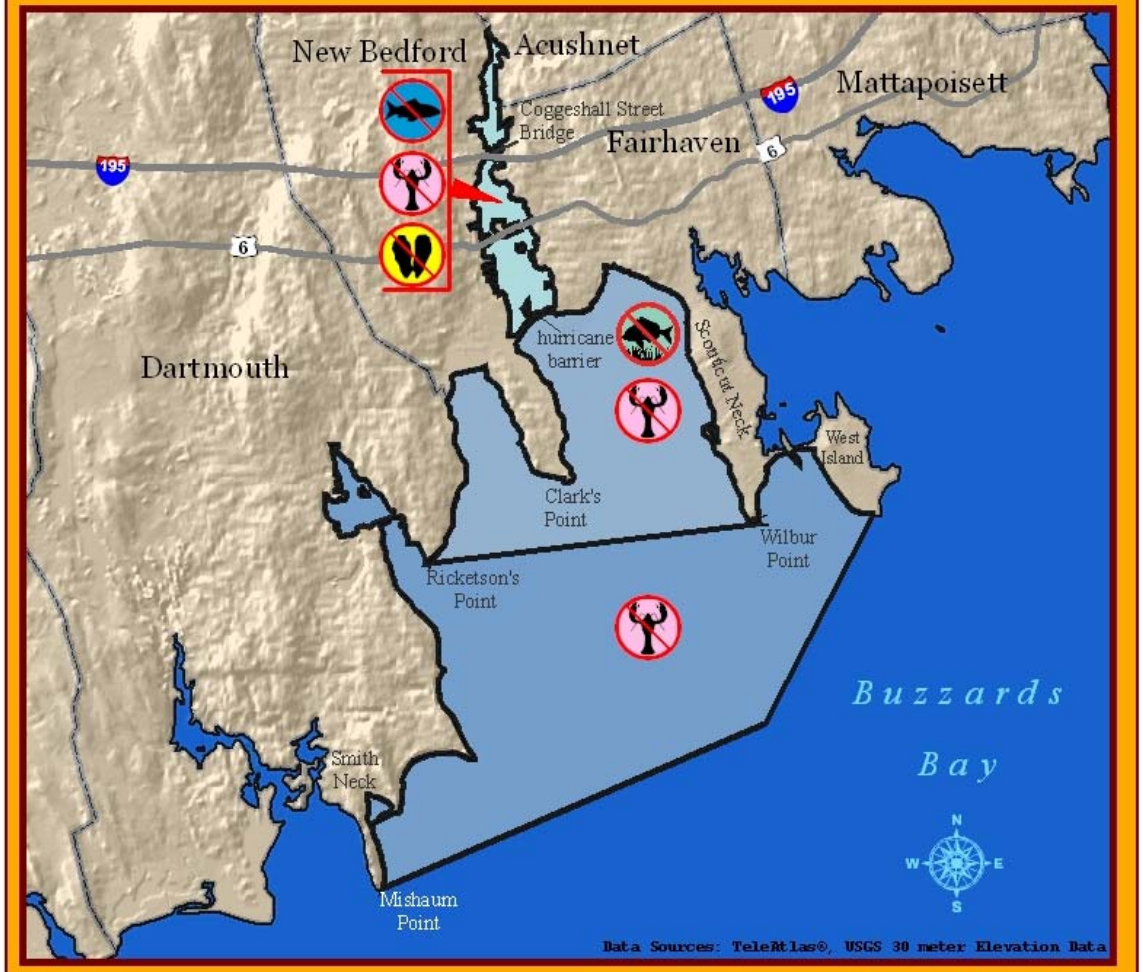
Part 3 - evaluation of a Superfund CAD cell



the upper harbor, looking north




N
W
E
S
Aerovox
Rt 195
Color coded sediment PCB levels
(prior to dredging)
> 4,000 ppm
501 to 4,000 ppm
51 to 500 ppm
10 to 50 ppm
<10 ppm
2000
0
2000 Feet
hurricane barrier
Cornell-Dubilier



Do NOT eat any fish
No coma pescado
Não coma peixe

Do NOT eat any lobster
No coma langosta
Não coma lagosta

Do NOT eat bottom feeding fish
No coma pescado de fondo:
Não coma peixe de fundo:

- flounder
- lenguado
- solha
- tautog
- tautoga
- bodião da ostra
- scup
- sargo
- sargo
- eel
- anguila
- anguila

Do NOT eat any shellfish
No coma mariscos
Não coma mariscos

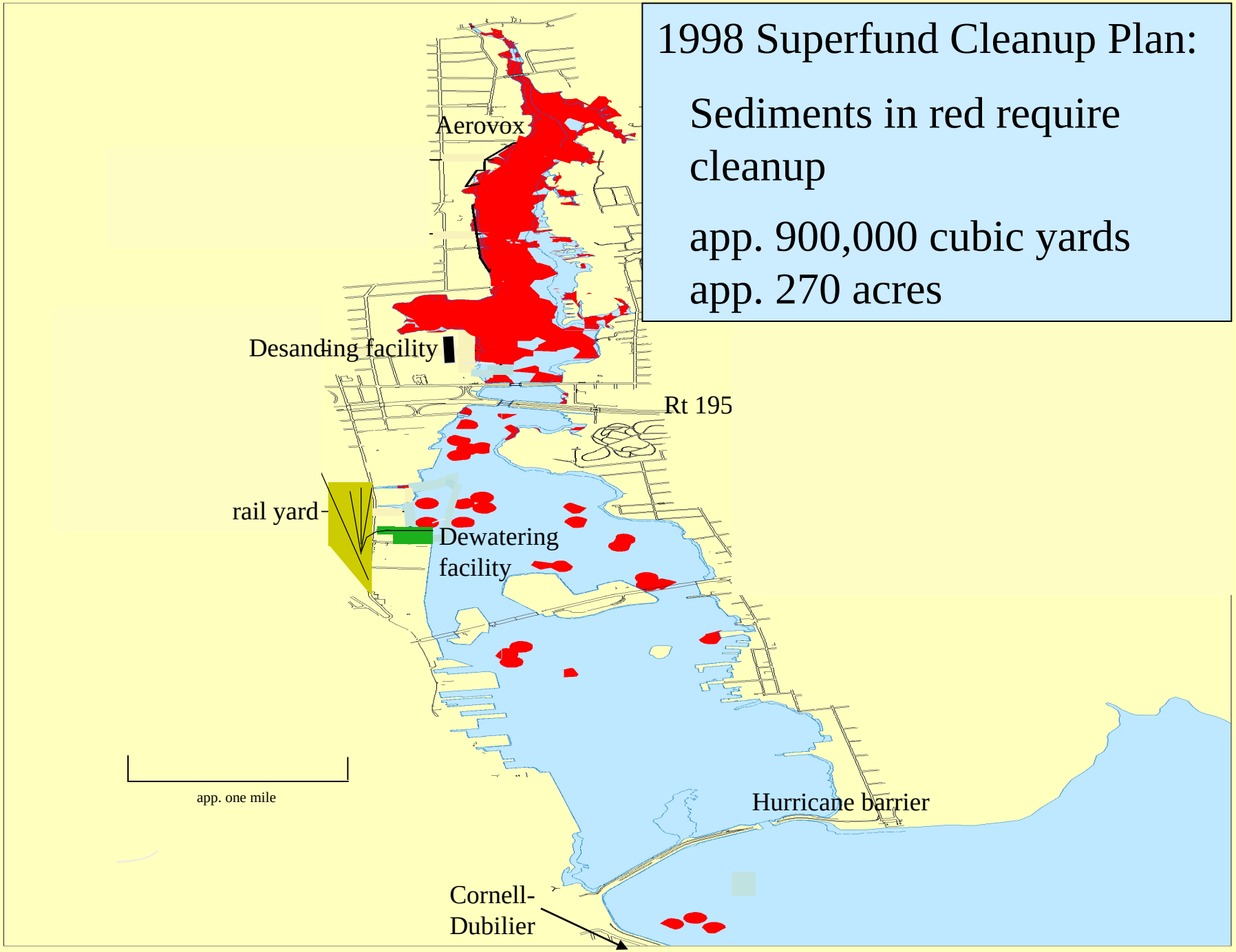
The 1979 state fishing ban - due to PCBs

(covers 18,000 acres)

1998 Superfund Cleanup Plan:

Sediments in red require cleanup

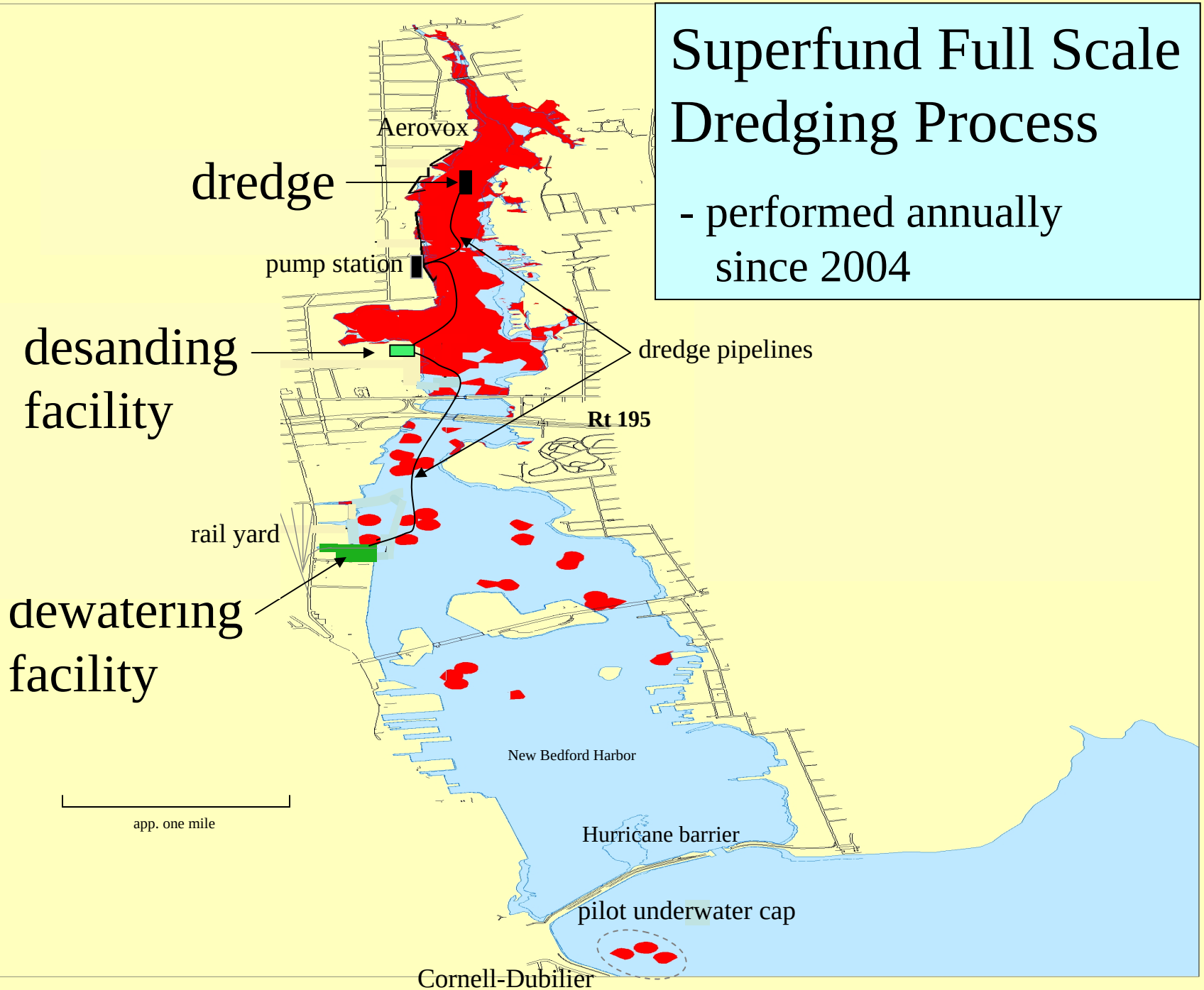
app. 900,000 cubic yards
app. 270 acres




River banks also need cleanup and
restoration in addition to sediments

Superfund Full Scale Dredging Process

- performed annually since 2004



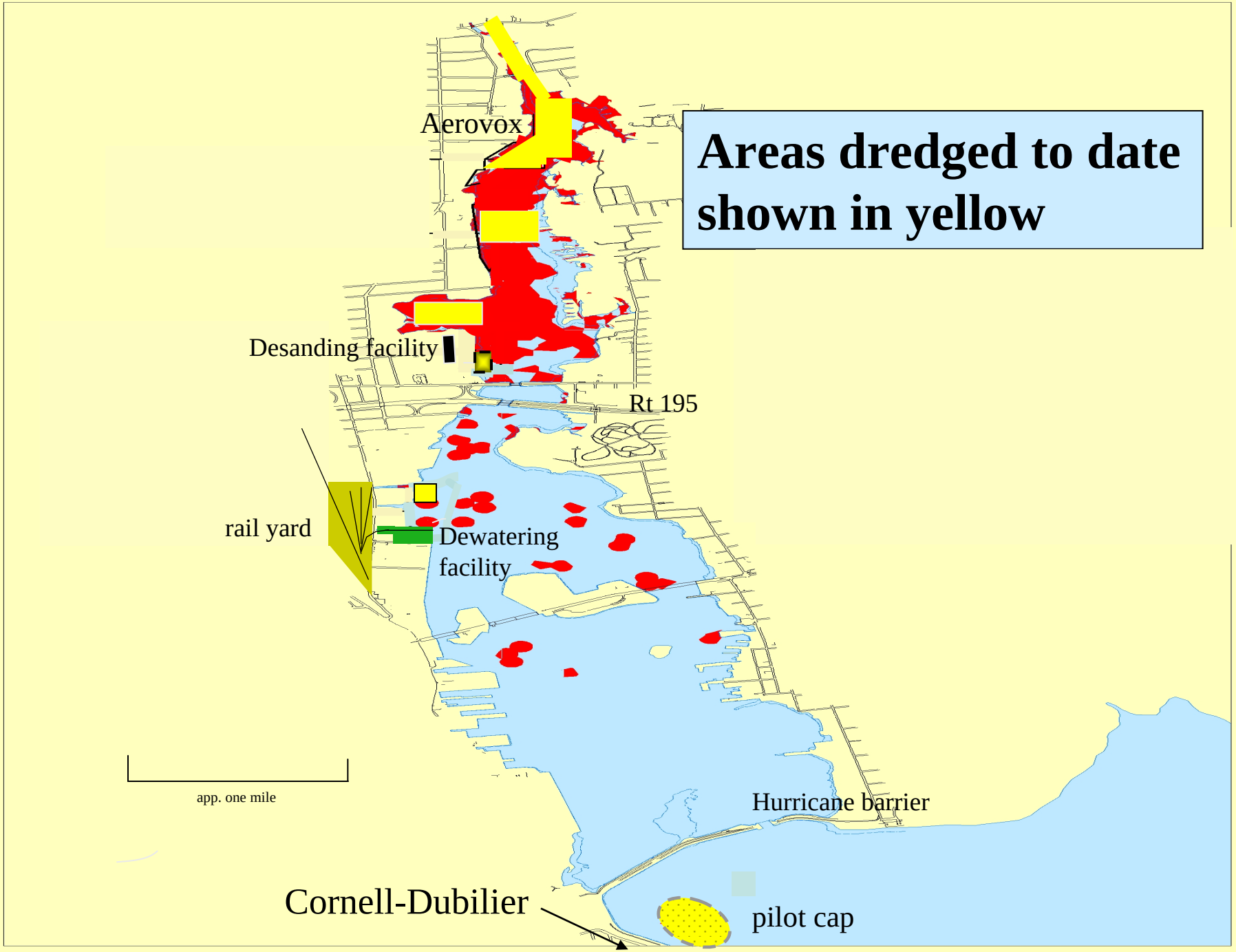
Superfund dredging and disposal operations

1. Dredging in upper harbor

2. Desanding

3. Dewatering

4. Loading to rail for offsite disposal


Areas dredged to date shown in yellow
Aerovox
Desanding facility
Rt 195
rail yard
Dewatering facility
app. one mile
Hurricane barrier
Cornell-Dubilier
pilot cap

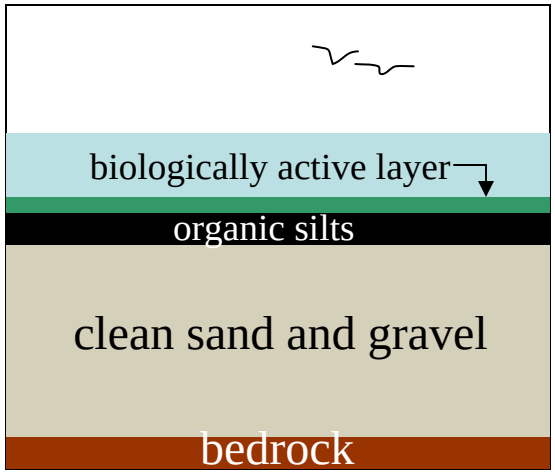
Latest DRAFT Estimates of Time and Cost to Complete*
(100% Offsite Disposal)

Annual funding level	Years to complete	Cost to complete
→ $15 million	42	$1,389 million
$30 million	27	$827 million
$80 million	6	$417 million

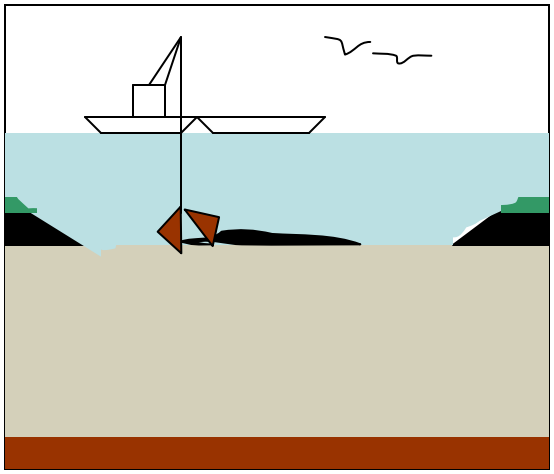
*3.5% annual inflation assumed

DRAFT DRAFT DRAFT

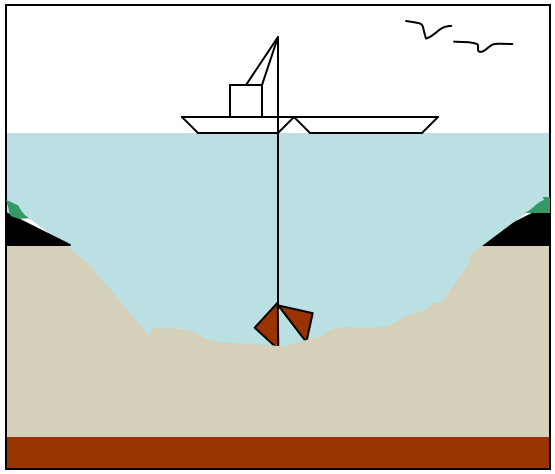
One alternative to speed the harbor cleanup:
a lower harbor CAD cell for Superfund material



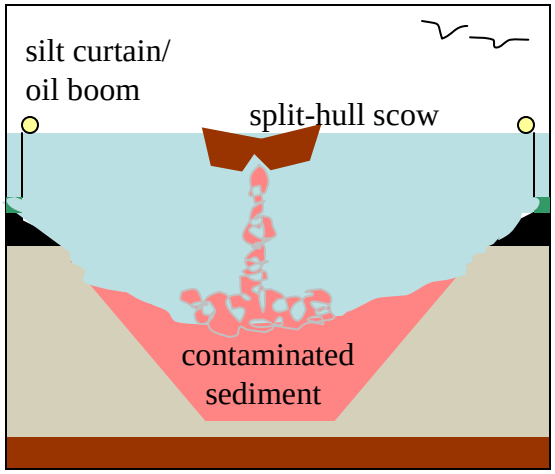
1. Harbor bottom as is



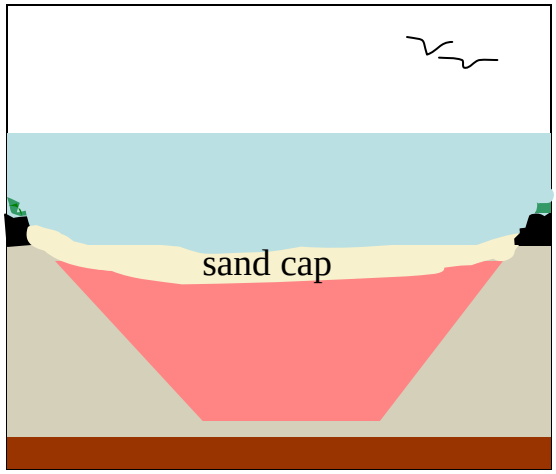
2. Excavation of top silts



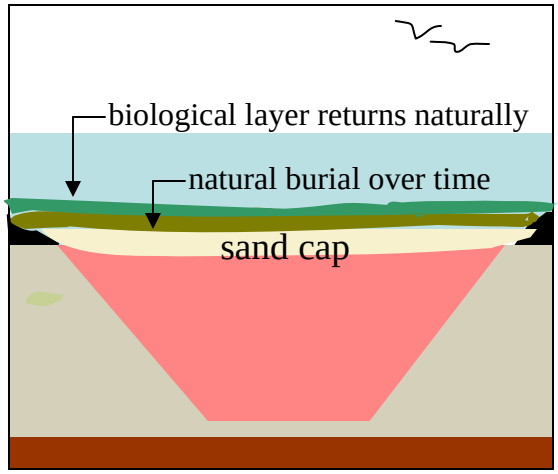
3. Excavation of clean sand



4. Placement of sediments



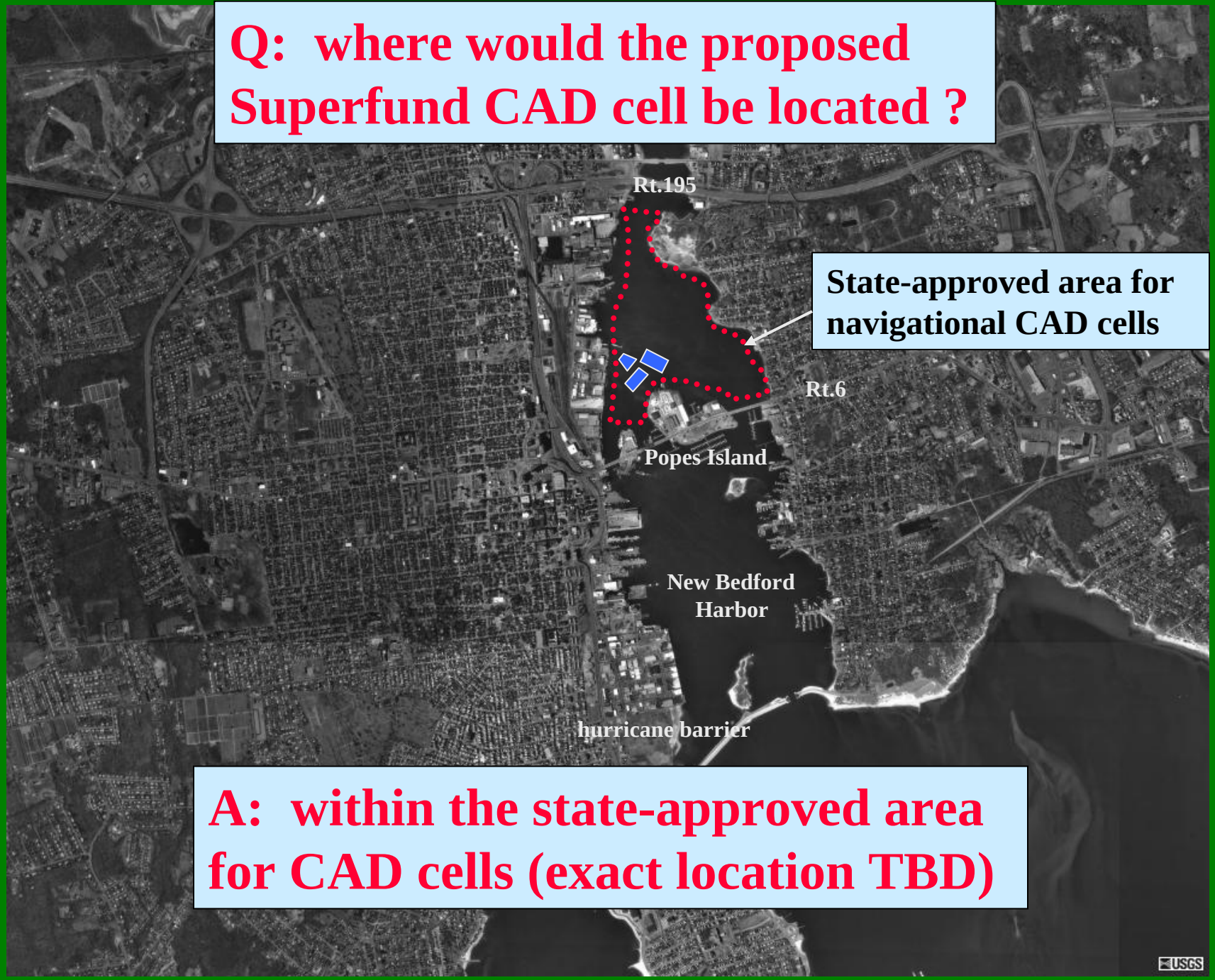
5. Placement of initial cap

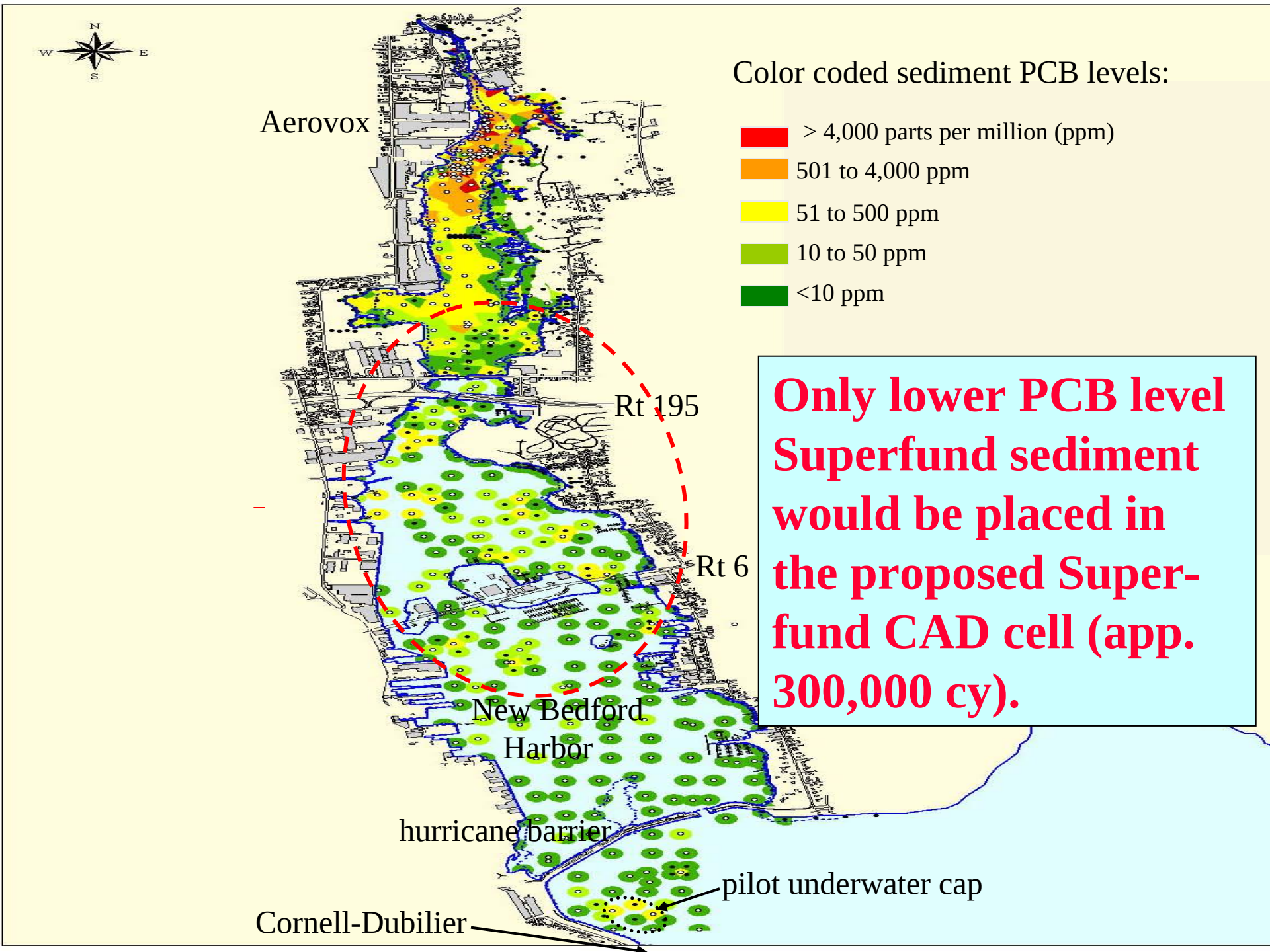


6. Surface fills in over time

What is a confined aquatic disposal cell?

For illustrative purposes only – NOT TO SCALE


Q: where would the proposed Superfund CAD cell be located ?
Rt.195
State-approved area for navigational CAD cells
Rt.6
Popes Island
New Bedford Harbor
hurricane barrier
A: within the state-approved area for CAD cells (exact location TBD)
USGS


Color coded sediment PCB levels:
> 4,000 parts per million (ppm)
501 to 4,000 ppm
51 to 500 ppm
10 to 50 ppm
<10 ppm
Aerovox
Rt 195
Rt 6
New Bedford Harbor
hurricane barrier
pilot underwater cap
Cornell-Dubilier
Only lower PCB level Superfund sediment would be placed in the proposed Super-fund CAD cell (app. 300,000 cy).

Q: why do we believe that a CAD cell will safely contain the sediment placed into it?

A1: Water quality monitoring of navigational CAD Cell #2 in 2009 found no plume outside of the CAD cell

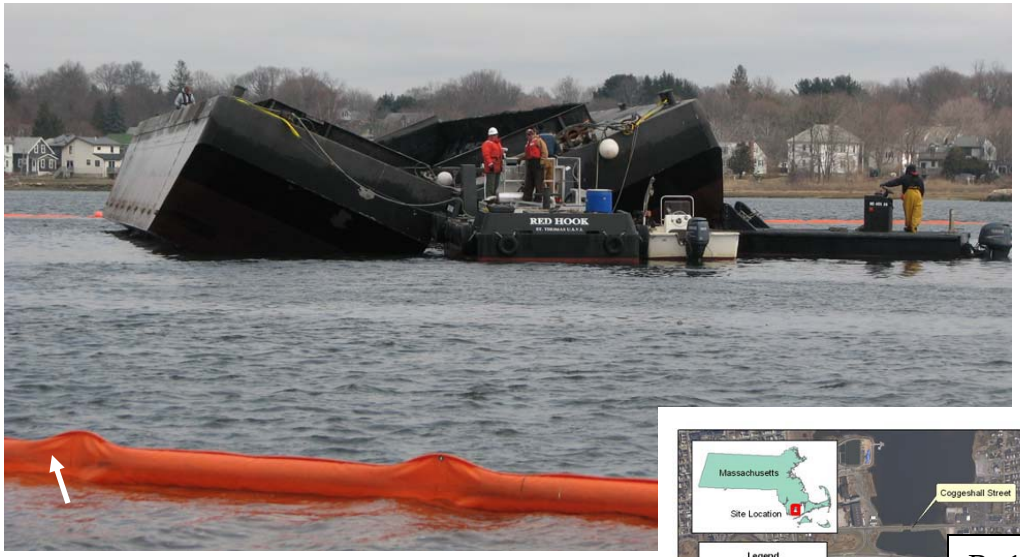
A2: the same monitoring found NO toxicity

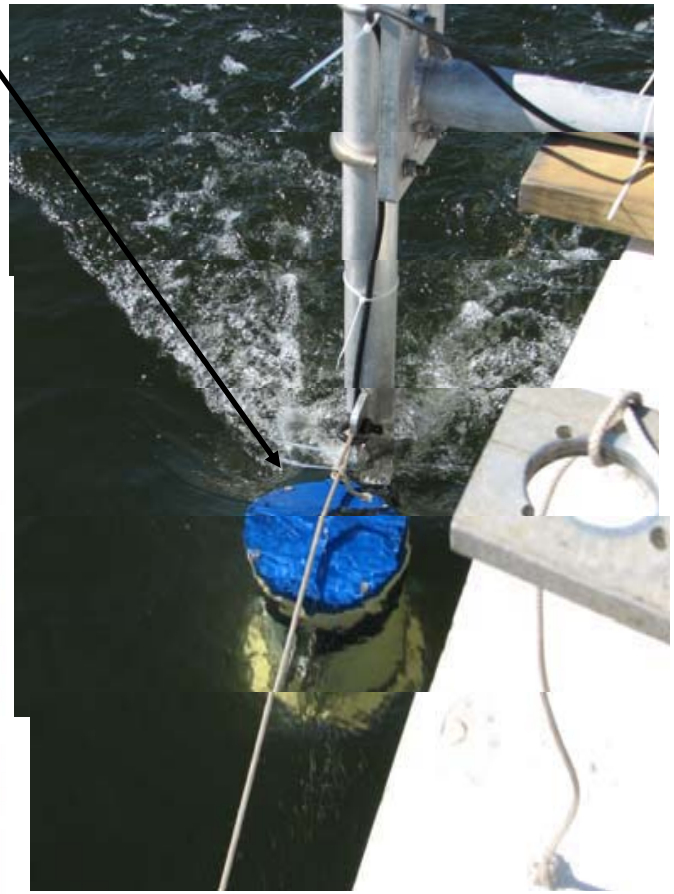
A3: short and long term computer modeling

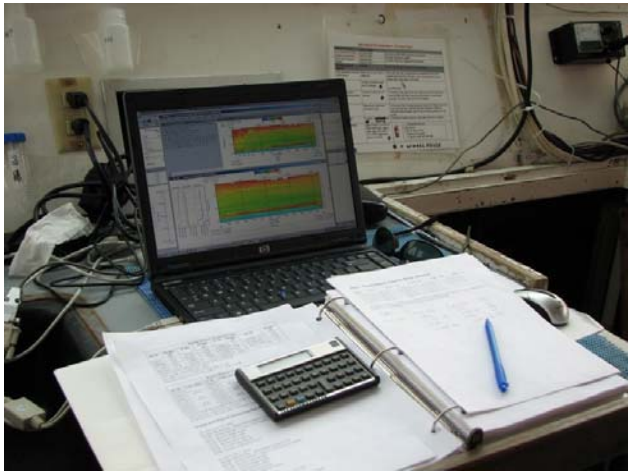
A4: performance standards would be used

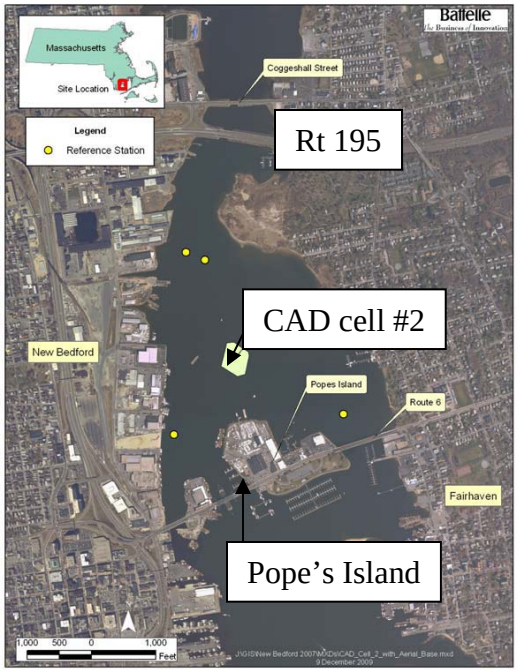
Water Quality Monitoring of Navigational CAD Cell #2

Acoustic Doppler Current Profiler

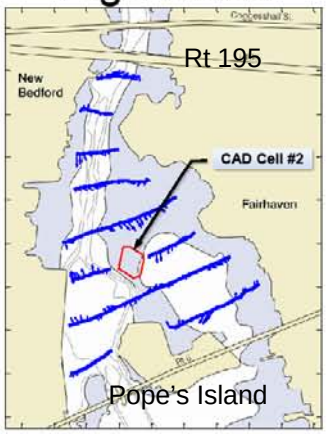




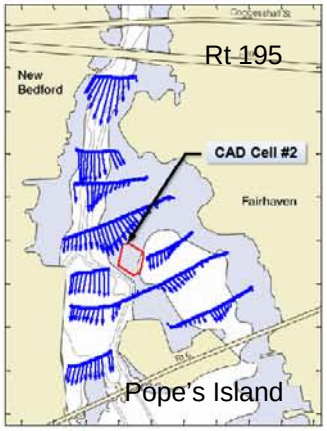




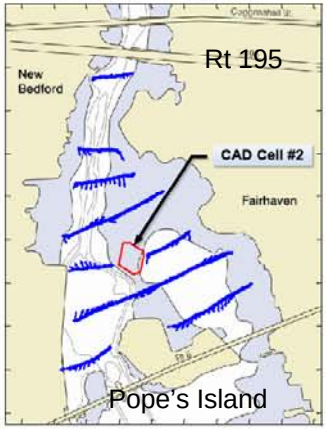
High Slack



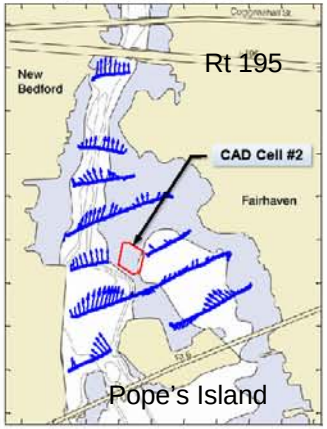
Max Ebb



Low Slack

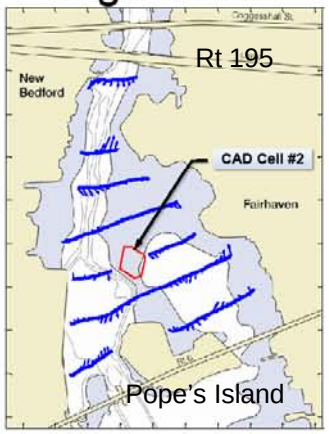


Max Flood

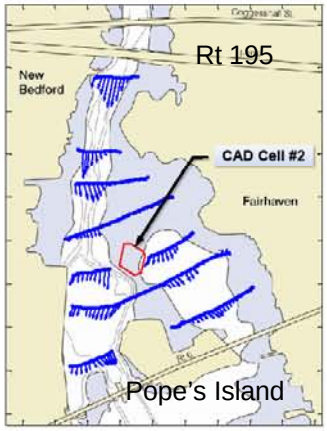


Surface Currents

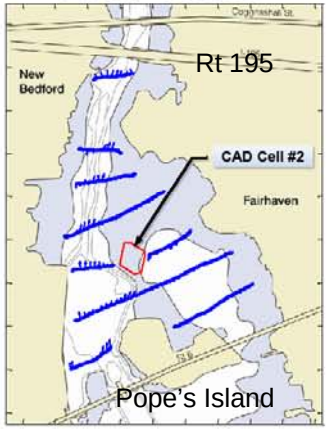
High Slack



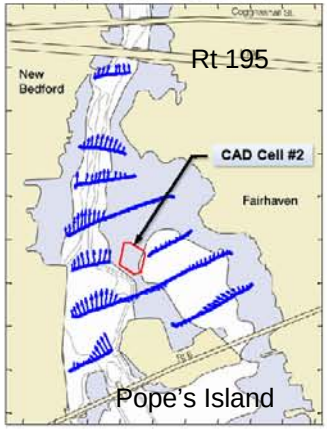
Max Ebb



Low Slack



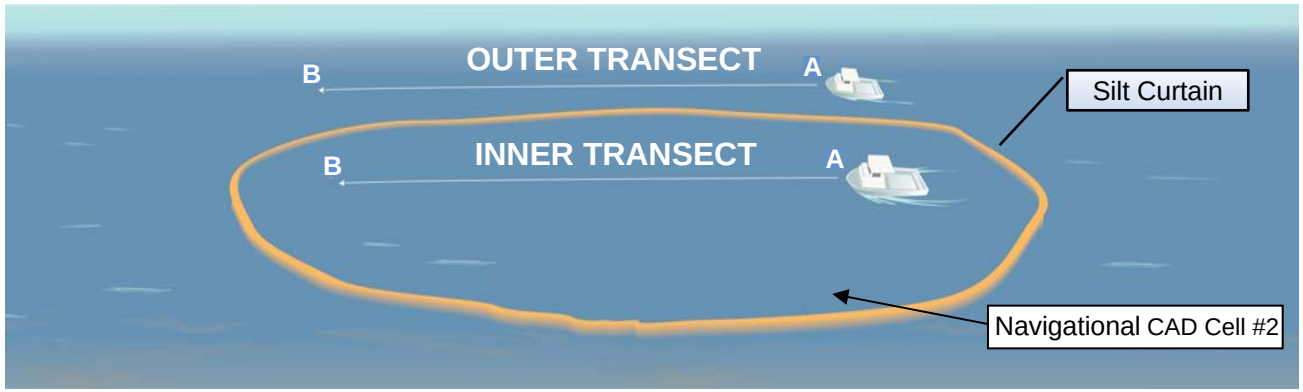
Max Flood

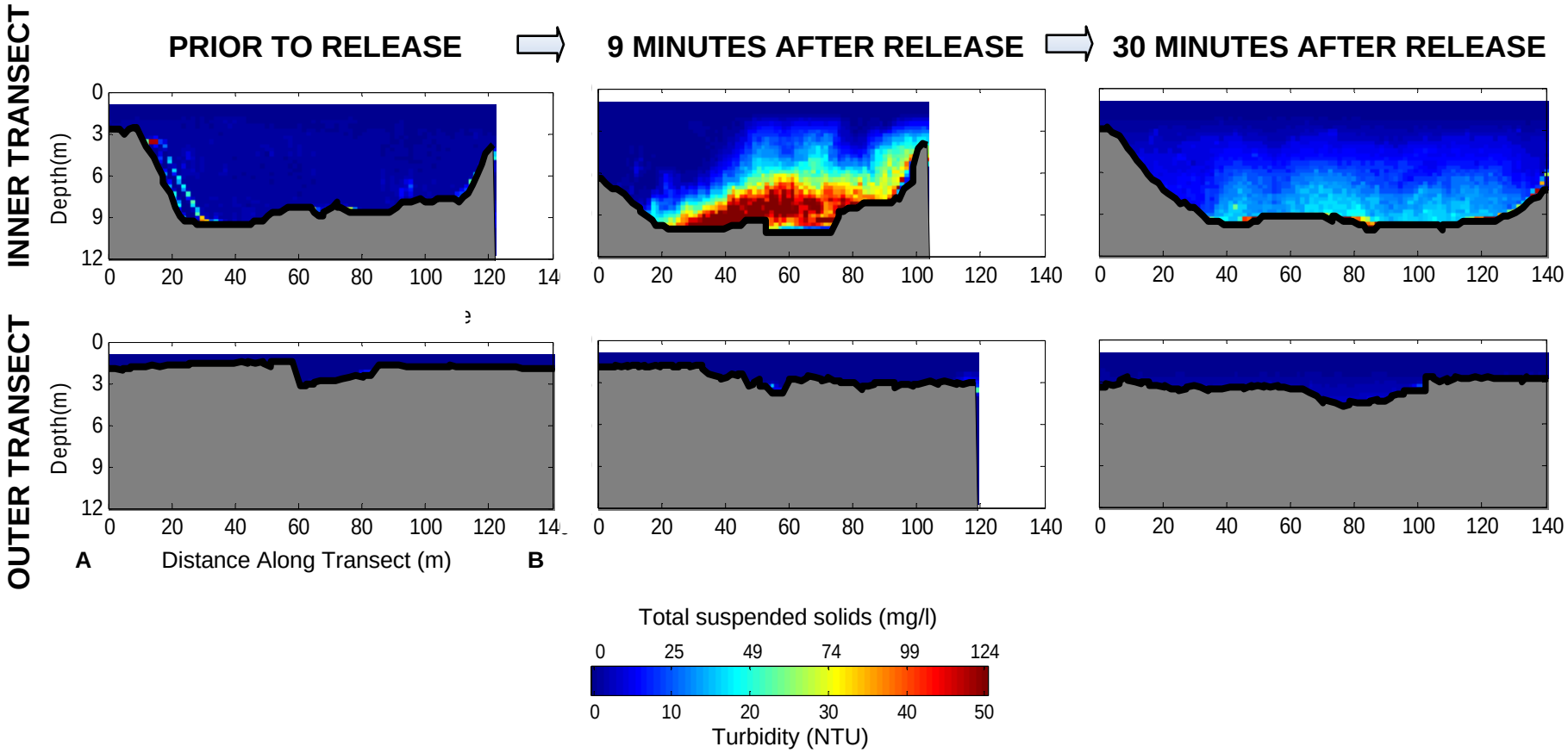


Bottom Currents

Note: Arrows show current directions with arrow length proportional to speed.

Tidal Currents Were Measured to Predict Location of any Turbidity Plume





Turbidity Measured Inside and Outside of CAD Cell #2 - 2009

Laboratory Sampling Showed NO Aquatic Toxicity Inside or Outside of CAD Cell #2 - 2009

Sample	Time After Release (min)	Turbidity from ADCP (NTU)	Toxicity Results					
			Sea Urchin (*A. punctulata*)	Mysid Shrimp (*A. bahia*)			Red alga (*C. parvula*)	
			mean fertilization (%)	48-hr mean survival (%)	7-day mean survival (%)	7-day mean biomass (mg/mysid)	48-hr mean survival (%)	7-day mean reproduction (cystocarp/ plant)
Lab Control	na	na	97.1	100	84.4	0.431	100	34.0
Site Reference	na	< 2	93.5[1]	100	82.5	0.462	100	34.0
Outside silt curtain	49	~12	95.0[1]	100	97.5	0.519	100	34.1
Inside silt curtain	20	~70	94.1[1]	97.5	87.5	0.435	100	34.7
Acceptance Criteria (for Lab Control)			> 70	≥ 90	≥ 80	>0.2	no necrosis	≥ 10

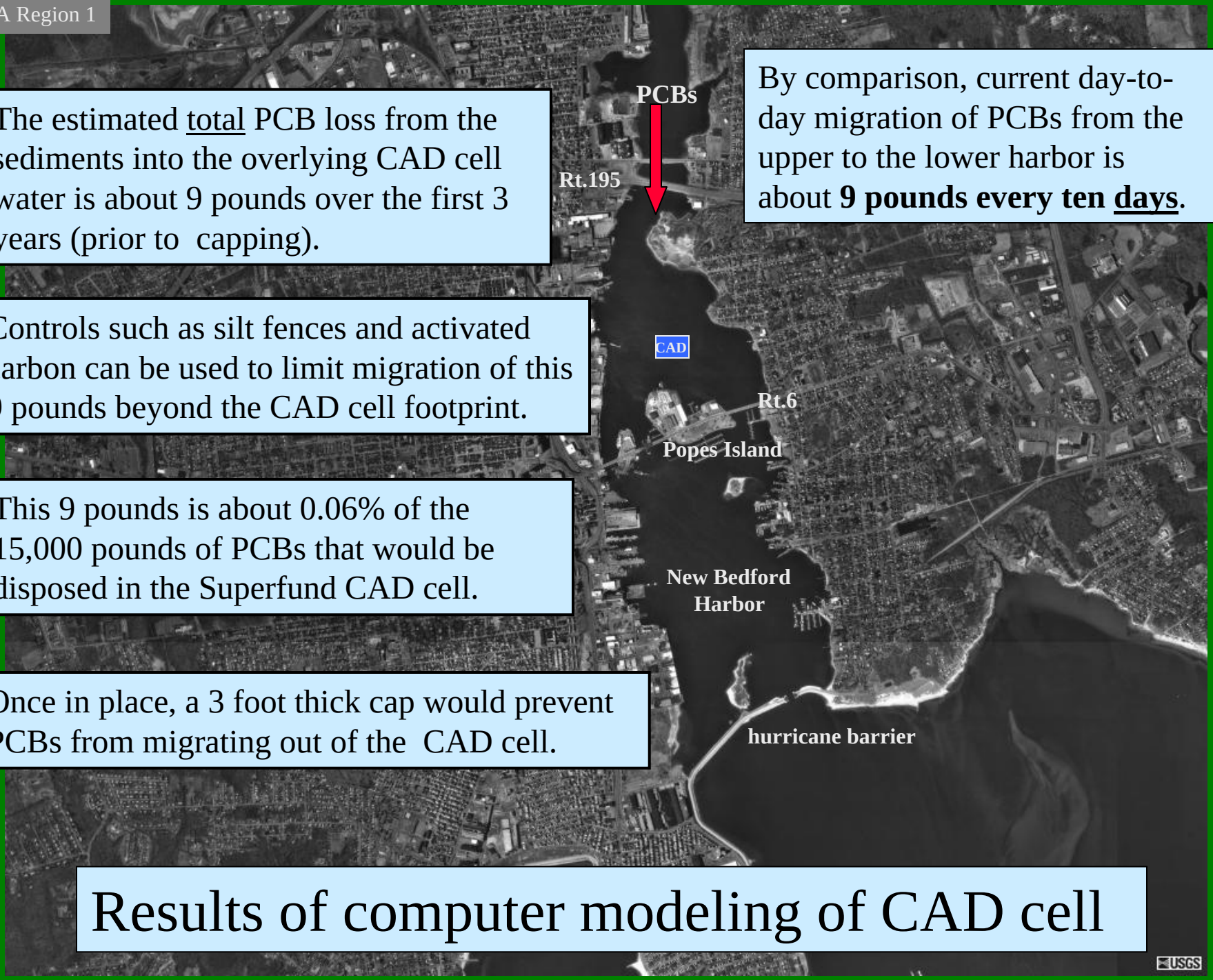
The estimated <u>total</u> PCB loss from the sediments into the overlying CAD cell water is about 9 pounds over the first 3 years (prior to capping).

By comparison, current day-to-day migration of PCBs from the upper to the lower harbor is about **9 pounds every ten <u>days</u>**.

Controls such as silt fences and activated carbon can be used to limit migration of this 9 pounds beyond the CAD cell footprint.

This 9 pounds is about 0.06% of the 15,000 pounds of PCBs that would be disposed in the Superfund CAD cell.

Once in place, a 3 foot thick cap would prevent PCBs from migrating out of the CAD cell.



Results of computer modeling of CAD cell

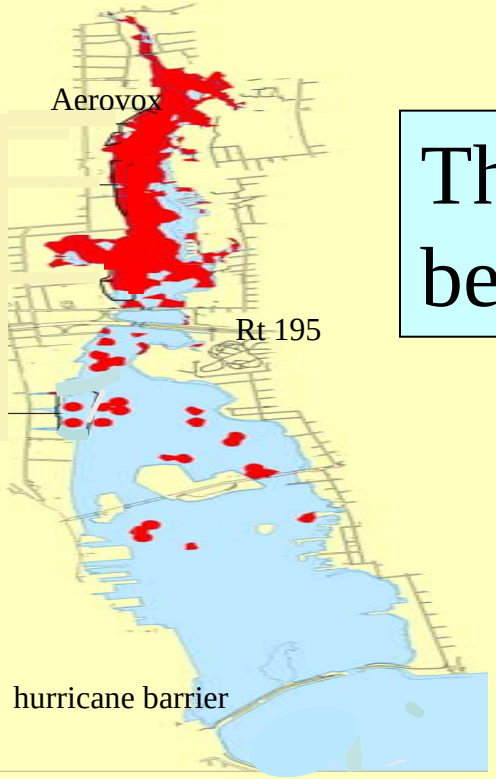
A CAD cell would be faster and less costly

Funding Level	Time to Complete: With CAD	Time to Complete: 100% Offsite	Cost to Complete*: With CAD	Cost to Complete*: 100% Offsite
$15 m/yr	35 yrs	42 yrs	$983m	$1,389m
$30 m/yr	20 yrs	27 yrs	$592m	$827m
$80 m/yr	5 yrs	6 yrs	$369m	$417m

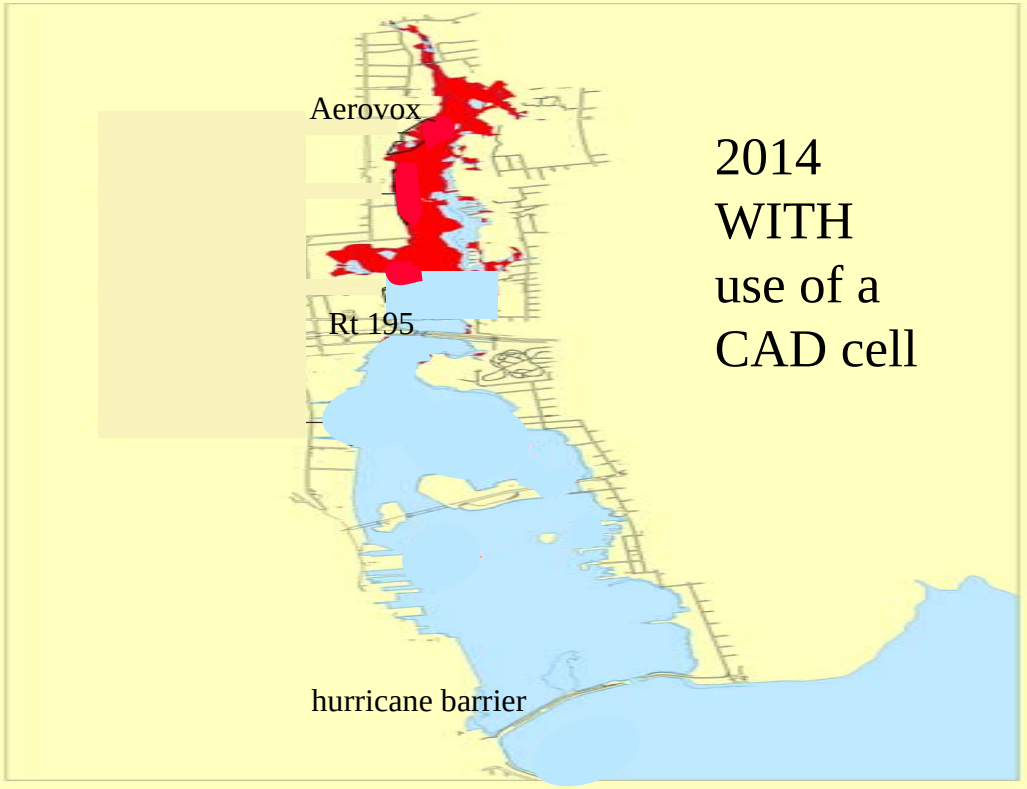
*assuming 3.5% annual inflation

The lower harbor cleanup would be accelerated with a CAD cell

2014
WITHOUT
use of a
CAD cell

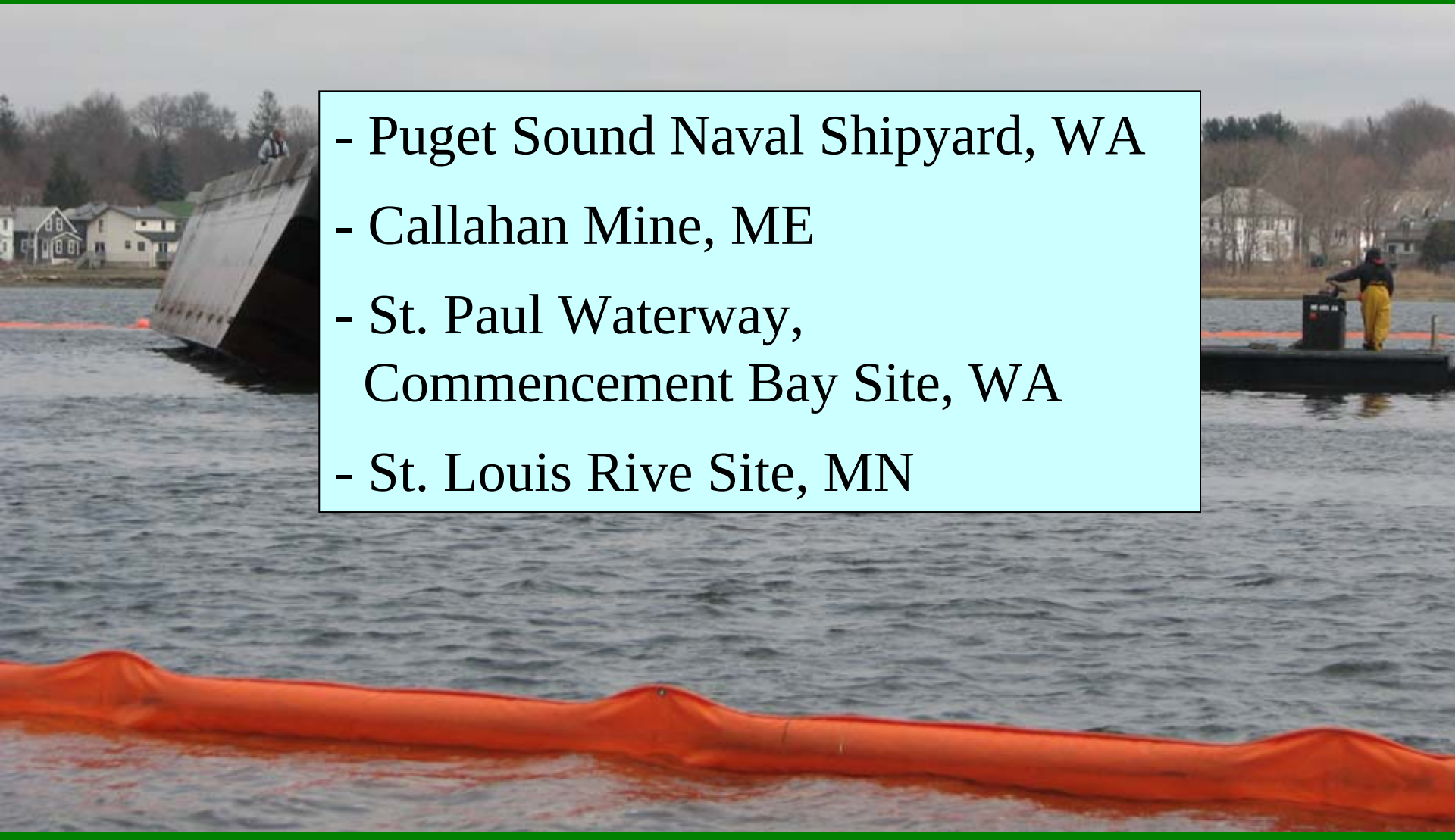


2014
WITH
use of a
CAD cell



Red areas are sediments requiring Superfund dredging. Assumes a typical $15 million annual funding rate.

Other Superfund Sites that have selected CAD cells:



- Puget Sound Naval Shipyard, WA
- Callahan Mine, ME
- St. Paul Waterway, Commencement Bay Site, WA
- St. Louis Rive Site, MN

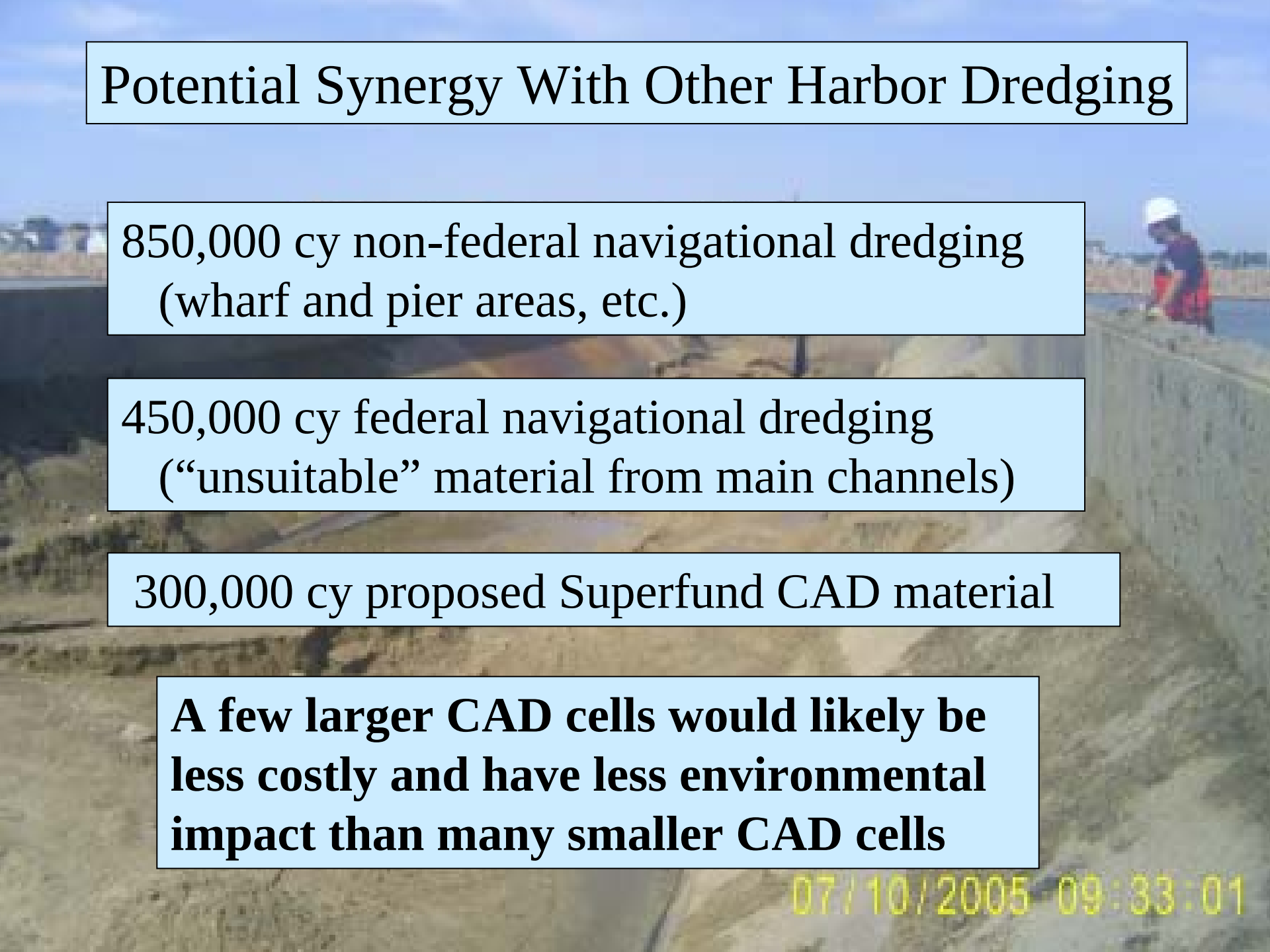
Potential Synergy With Other Harbor Dredging

850,000 cy non-federal navigational dredging (wharf and pier areas, etc.)

450,000 cy federal navigational dredging ("unsuitable" material from main channels)

300,000 cy proposed Superfund CAD material

A few larger CAD cells would likely be less costly and have less environmental impact than many smaller CAD cells




Questions?