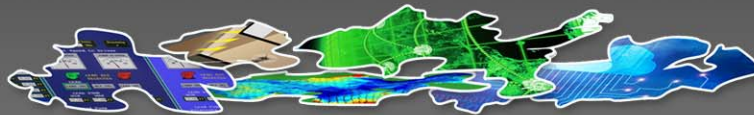


Integrated Planning:

The solution to the
water resources
puzzle?

Zach Henderson, CPSWQ
Water Resource Scientist



EPA TMDLs
Delegated State USACOE Effluent Limits
CMOM Wetlands and BMPs
DEP fisheries Municipal permits
T&E Species / Fish & Wildlife CSO
Solid Waste Individual permits
Water Quality Construction permits
Standards SSO Industrial permits
MS4 Local Permitting



What Is An Integrated Plan?



- Single Plan
- Identify Priorities across All Programs
- Affordability Based on All Costs
- Single Schedule by Priority
- Stakeholders involved in Developing Plan & implementation
- Arrive at Overall Compliance and Beneficial Use Attainment
- Single, Consolidated Permit

Greater Portland's Impaired Waters

Presumpscot River

Falmouth

Westbrook

Gorham

Back Cove

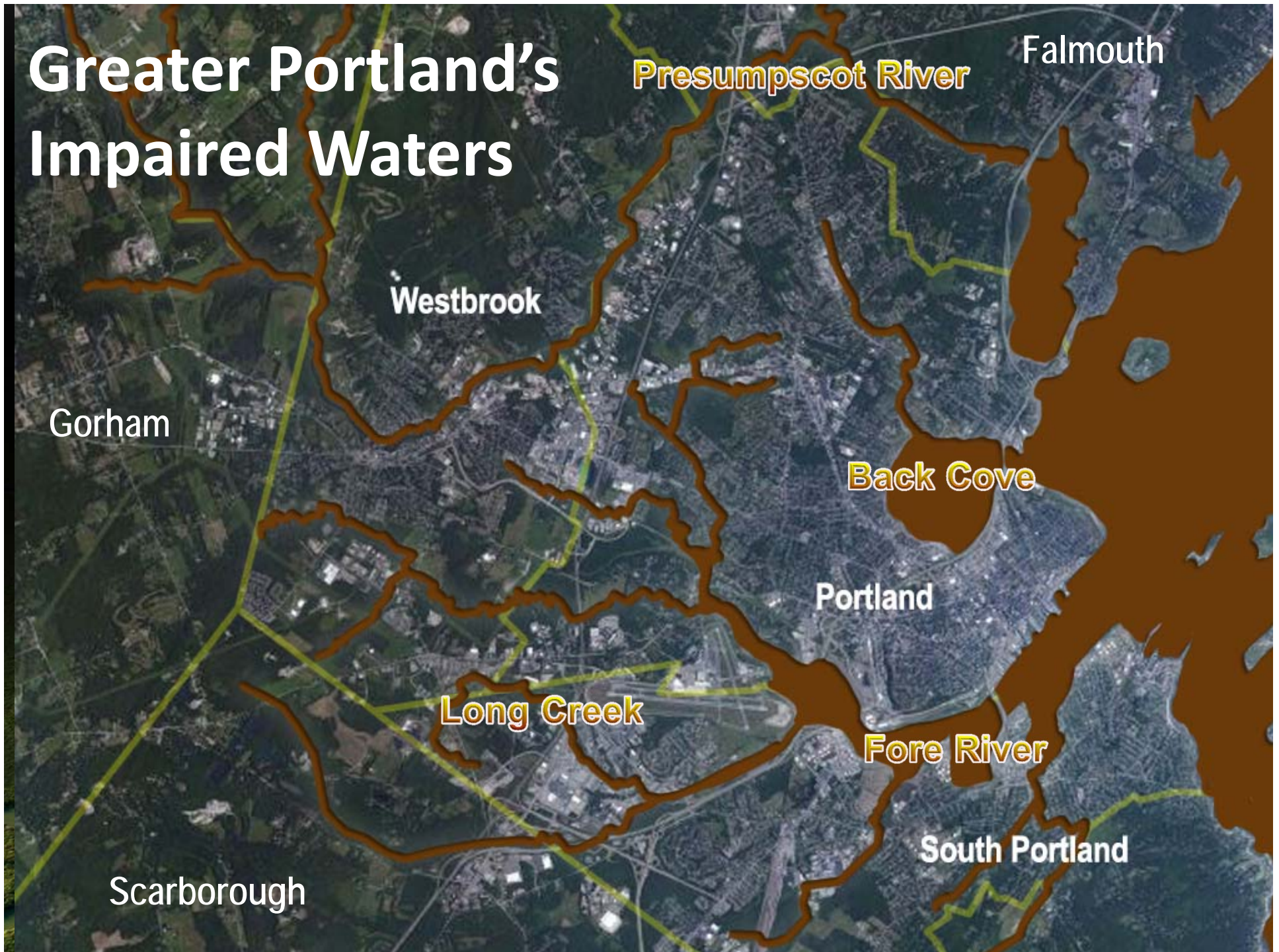
Portland

Long Creek

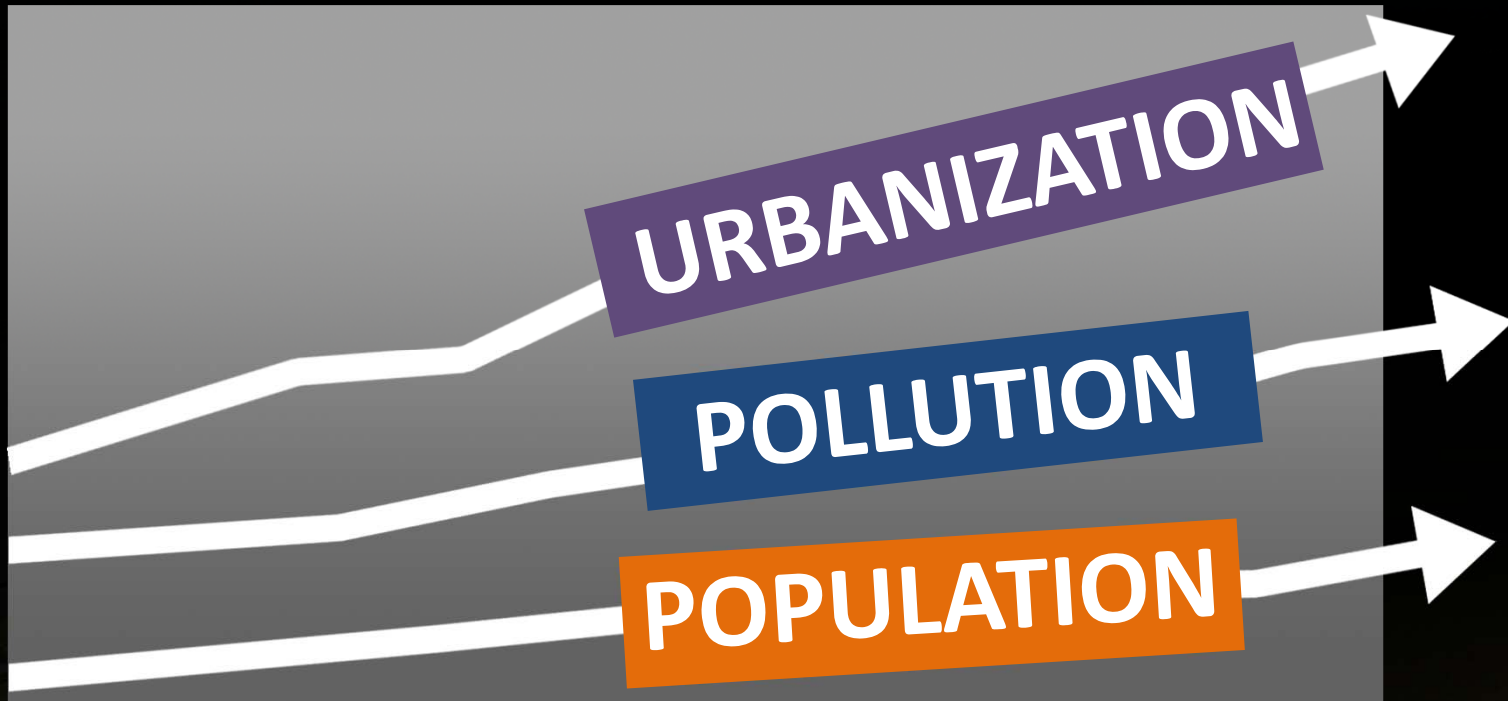
Fore River

South Portland

Scarborough



Why Does this Matter?



- Continued Growth
- Stricter Standards
- New Criteria
- Unregulated Sources
- Increasing Costs
- Multi-jurisdictional - Multi-state

Litigation Has Become A Driver

- Dept. of Justice spends \$\$M annually to defend CWA
- Water Pollution convictions up 87% from 20 years ago



Appendix III: Department of Justice Environmental

Treasury and Payments

Attorney fees and court costs for fiscal year 2003

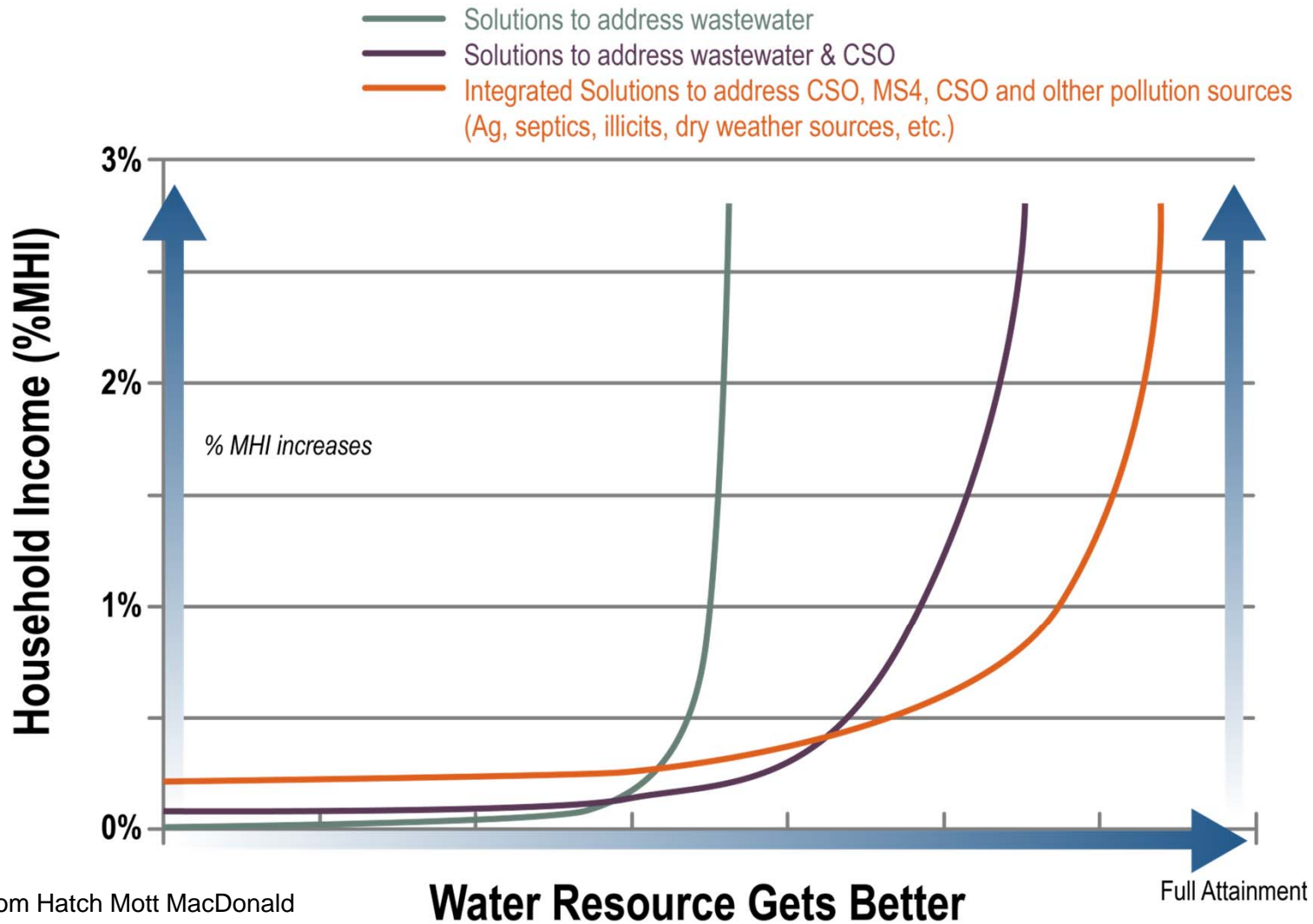
Protection Agency Payments for attorney fees for plaintiff or directly to defendants, one or more named. The first plaintiff named to receive the payment. Table 6 shows

Table 6: Treasury's Payments for Fiscal Year 2003 through Fiscal Year 2010

Date sent	Case title	Payee(s)	Payment amount*	Statute
9/29/2010	Louisiana Environmental Action Network v. Jackson	Administrators of the Tulane Educational Fund	\$5,000.00	Clean Air Act
9/27/2010	Sierra Club v. EPA	McGillivray, West		
9/22/2010				
9/21/2010				
8/19/2010				
8/19/2010				
8/17/2010				
8/3/2010				
7/14/2010				
7/13/2010				
7/8/2010				
6/25/2010				
6/22/2010				
6/11/2010				
5/25/2010	The National Cotton Council of America v. EPA	Western Environmental Law Center	500,000.00	Clean Water Act
5/24/2010	State of New Jersey v. EPA	Clean Air Act Task Force		Clean Air Act
3/12/2009		Earthjustice Attorney	400,000.00	Clean Air Act
5/19/2010	State of New York v. EPA	Earthjustice Attorney		Clean Air Act
11/19/2009				Clean Air Act



Integrated Water Quality Affordability



Pollution Prevention Improvements



Sweeping
Regenerative Air Sweeper



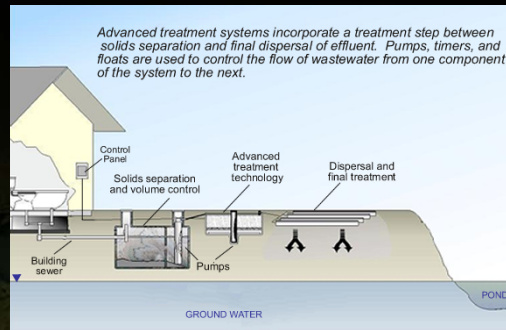
Fertilizer Control
Local or Regional Management



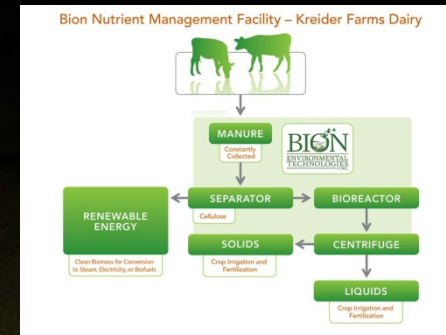
Education
Social Marketing



Local Regulations
Green Infrastructure



Septic Management
Nutrient Reducing Systems



Agriculture
BION technology

Technology the Basis

- Approach
- Live Field
- Cloud Based

Emerging ration

ing

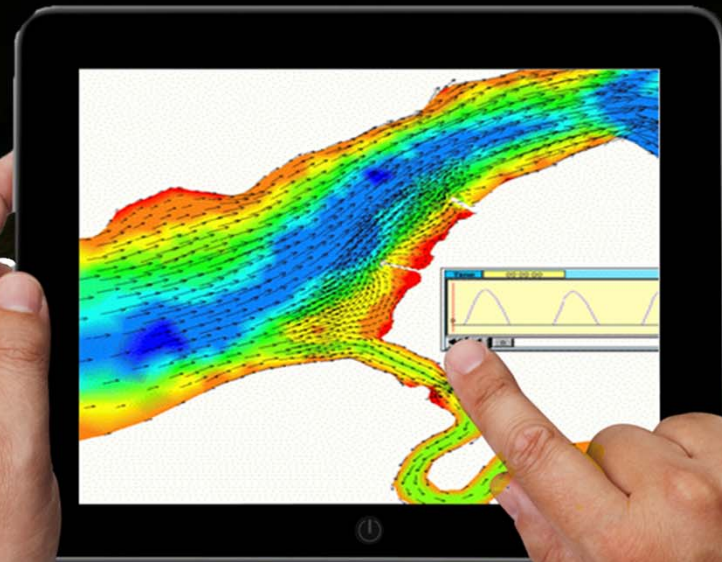
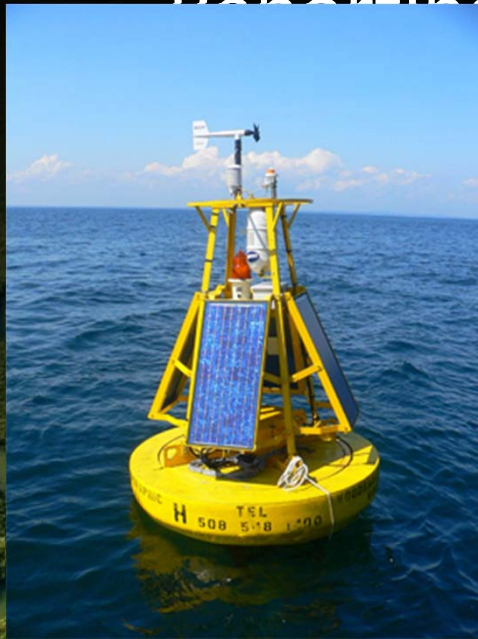
Integration

Information Management and

Reporting

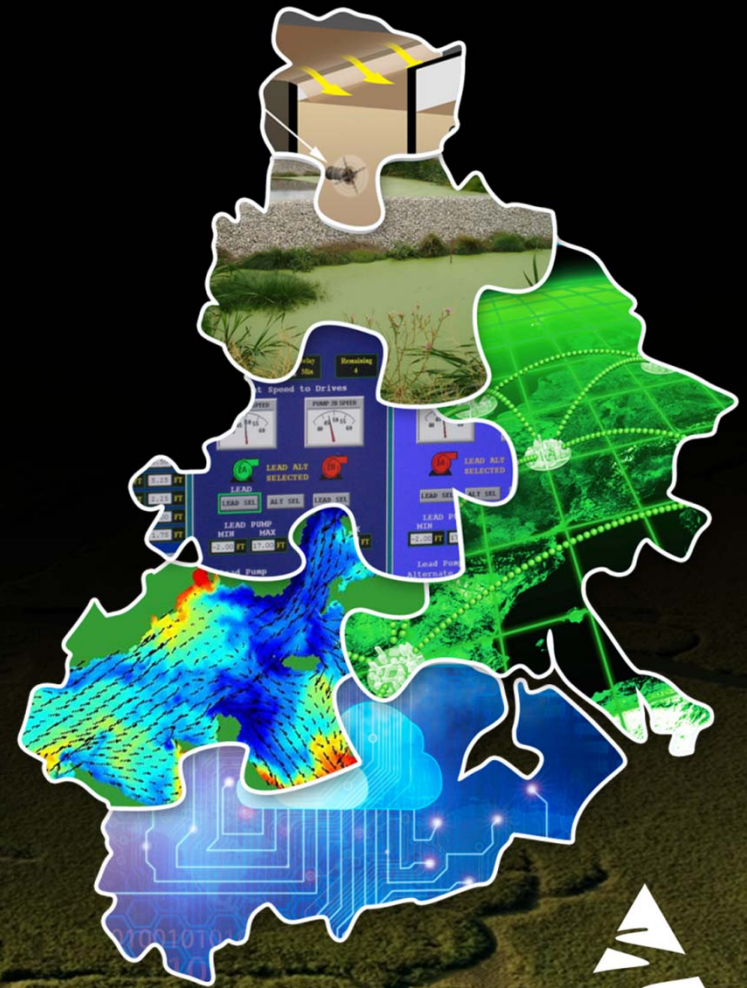
ed Awareness

edback to Man



The **ONLY** Cost Effective Approach

- Manage Watersheds as Systems
- Technology Refines Alternatives
- Integrated Data Management System to Refine Guidance
- Permits Re-Defined and Issued - Balancing Investment



So What's the Risk?



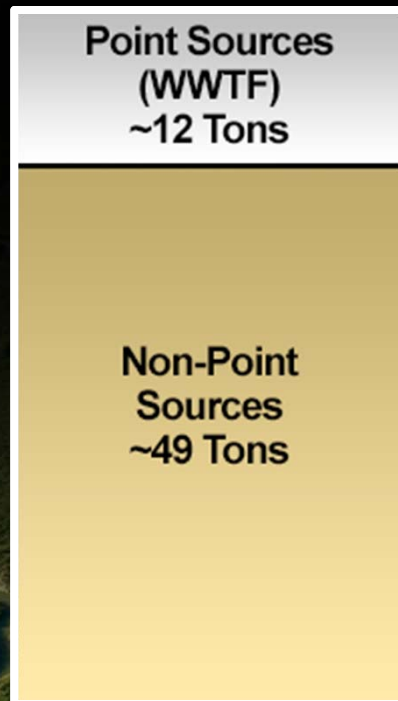
SILOSs =
Systematic Isolation
of Logic Obligates
Senseless Spending

The Reality Check....

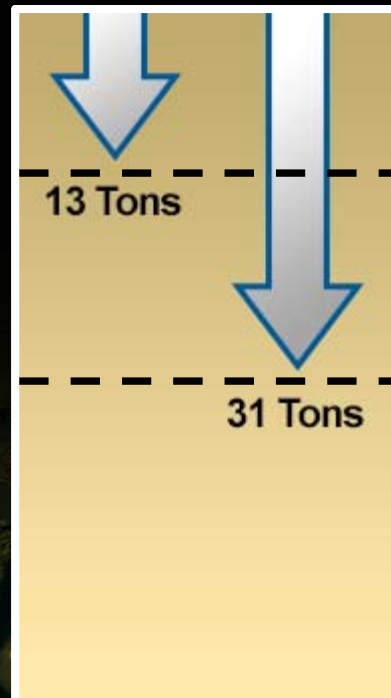
- Comprehensive Modeling and Hydrodynamics: Pricey and Subject to Micro-Managing
- Limited Understanding of Regulatory Liability
- What! Share My Data?
- Municipal and Inter-Jurisdictional Agreements: New England not exactly the Paragon of Regionalization
- Loosely Regulated May Not be Happy

The Durham, NH Challenge

**Current Annual
Nitrogen Load
= 61 tons/yr**



**Target Annual
Nitrogen Load**



**Estimated
13-31 tons^{b1}**

**Annual Nitrogen Load
Reduction Target to
Protect Eelgrass**

Oyster River- Annual Loads (NHDES, 2010)

Slide 13

b1

This numbers are for overall Great Bay right ? not just for Oyster River watershed. We should develop a graphic portraying costs vs effectiveness

barcieri, 4/6/2013

Primary Goal: Reduce Nitrogen Inputs to the Great Bay & Oyster River Estuary

- EPA proposes new WWTF effluent limit of 3 mg/L which at best would result in a Nitrogen load reduction of 4.5 tons /yr.
- Durham and UNH propose to achieve a similar or even greater reduction using a balanced approach of WWTF upgrades & nonpoint source control measures through an Integrated Watershed Plan.



Thank you

