Let's Talk Wetland Benefits

Jane Ballard

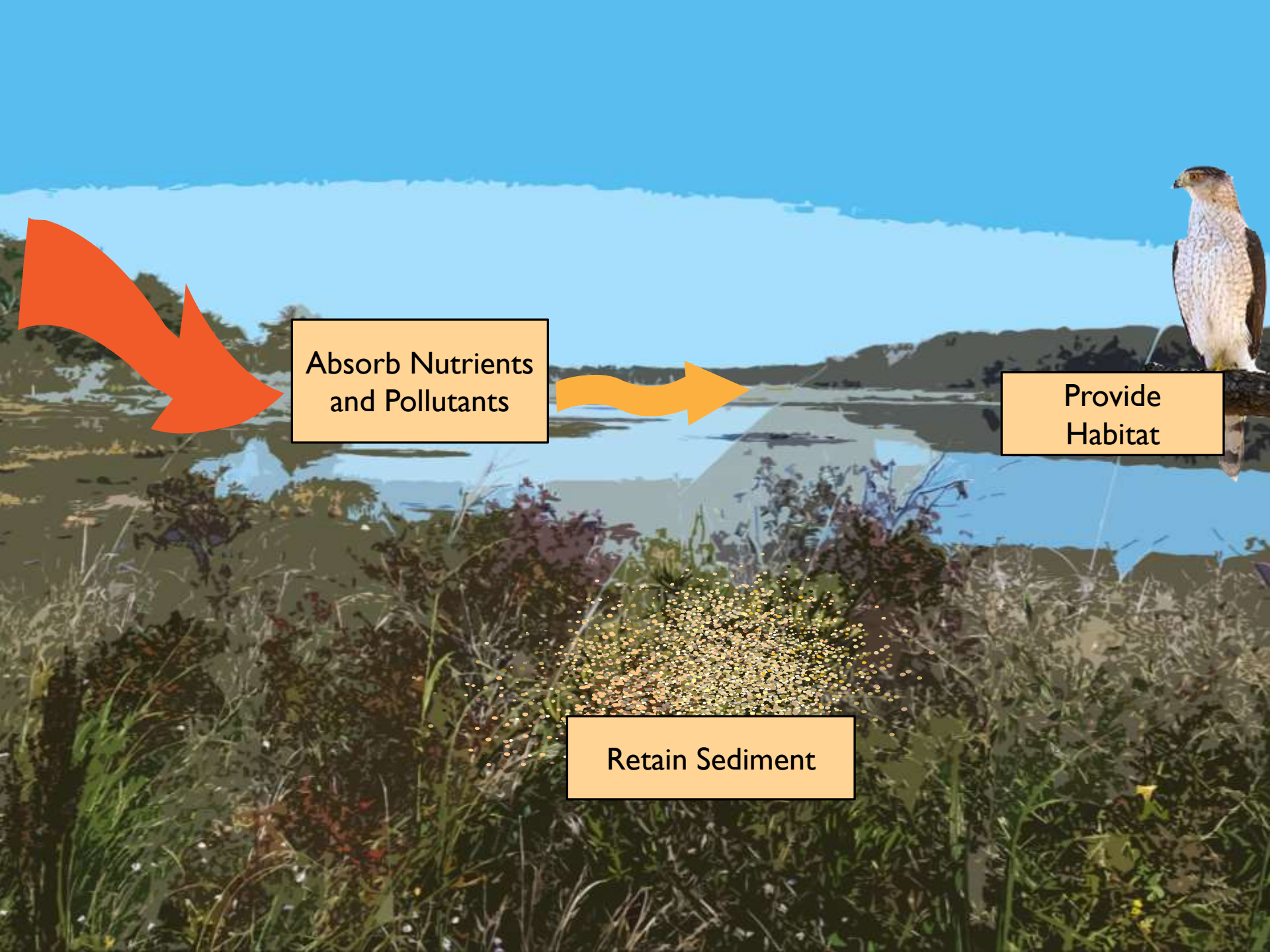
Maine Water and Sustainability Conference

March 30 2017

DIGITAL COAST

NERRA
National Estuarine Research Reserve ASSOCIATION

TRIDEC TECHNOLOGIES


Absorb Nutrients and Pollutants
Provide Habitat
Retain Sediment

THE ISSUE

capacity and resources

=

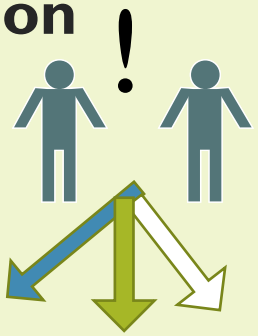
More questions

AN INNOVATIVE APPROACH

- Values and Trade-offs

- Stages of the decision making process

Awareness → **Analysis** → **Action**



AWARENESS

- Get the conversation started
- Motivate and support analysis and action

AWARENESS

Stakeholder Engagement

Permits

Funding

Budgets

Water Quality

Economy

Coastal Wetlands

Stormwater and Flooding

Community Character

AWARENESS

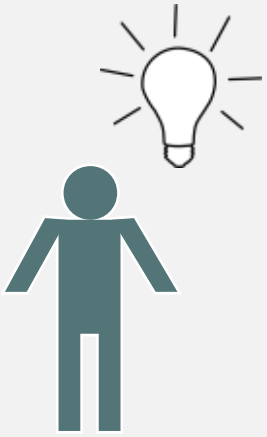
GecoServ
GULF OF MEXICO
Ecosystem Services Valuation Database

TEXAS A&M UNIVERSITY CORPUS CHRISTI | HARTE RESEARCH INSTITUTE FOR GULF OF MEXICO STUDIES

Ecosystem Services	Ecosystem Type									
	Freshwater Wetlands	Saltwater Wetlands	Beach	Coral Reefs	Oysters	Marine/Open Water	Seagrass	Dunes	Mangroves	Barrier Island
Habitat	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Disturbance Regulation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Recreation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Waste Regulation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

AWARENESS

- Videos, visualizations, statistics
- Highlight that impacts to services→ impact interests



ANALYSIS

- Trade-offs and co-benefits of decisions and scenarios
  - Value and perspective for functional assessments
  - Include in analyses

ANALYSIS

Service Category	Service	Management Action
Stormwater Protection	Flood Protection	Development regulations (buffers and zoning)
	Flood Protection	Managed retreat (realignment)
	Shoreline Stability	Enhance/create seagrass
	Shoreline Stability	Create/maintain cobble beach

Revised version of matrix created in Needles, L. A., et al. (2015). Managing bay and estuarine ecosystems for multiple services. *Estuaries and coasts*, *38*(1), 35-48.

ANALYSIS

Service Category	Service	Management Action	Historical, Cultural, Aesthetic	Recreation	Nutrient Capture and Cycling	Climate Regulation	Physical Provisioning
Stormwater Protection	Flood Protection	Development regulations (buffers and zoning)	+	+	+	+	-
	Flood Protection	Managed retreat (realignment)	+	+/-	0	+	-
	Shoreline Stability	Enhance/create seagrass	+	+	+	+	+
	Shoreline Stability	Create/maintain cobble beach	+	+	0	-	0

Revised version of matrix created in Needles, L. A., et al. (2015). Managing bay and estuarine ecosystems for multiple services. *Estuaries and coasts*, *38*(1), 35-48.

ANALYSIS

Service Category	Service	Management Action	Historical, Cultural, Aesthetic	Recreation	Nutrient Capture and Cycling	Climate Regulation	Physical Provisioning
Stormwater Protection	Flood Protection	Development regulations (buffers and zoning)	+	+	+	+	-
	Flood Protection	Managed retreat (realignment)	+	+/-	0	+	-
	Shoreline Stability	Enhance/create seagrass	+	+	+	+	+
	Shoreline Stability	Create/maintain cobble beach	+	+	0	-	0

Revised version of matrix created in Needles, L. A., et al. (2015). Managing bay and estuarine ecosystems for multiple services. *Estuaries and coasts*, *38*(1), 35-48.

InVEST

integrated valuation of ecosystem services and tradeoffs

ANALYSIS

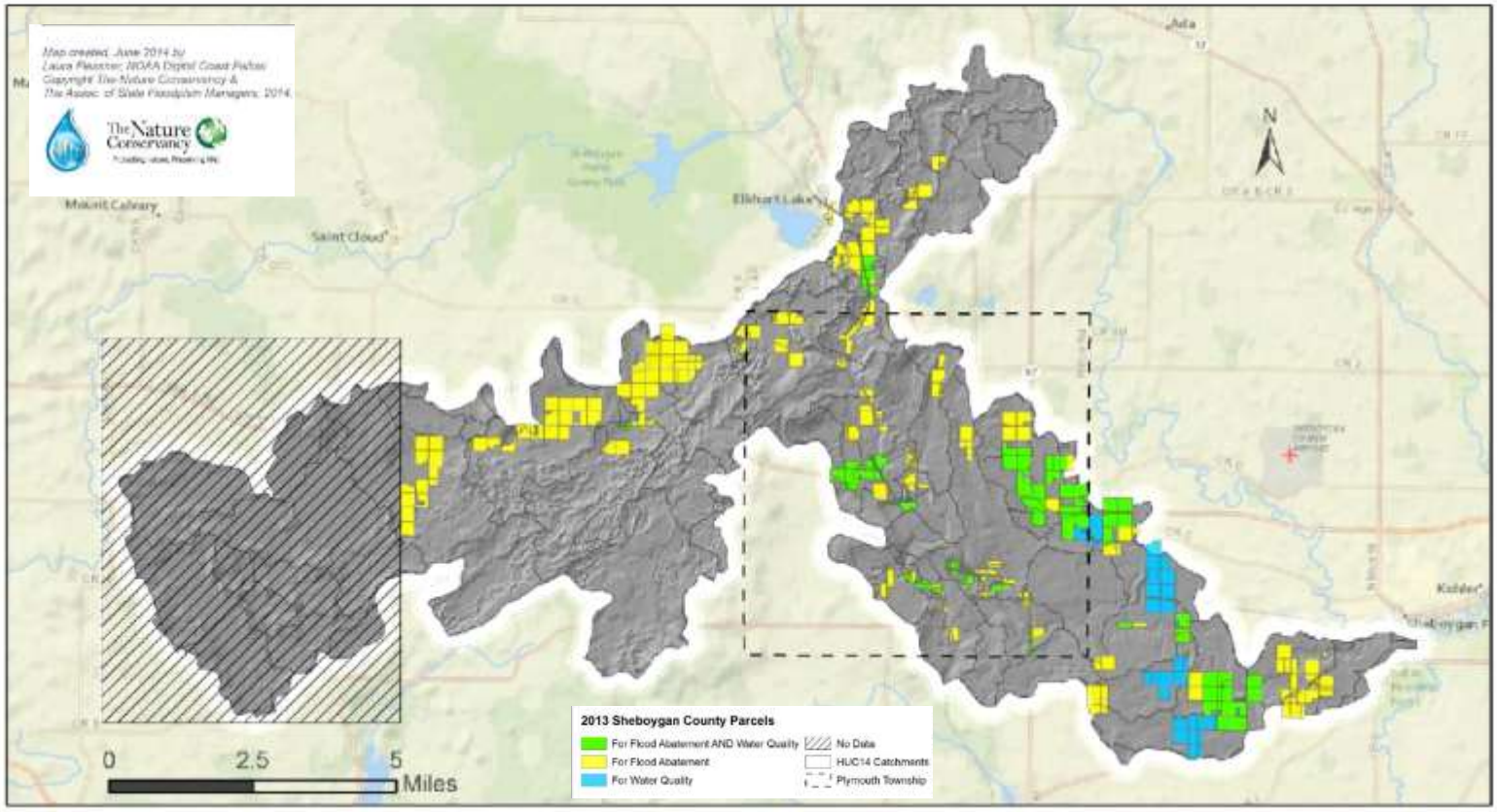
DIGITAL COAST

OpenNSPECT

An Open-Source Version of the
Nonpoint Source Pollution and Erosion Comparison Tool

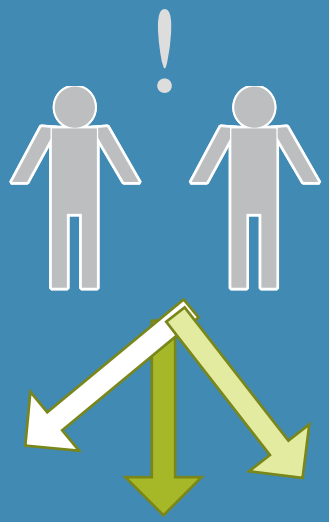
Priority Parcels for Multiple Benefit Wetland Restoration

Sheboygan County, WI Parcels Only



ACTION

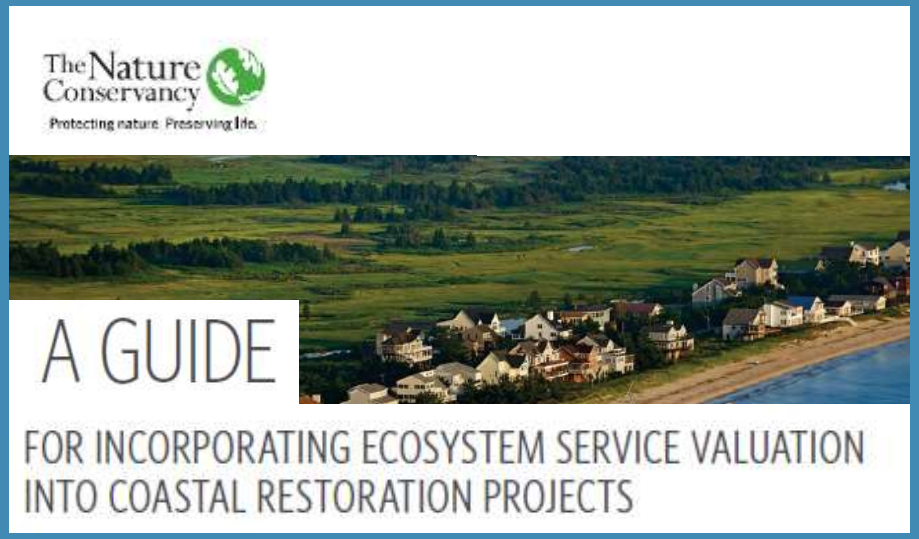
- Collaborations and funding among stakeholders and programs
- Regulatory and non-regulatory options
- Support and justify requirements and ratios
- Evidence-based decisions



DIGITAL COAST

ACTION

Federal Resource Management and Ecosystem Services Guidebook

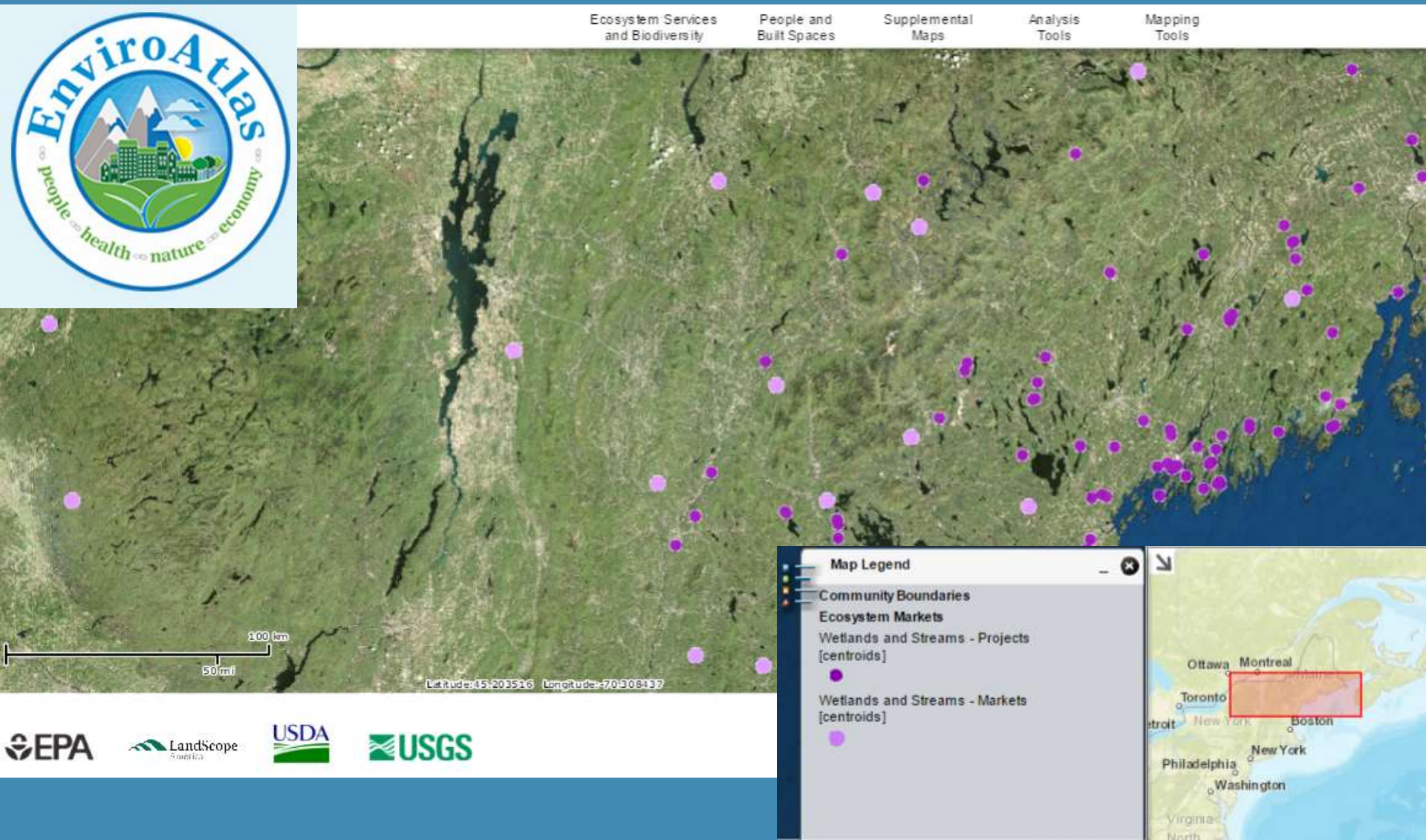


FEMA

Federal Insurance and Mitigation Administration

CRS credits for Natural Functions

ACTION


Ecosystem Services and Biodiversity
People and Built Spaces
Supplemental Maps
Analysis Tools
Mapping Tools
Map Legend
Community Boundaries
Ecosystem Markets
Wetlands and Streams - Projects [centroids]
Wetlands and Streams - Markets [centroids]
100 km
50 mi
Latitude: 45.203516 Longitude: -70.308437
Ottawa
Montreal
Toronto
Boston
New York
Philadelphia
Washington

ACTION

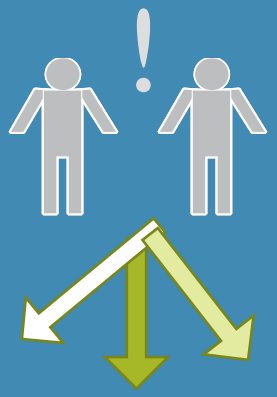
"The City shall use ecosystem services evaluation tools to **rank and prioritize**..."

"The natural environment shall be **utilized as part of infrastructure**…"

(City of Damascus Comprehensive Plan 2012)

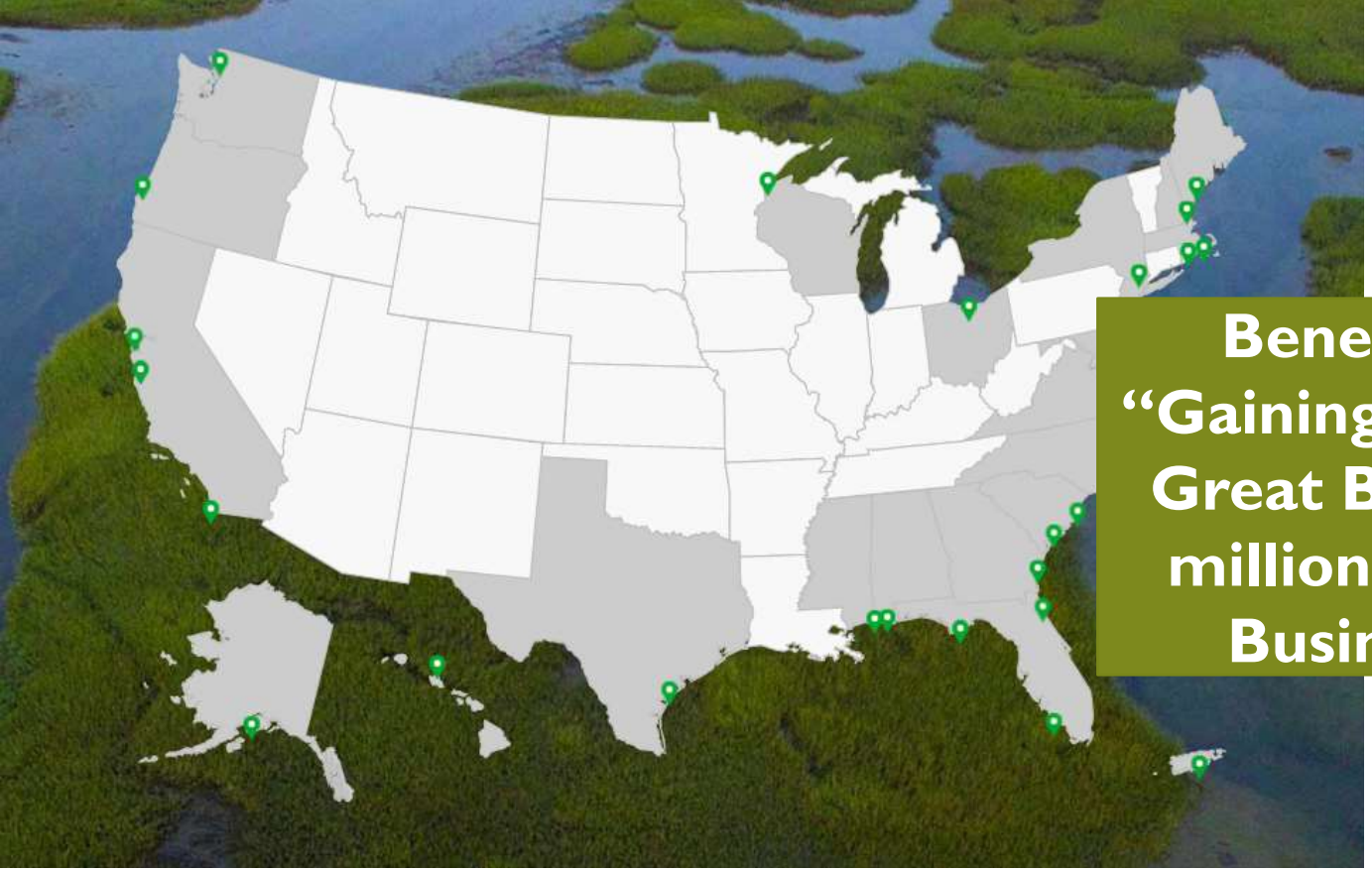
Required to be considered in **USFWS land management plans**

(36 CFR §219)



POTENTIAL BARRIERS

- Complexity → difficult to do
- Scale → difficult to transfer values

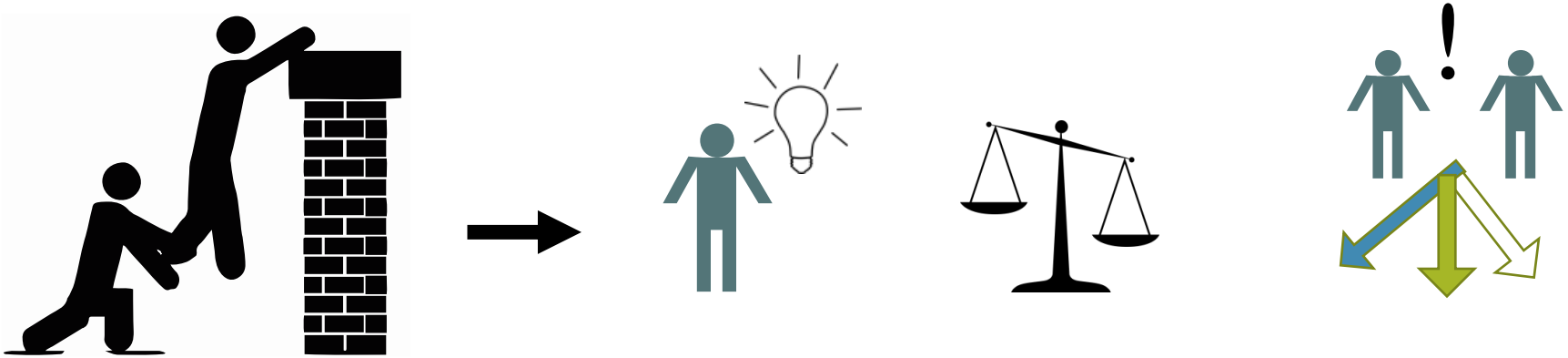


Benefits in 2025 of "Gaining and Sustaining" Great Bay habitat - $42 million – compared to Business as Usual.

Sandy dialogues: Lessons from a superstorm prepare Mainers for the future

POTENTIAL BARRIERS

- Limited demand → difficult to know to ask



WETLAND BENEFITS & PLANNING

- Now you know:
  - What's out there? How can it be used?

https://coast.noaa.gov/digitalcoast/

- I want to know:
  - How do you value benefit and service information?

jane.ballard@nerra.org

DIGITAL COAST

NOAA

NERRA
National Estuarine Research Reserve ASSOCIATION

wellsreserve

GREAT BAY NATIONAL ESTUARINE RESEARCH RESERVE

TRIDEC TECHNOLOGIES