



Anacostia River Activities

Remediation Technology Development
Forum - Sediments Action Team



Anacostia

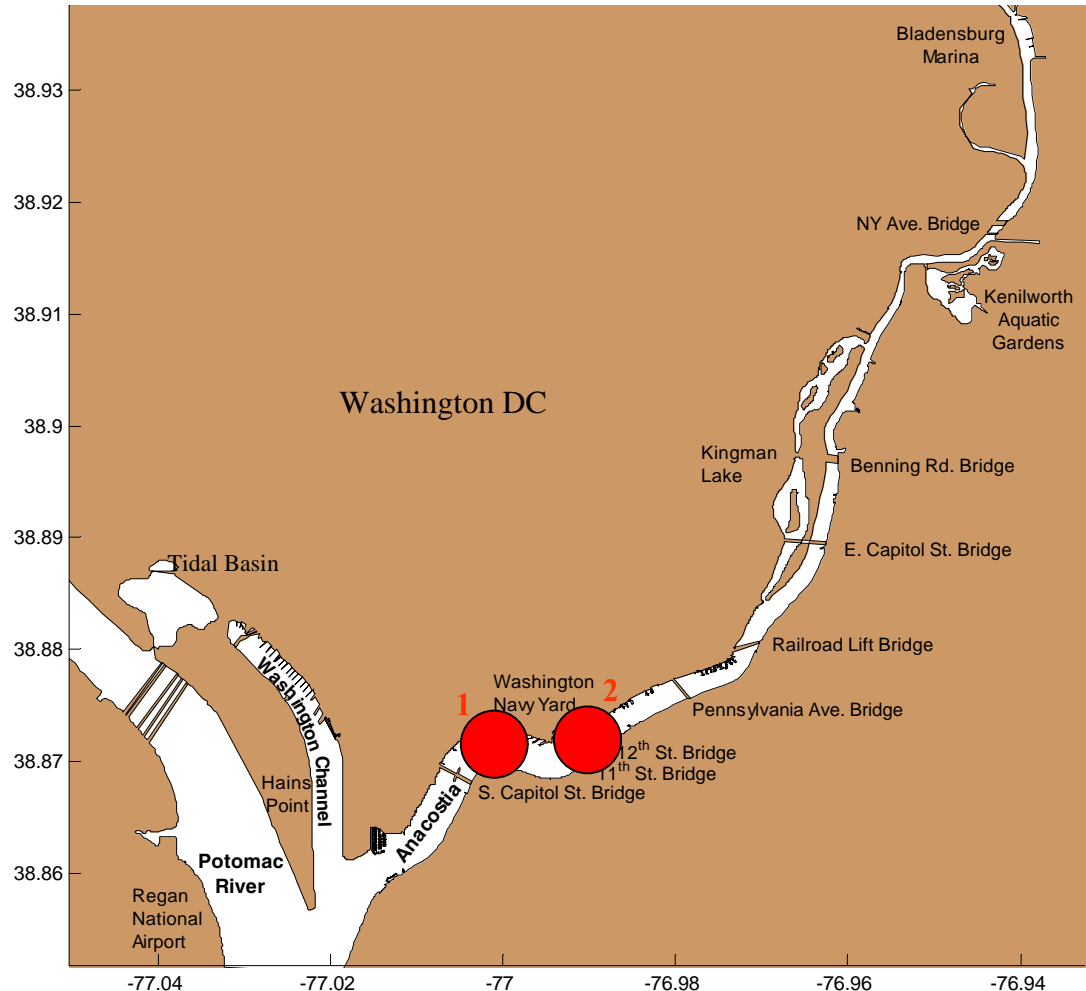
- ✦ Public/Private Partnership (AWTA, other)
- ✦ Excellent “urban river” example environment
- ✦ Predominant governmental PRPs
 - DC, MD Counties, Navy, Army, very few private parties
- ✦ Progressive, innovative leadership mindset
- ✦ Potential prototype for innovative approaches

Demonstration Site



Two potential study areas identified adjacent to Navy Yard

- First site has elevated PCBs and metals [1]
- Second site is primarily PAHs [2]
- Some seepage, free phase at depth at first site





Demonstration Site

✦ First Site – old CSO outfall

- South end of Navy Yard
- PCBs: 6-12 ppm
- PAHs: 30 ppm
- Metals

- Cd: 3-6 ppm

Pb: 351-409 ppm

- Cr: 120-155 ppm

Hg: 1.2-1.4 ppm

- Cu: 127-207 ppm

Zn: 512-587 ppm

✦ Second site – near old manufactured gas site

- North end of Navy Yard
- PAHs up to 210 ppm



RTDF Role/Activities

- ✦ RTDF primary resource for remedial ideas
 - several meeting presentations, off-line discussions
- ✦ RTDF active member of AWTA - meetings
- ✦ Management plan authoring team
- ✦ Arranging guest speakers for meetings
- ✦ Assembling team to co-author long-term monitoring plan (John Davis, Dow)
- ✦ Capping Pilot (Danny Reible, HSRC, RTDF)

Remedial Philosophy - RTDF

- ✦ Ongoing sources must be halted - CSOs, stormwater, etc. Whole watershed view.
- ✦ Hot spots should be understood and addressed if important ongoing sources
- ✦ Natural recovery must play role
- ✦ Long-term monitoring required to track recovery resulting from hot spot and watershed improvements
- ✦ Reassess areas found not to be recovering.

- Remaining slides are Danny's

Comparative Validation of Innovative Capping Technologies “Active Capping”

Participants:

Hazardous Substance Research Center/South and Southwest (HSRC)

Anacostia Watershed Toxics Alliance (AWTA)

Sediment Remediation Technology Development Forum (RTDF)

EPA Site Program



Technical Description

- ✦ The comparative effectiveness of traditional and innovative capping methods relative to control areas needs to be demonstrated and validated under realistic, well documented, in-situ, conditions at contaminated sediment sites
 - Better technical understanding of controlling parameters
 - Technical guidance for proper remedy selection and approaches
 - Broader scientific, regulatory and public acceptance of innovative approaches



Leveraged Funding

- ✦ EPA SITE will provide analytical support for validation of capping technologies, reporting
- ✦ Anacostia Clean-up **Congressional Appropriation** (\$2.25MM Part 1) is anticipated to provide funding for engineering design and placement of the caps, expansion of scope of project
- ✦ Seeking additional support for federal participation
 - USACE ERDC (Mike Palermo)
 - Navy SPARWARS (Bart Chadwick)



Sampling Design

- ✦ A grid of capping cells will be established at a well characterized contaminated sediment site
 - Contaminant behavior before capping will be assessed
 - Various capping types will be deployed within the grid evaluating placement approaches and implementation effectiveness
 - Caps will be monitored for chemical isolation, fate processes and physical stability
 - Cap types and controls will be compared for effectiveness at achieving goals



Monitoring Approach

- ✦ Focus: validate the effectiveness of placement and chemical isolation/fate as well as physical stability after placement



Core Cap Technologies

- ✦ Technologies under Consideration (Incomplete)
 - Aquablok for control of seepage
 - Zero-valent iron to encourage dechlorination and metal reduction
 - Phosphate mineral (Apatite) to encourage sorption and reaction of metals
 - BionSoil to encourage degradation and reducing conditions
 - Natural organic sorbent to encourage sorption-related retardation



Project Planning and Timing

🌟 1H 2002

- Receipt of Phase 1 funds \$2.25 MM
- Define tentative technologies for demonstration
- Negotiate and process laboratory testing subcontracts
- Initiate laboratory “treatability” tests
 - Demonstrate that proposed technologies have positive affects and limited negative impacts under water and sediment conditions of the Anacostia
 - Plan for studies to be parallel with field work to identify metrics for evaluation of field effectiveness and improve process understanding
- Negotiate and process prime field contracting agreement



Project Planning and Timing

2H 2002

- Develop site characterization plan
- Initiate field contractor subcontracting
- Initiate site characterization
- Reporting of preliminary conclusions on lab treatability studies
- Preliminary field construction design
- Seek Phase 2 Funding



Project Planning and Timing

✦ 1H 2003

- Final field construction design
- Field construction
- Evaluation of placement effectiveness

✦ 2H 2003

- Initiate cap effectiveness evaluation
- Reporting on laboratory treatability testing

✦ 2H 2005

- Project completion