

Water Quality Monitoring in Jamaica Bay Past, Present and Future



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From my 2011 Presentation...

A Call to Arms

- Establish a Jamaica Bay research interest group
- Meet bimonthly (Jamaica Bay Institute?)
- Bring students
- Discuss data, trends, system responses
- Write proposals
- Call the DEP and NPS to make recommendations and suggestions, offer services

The Past



Purpose

- Protect human health (USEPA)
- Inventory and Monitoring (I&M)
 - Vital Signs Monitoring

Execution

- Weekly to biweekly monitoring
- May to September
- 16 reported parameters

Dissemination

- Annual reports (data tables)
- STORET
- Integrated Resource Management Applications (IRMA)



Purpose

- Study connections between wastewater and water quality
- Clean Water Act compliance

Execution

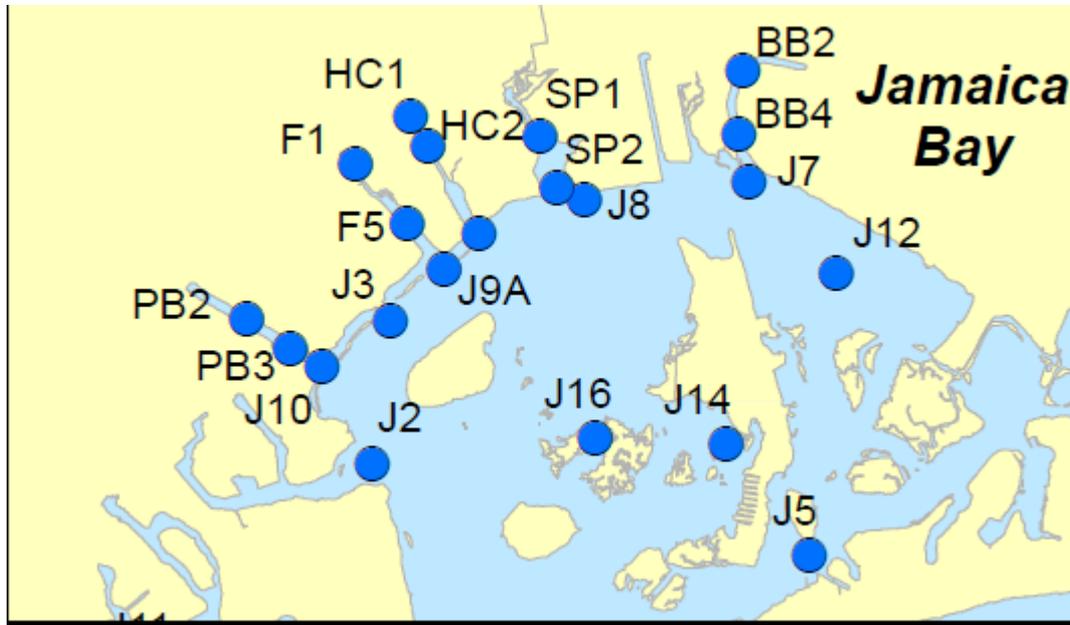
- Monthly (Fall – Spring) to weekly (summer) monitoring
- 28 Reported parameters

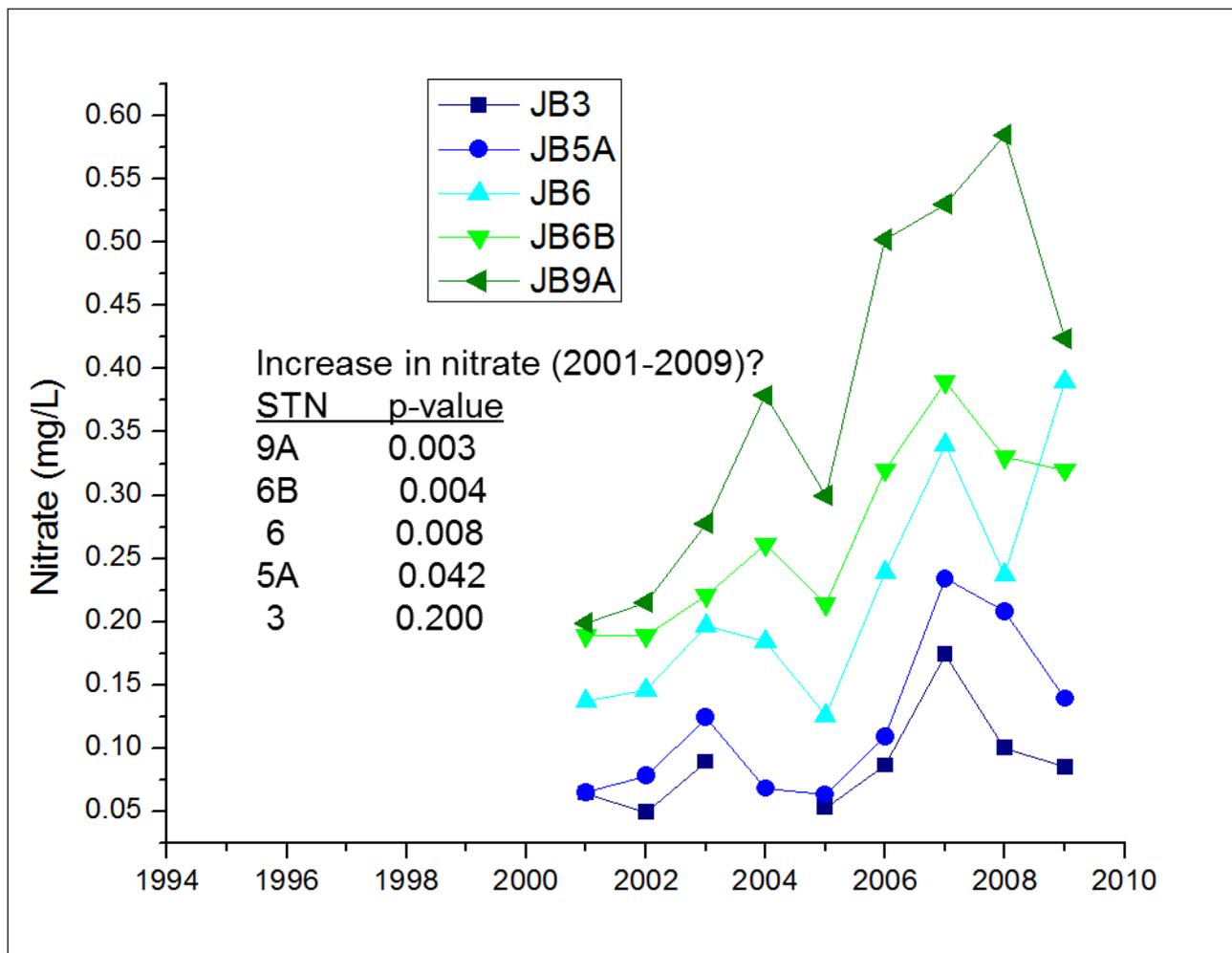
Dissemination

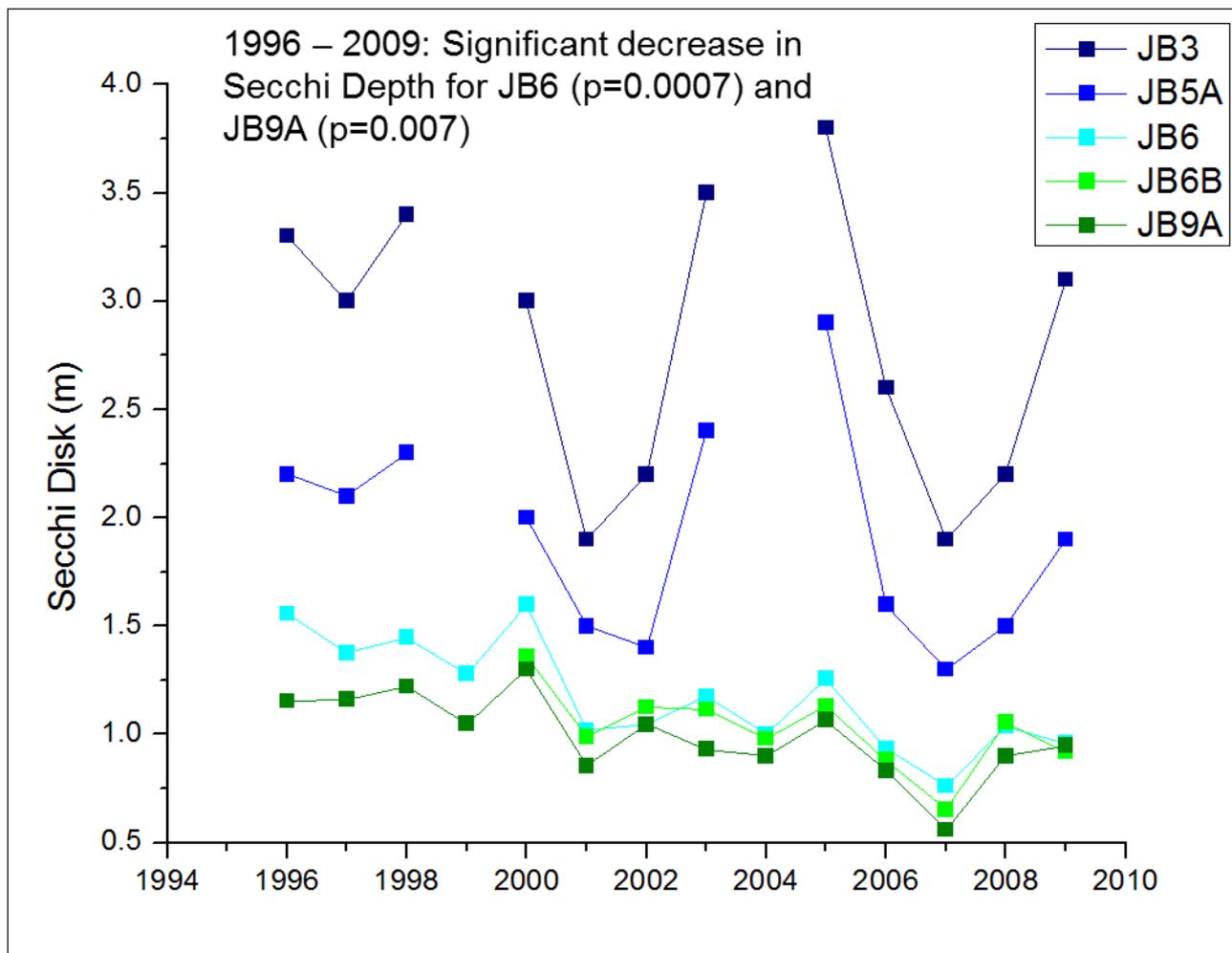
- Annual Reports (data summary)
Annual averages
- Online spreadsheets (since 2008)
- By request to Beau Ranheim



DEP Sites 2013







The Present

Cooperation

- Since 2011, frequent meetings and phone conferences
- Technical exchanges between Beau Ranheim (DEP) and Mark Ringenary (NPS)
- NPS is investigating moving and adding stations to expand coverage
- Discussions on adopting joint Standard Operating Protocols (SOPs)



Name: JBP WQ Site Loc_2013-149



JBP = Designations of Peripheral Locations (2013)
Deployment Stations = remote sensor options (2013)

A Z W A P P E C A C E I S

The Future

Hypothesis-driven expansion of WQ (Resilience)

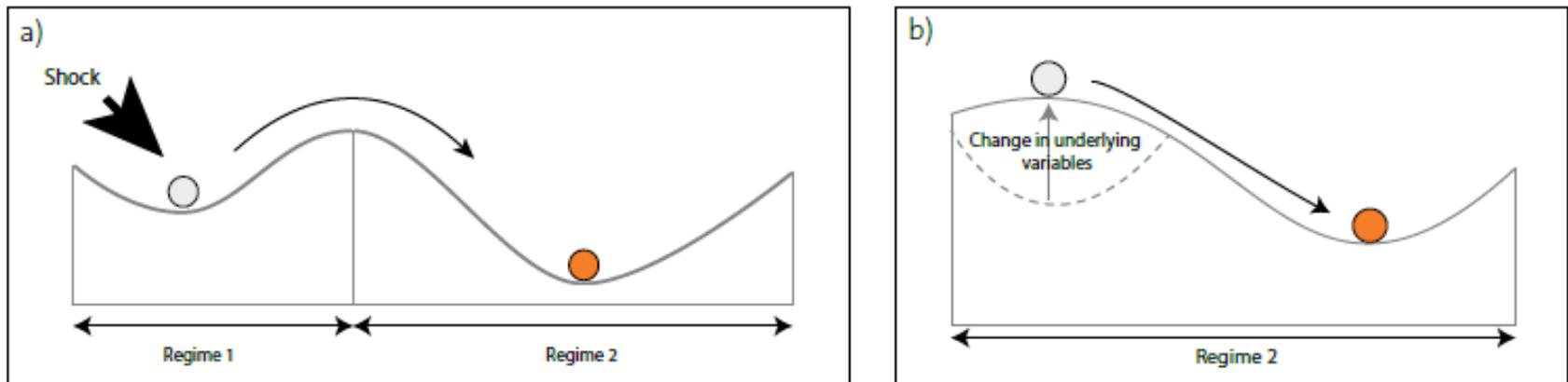


Fig 1. The different possible regimes in a system can be metaphorically represented by a ball-and-cup diagram. The ball represents the current system state, and the cups or valleys represent the different possible regimes or domains of attraction in the system. A regime shift entails a shift from one domain of attraction to another. Regime shifts are usually due to a combination of a) a shock, and b) slow changes in external drivers and/or internal feedbacks that change the domain of attraction (or resilience) of the different regimes (Biggs et al. 2011).

contributions from SRI@JB

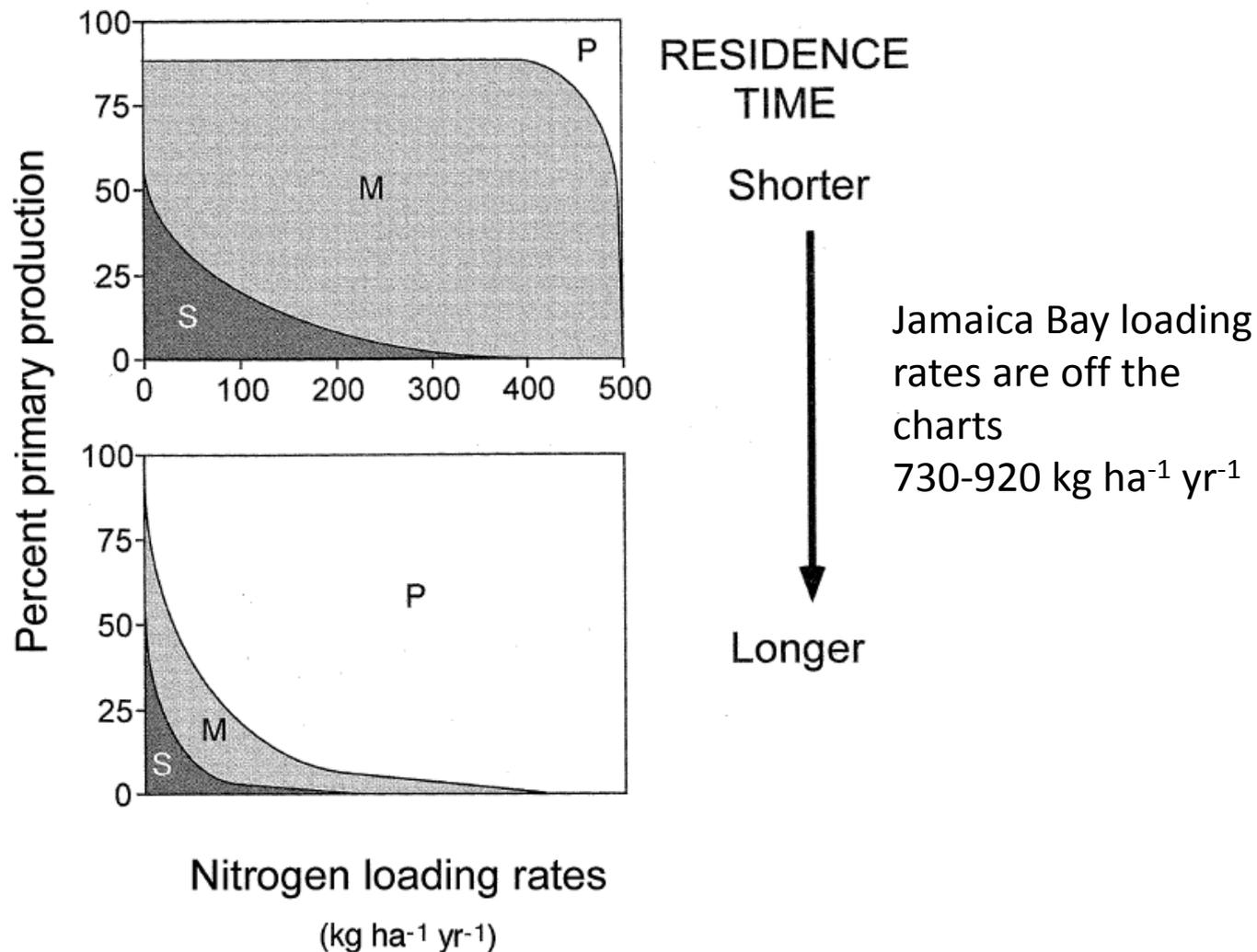
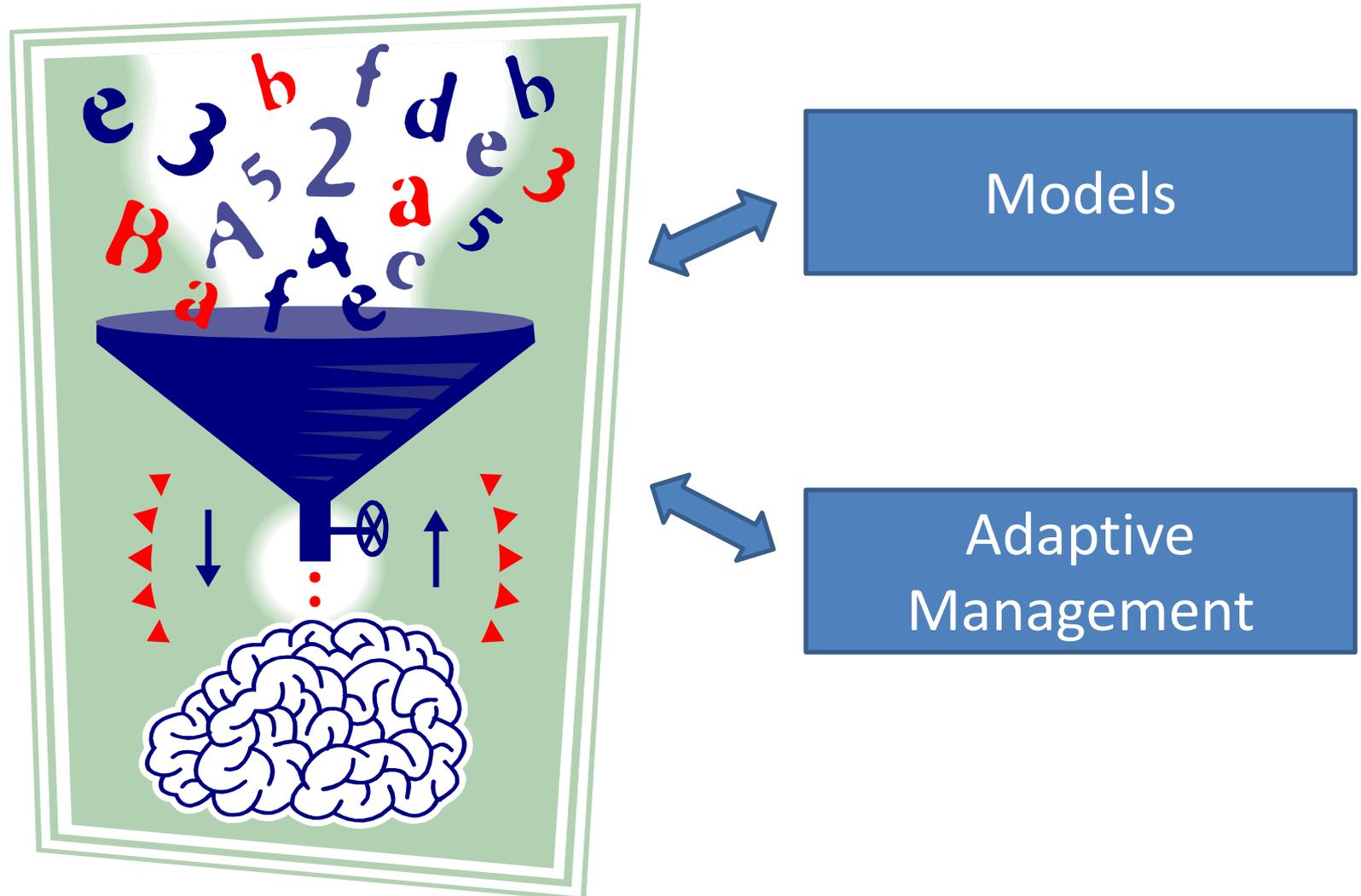


Fig. 6. Conceptual scheme showing hypothetical pattern of change in the relative contribution by three major groups of producers (phytoplankton—P; macroalgae—M; eelgrass—S) in response to changes in nitrogen loading rate in shallow temperate estuaries with shorter and longer water residence times.

Data Handling and Analysis



Alliance for the Chesapeake Bay Citizen Water Quality Monitoring Program



Final Thought

SRI @ JB needs to integrate with
and enhance ongoing water quality
monitoring activities

Acknowledgements

- Mark Ringenary, Dave Avrin, Doug Adamo, Jessica Browning (NPS)
- Beau Ranheim, John McLaughlin, Robert Will (NYC DEP)