

# Leveraging Wetland Ecosystem Services to Protect and Restore the Chesapeake Bay

**Ellen R. Herbert**  
**Ducks Unlimited, Inc.**

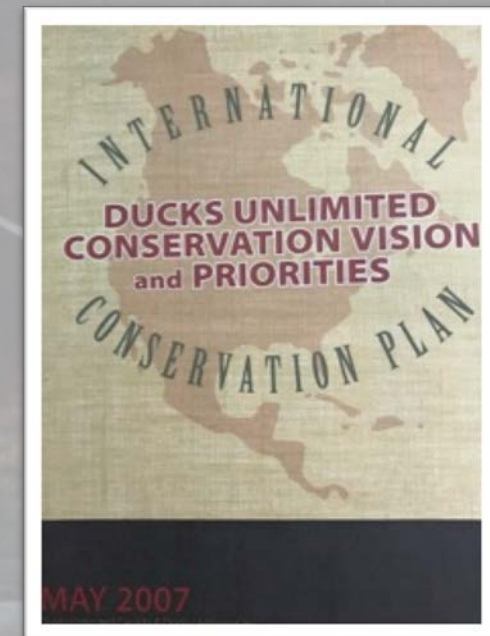
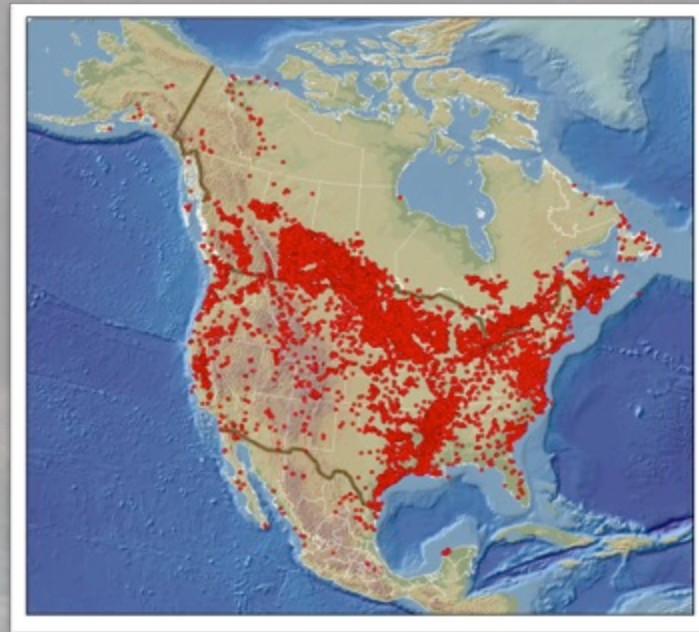
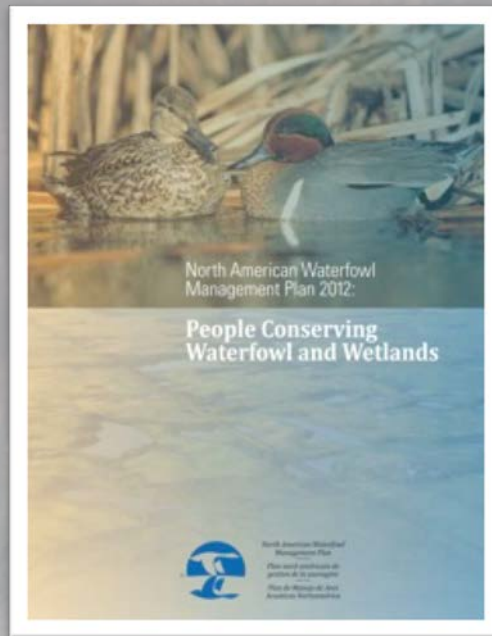
**Chesapeake Bay Marsh Sustainability Summit**  
**February 5<sup>th</sup>, 2019**





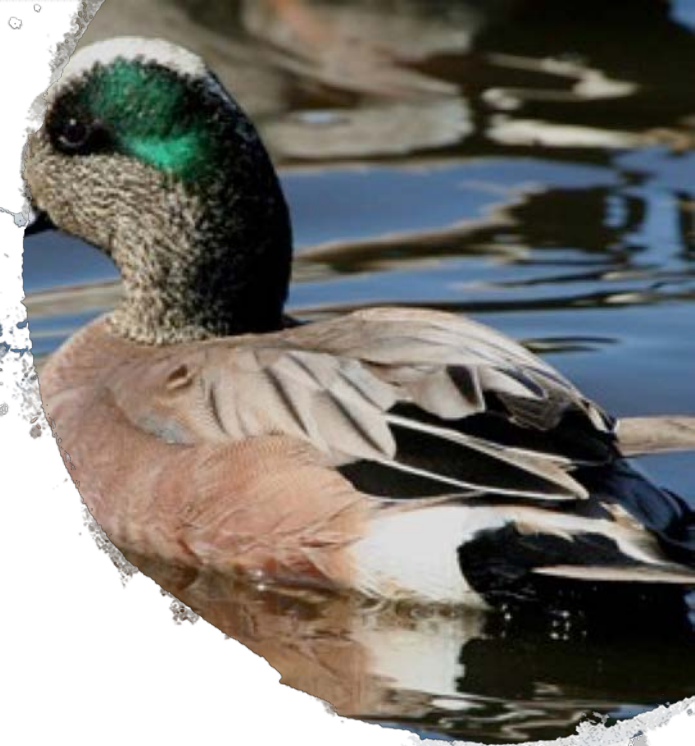
# *DU's Conservation Mission*

*Ducks Unlimited conserves, restores, and manages wetlands and associated habitats for North America's waterfowl. These habitats also benefit other wildlife and people.*



*14.1 Million Acres Conserved  
156 Million Influenced*



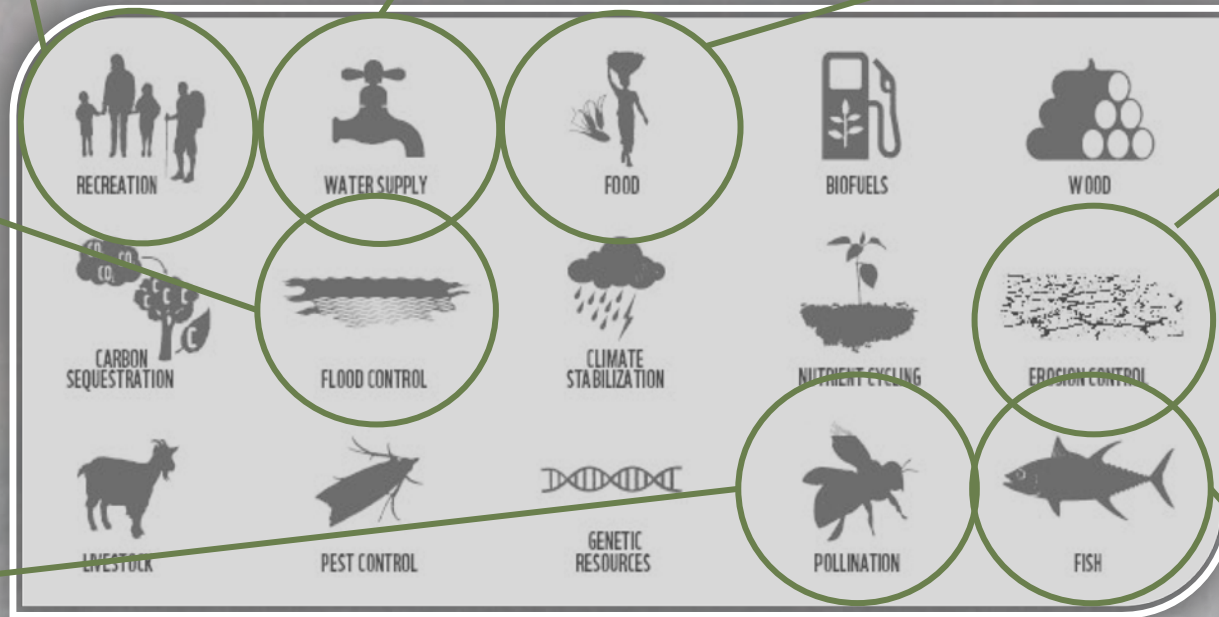
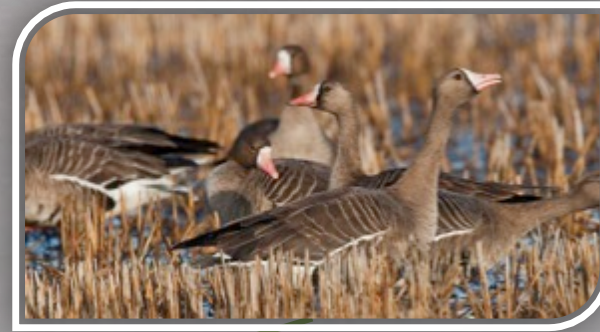


29 species of waterfowl  
winters 1/3 of Atlantic Flyway  
redheads (-97 percent)  
canvasbacks (-63 percent)  
scaup (-49 percent)

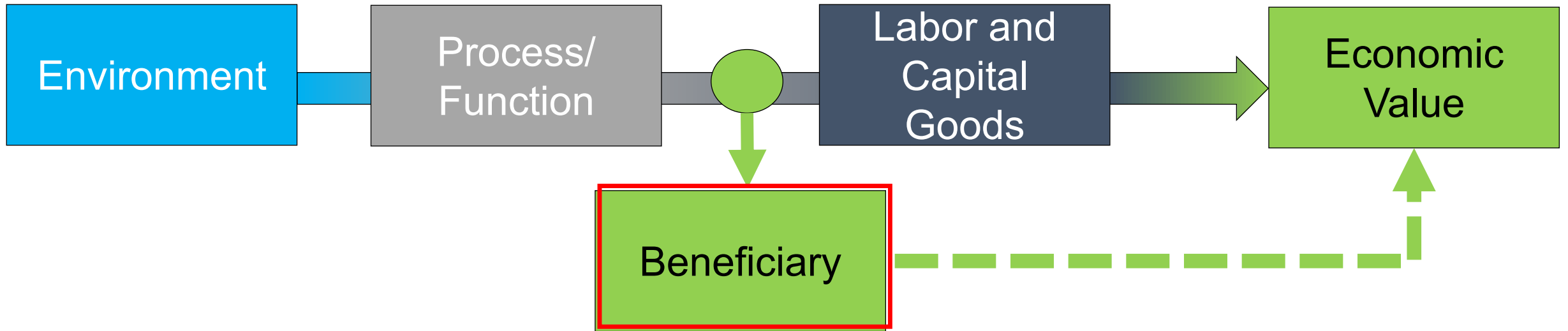




# Ecosystem Services

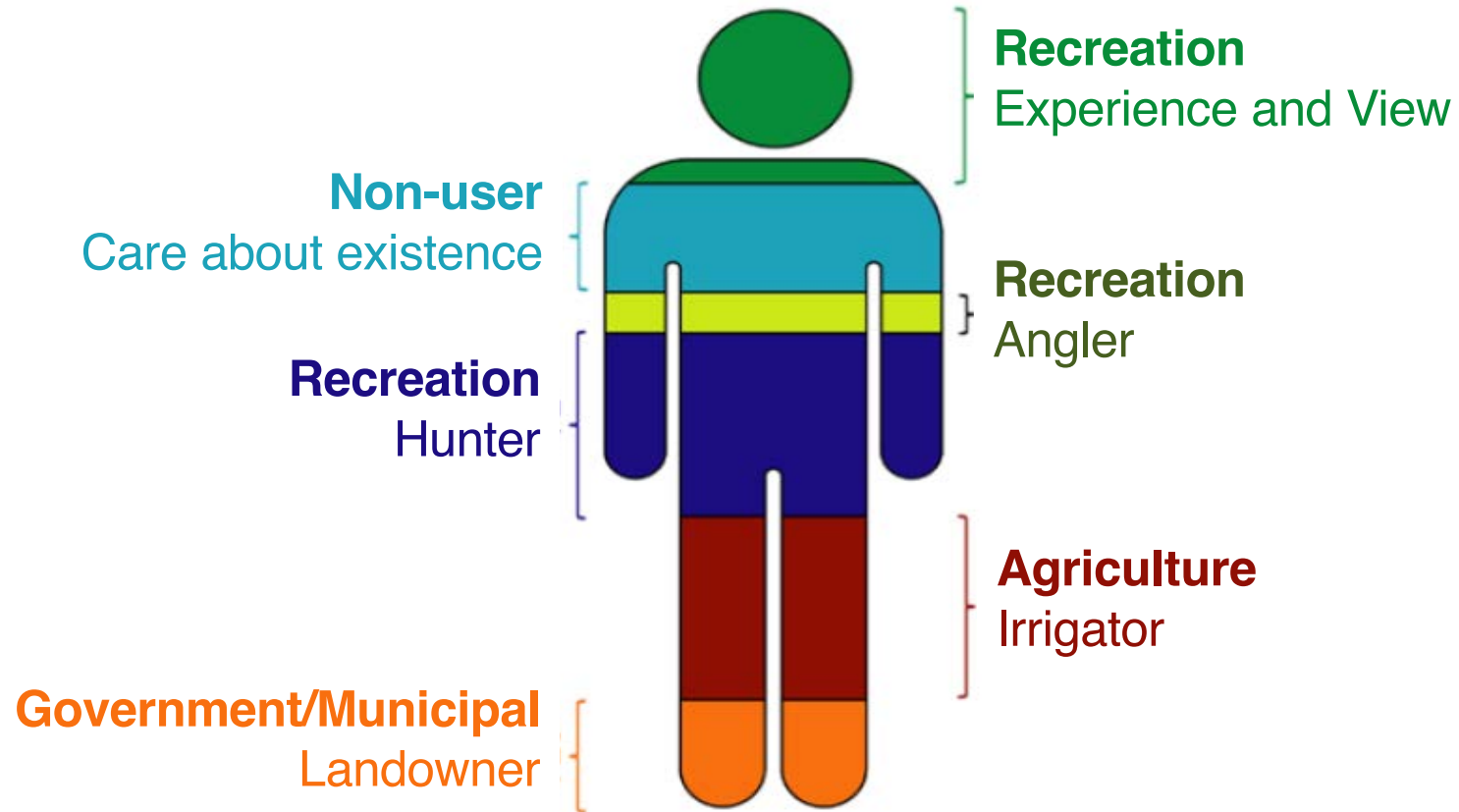


# *Ecosystem services: Socially & economically relevant indices*

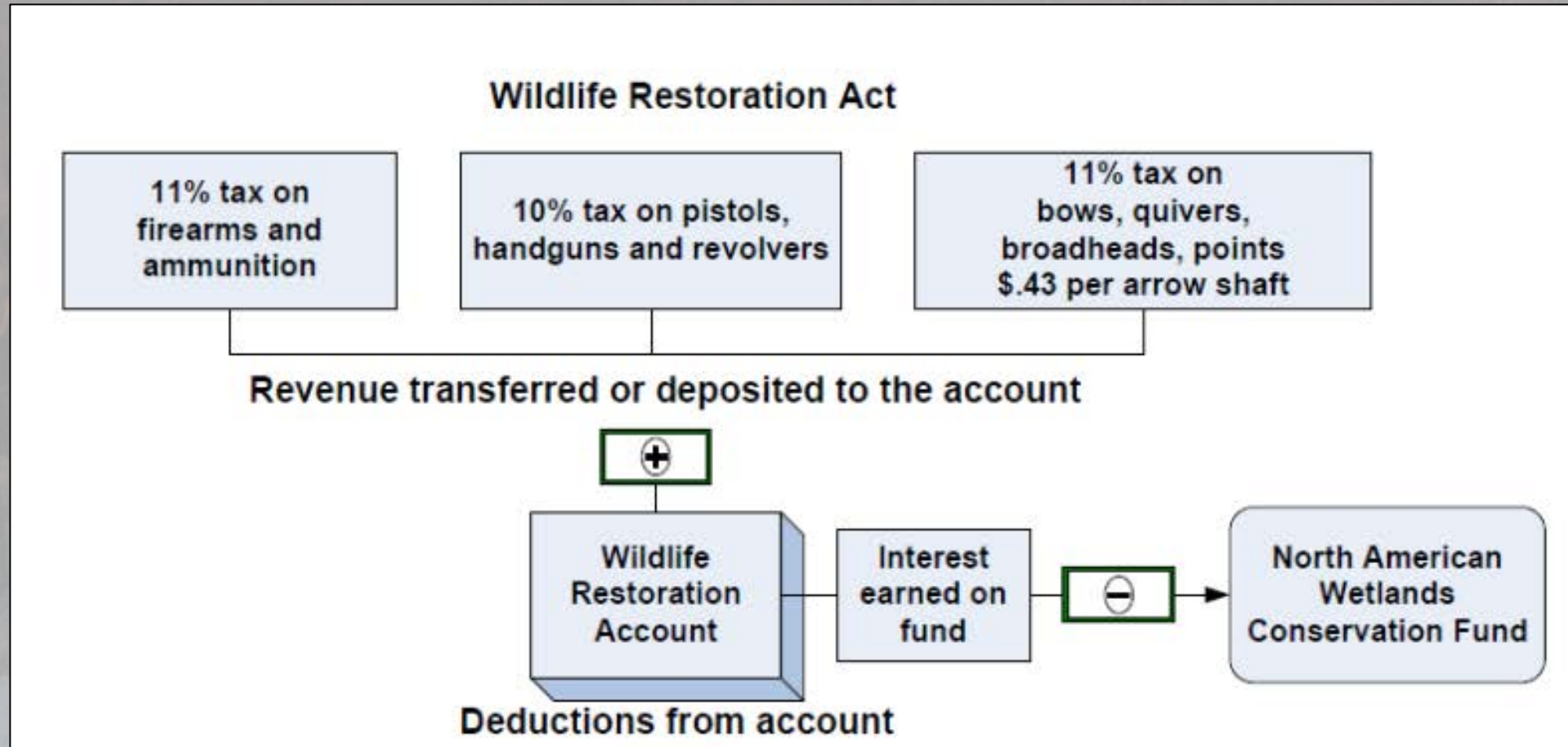




# *Who is the beneficiary?*



# Habitat--Pittman-Robertson Act (1937)





# *“Duck Camp”: University of Delaware*





# *Water Quality--Private Lands Conservation*

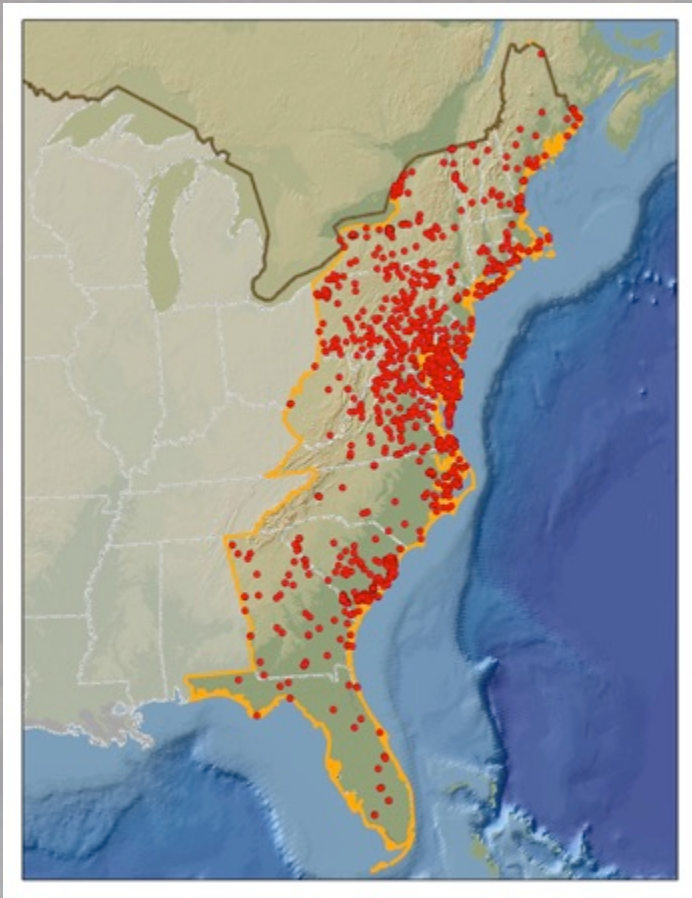








# *Improved water quality = better habitat downstream*



## **Long-term nutrient reductions lead to the unprecedented recovery of a temperate coastal region**

Jonathan S. Lefcheck<sup>a,b,1</sup>, Robert J. Orth<sup>b</sup>, William C. Dennison<sup>c</sup>, David J. Wilcox<sup>b</sup>, Rebecca R. Murphy<sup>d</sup>, Jennifer Keisman<sup>e</sup>, Cassie Gurbisz<sup>f,g</sup>, Michael Hannam<sup>h</sup>, J. Brooke Landry<sup>i</sup>, Kenneth A. Moore<sup>b</sup>, Christopher J. Patrick<sup>j</sup>, Jeremy Testa<sup>k</sup>, Donald E. Weller<sup>h</sup>, and Richard A. Batiuk<sup>l</sup>





# Accelerating Wetland Restoration in the Chesapeake Bay Watershed

## Obstacles and Solutions

October 2015

The Nature Conservancy and Ducks Unlimited



This report was made possible through generous support from the National Fish and Wildlife Foundation (Project 0602.13.039949).

- Funding
  - To little
  - Too inefficient
- Outreach
- Coordination
- Permitting
- Design



# *Chesapeake Bay Program Goals (managed by EPA)*



## **Black Duck Outcome**

**Management Strategy**

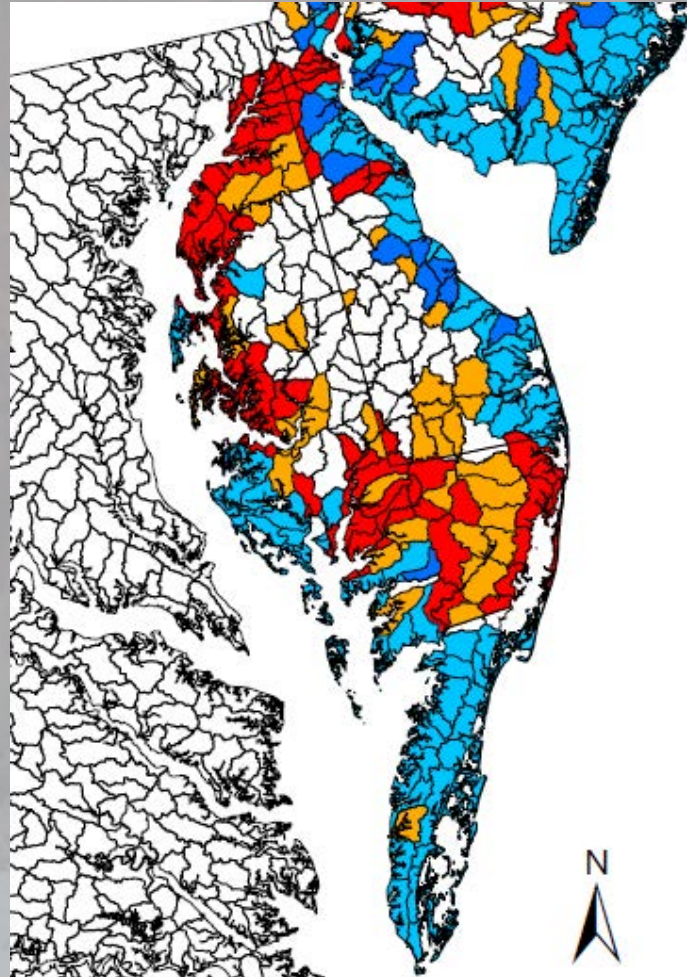
2015–2025, v.1

**BLACK DUCK OUTCOME:** Restore a 3-year average wintering black duck population in the Chesapeake Bay watershed of 100,000 birds by 2025.

*(Current condition: Recent mid-winter aerial surveys estimate the rolling 3-year average in 2007-2009 at ~37,000 and in 2009-2011 at ~47,000 black ducks in the Chesapeake Bay.)*



# *Habitat Decision Support Tool*

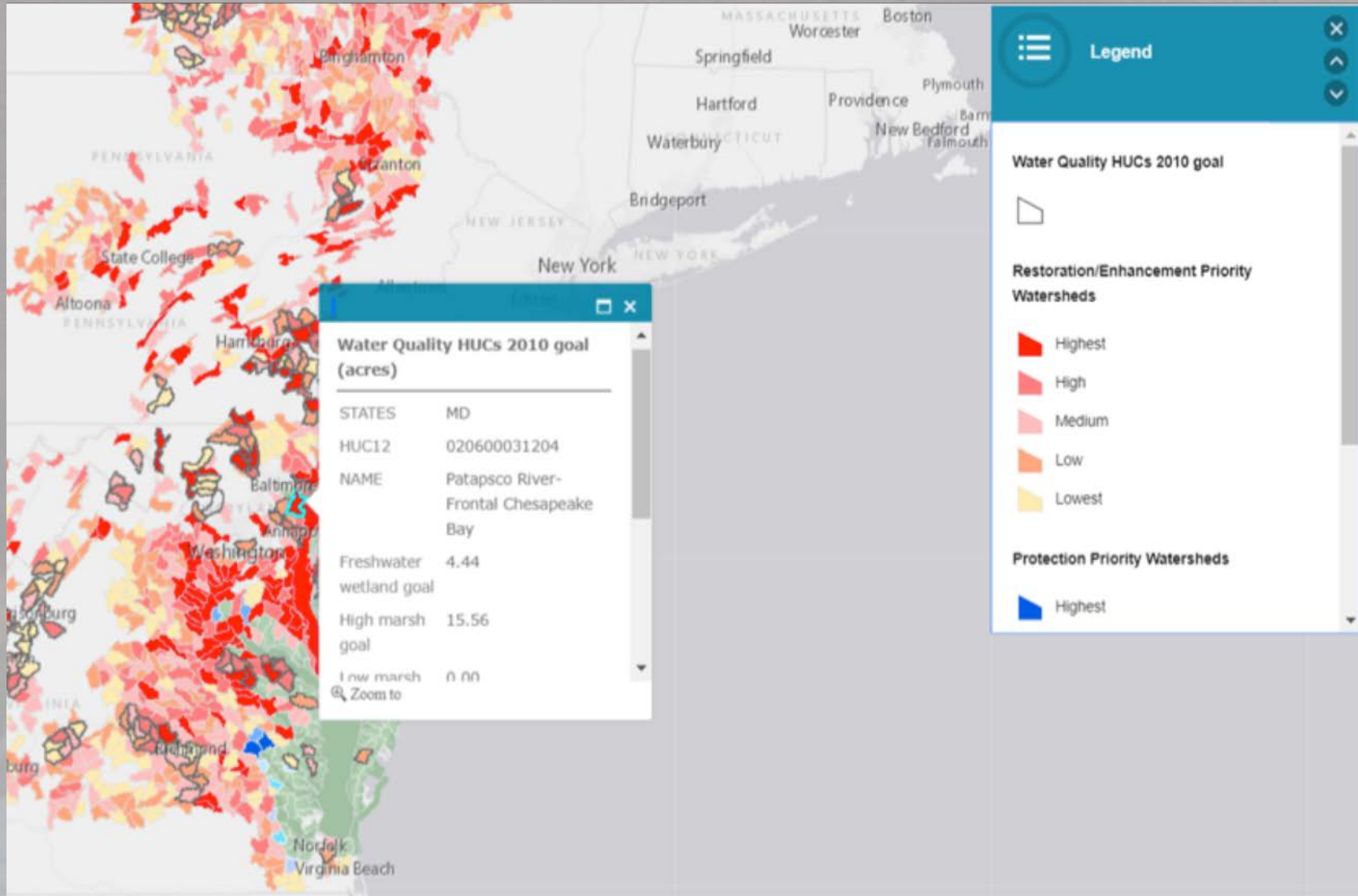


## Legend

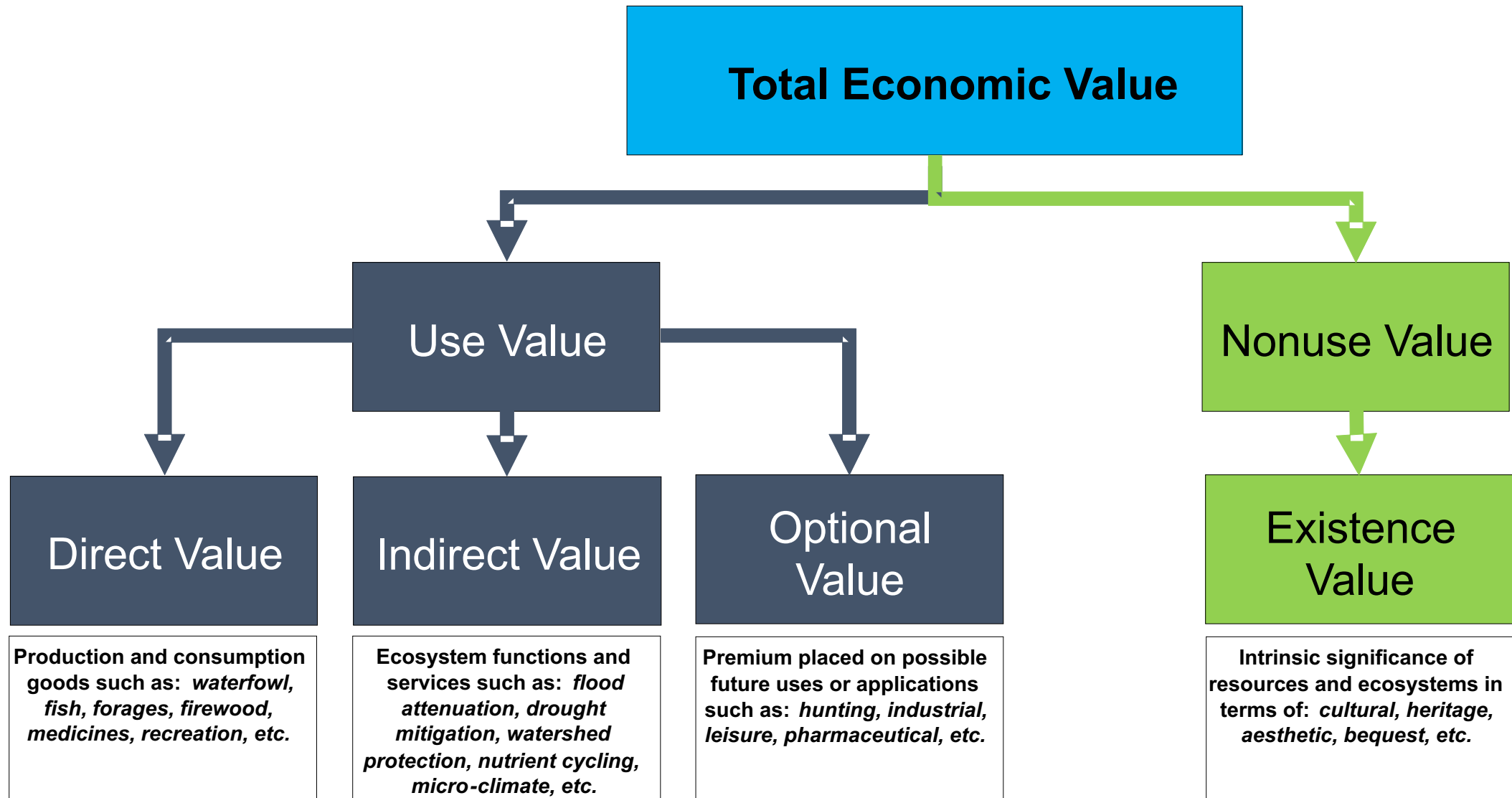
- Outside Priority Area
- Restoration/Enhancement\_Priority 1
- Restoration/Enhancement\_Priority 2
- Protection\_Priority 1
- Protection\_Priority 2



# Water Quality and the DST

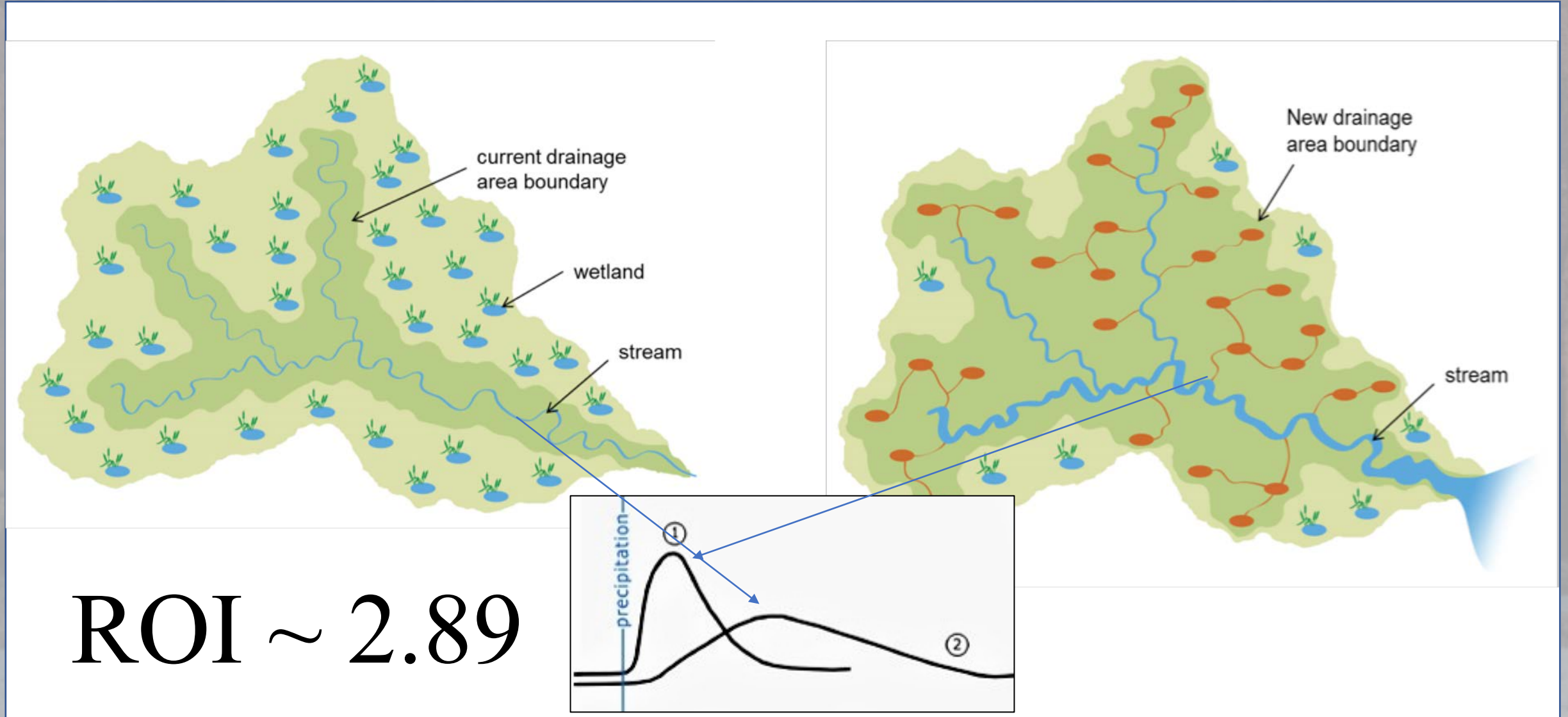






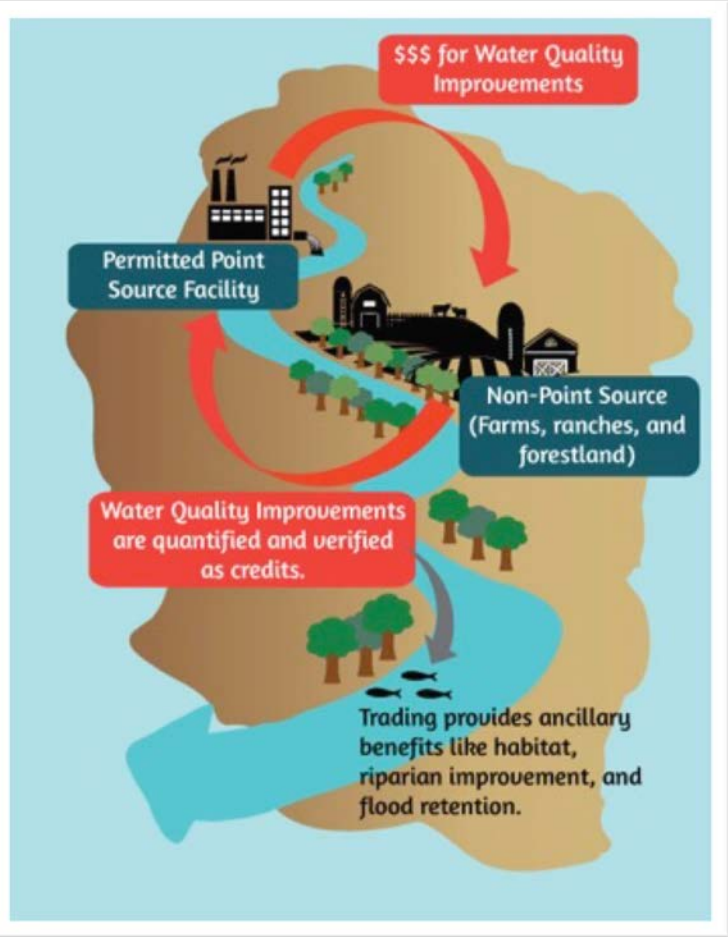


# Wetland loss = flood, nutrient runoff intensity





# Wetlands for Municipal Water Utilities





# *Hazard Mitigation—Fire Prevention*

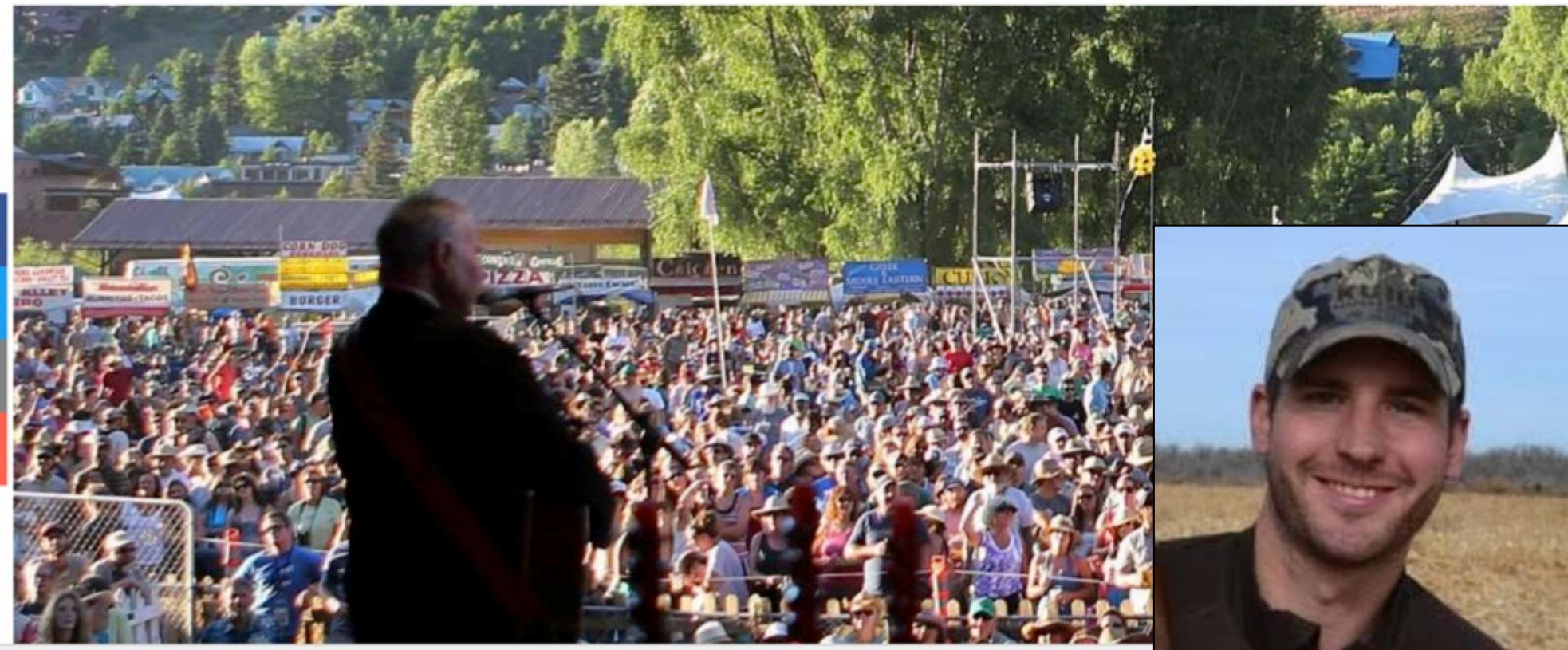
*Great Dismal  
Swamp NWR  
24,651 acres*





# Voluntary Carbon Market

Ducks Unlimited and partners facilitate Telluride Bluegrass purchase of carbon offsets from Colorado ranch





# Accelerating Wetland Restoration in the Chesapeake Bay Watershed

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the  
**Natural  
Infrastructure  
Initiative**



**Grow Investments**  
of water-based NI in the US



**Develop & Promote**  
New Tools / Processes /  
Capabilities



**Policy & Legislation**  
to accelerate water-based  
NI projects



**Create Awareness**  
support the uses & benefits  
of NI



**Brown & Root**





*Flood risks are rising*

**Credit Downgrade Threat as a Non-regulatory Driver for Flood Risk Mitigation and Sea Level Rise Adaptation**

Present

Goldman Sachs, Calvert bet on next big thing for green investments

2100



# Wetlands Prevented \$625M in Property Damage During Hurricane Sandy

ADDHARTH NARAYAN, MIKE BECK

NOV 31, 2017 | [Follow](#)



the  
Natural  
Infrastructure

Caterpillar: Confidential Green Initiative



# Hazard Mitigation--Supawna Meadows NWR



Photograph 4. 2006 Aerial Photography of Supawna Meadows NWR (NJGIN 2006).



Photograph 8. 2013 Aerial Photography (NJGIN 2012-2013).





Photography of a portion of Supawna showing wave energy reductions. Waves from 2006).



# Natural Infrastructure Initiative – 2018





## Grow Investments of water-based NI in the US

-  Identify and implement initial NI pilot projects with USACE in 2018
-  Identify and influence NI pilot program as part of WRDA section 1122
- Influence \$30B+ Federal disaster mitigation funding for NI consideration
- Partner with Academia to identify new NI business opportunities



## Develop & Promote New Tools / Processes / Capabilities

-  Develop opportunity identification database with USACE
-  Develop and / or promote benefits valuation tools & framework to support NI investment decisions
- Advocate for pilot watershed approaches to permitting NI projects (Mobile District)
- Develop Beneficial Reuse guidance document to help promote success, case studies and ROI.



## Influence Policy & Legislation

to accelerate the number and velocity of water-based NI projects

- Influence 2018 WRDA Bill
  - ...for passage on time
  - ...\$50M Flood Control Cont. Resolution
  - ...GAO Study on use of NI in projects
  - ...to include Lower Mississippi Ecosystem Restoration Study
- Advocate importance of WRDA section 1122 to key stakeholders
- State level advocacy of disaster mitigation with greater consideration for NI
  - Gulf and Mississippi River Regions
- Leverage NII to influence timeliness, funding, and approvals of identified NI projects



## Create Awareness support the uses & benefits of NI

- Identify strategic speaking engagements for advocacy and awareness of NI and NII
- Pursue media opportunities which incorporate NI as part of sustainability messaging
- Identify, develop, and implement communication campaign highlighting NI successes
- Utilize social media to diversify audience and expand reach

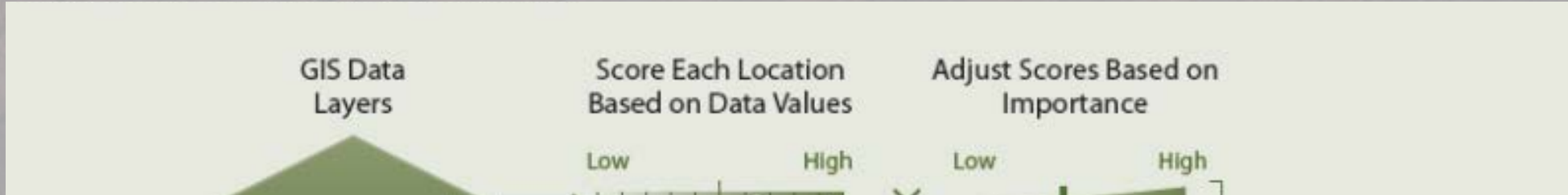


**Brown & Root**



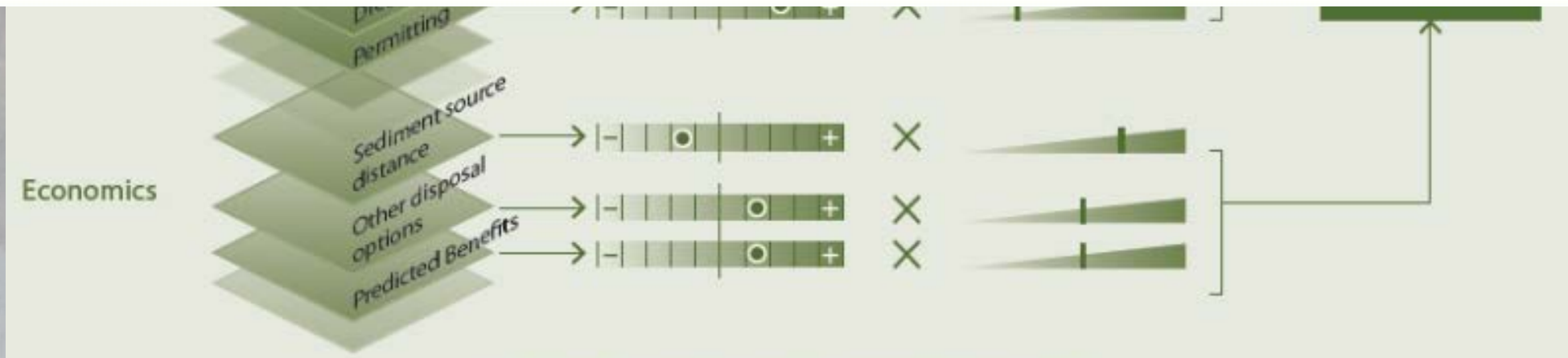


# *DU's Beneficial Use (BU) Decision Support Tool*



"The value of the [J.D. Murphree] wetland restoration project is estimated to be up to \$20,000 per acre based upon previous restoration projects in the States of Texas and Louisiana.... The economic benefit to Golden Pass LNG Terminal after deducting expenses is estimated to be \$10 million"

– *Brian P. Hall, Marine Superintendent, Golden Pass LNG Terminal, LLC*





# *Leveraging Divers Support for Conservation*

- Traditional habitat programs
  - >80% State and federal funds—efficacy through planning & coordination
- Leveraging water quality funds
- Demonstrating return on investment (ROI)
  - Individual cost savings
- Or direct investment as infrastructure
  - TMDL
  - Beneficial re-use
  - Disaster mitigation
  - Policy & practice barriers to implementation



*Ducks Unlimited: Conservation for Generations*



# *DU Chesapeake Conservation Staff*



**Jim Feaga**  
Regional Biologist NJ/PA  
[jfeaga@ducks.org](mailto:jfeaga@ducks.org)



**Jake McPherson**  
Regional Biologist MD/DE/WV  
[jmcpherson@ducks.org](mailto:jmcpherson@ducks.org)



**Emily Purcell**  
Regional Biologist VA/NC/SC/GA/FL  
[epurcell@ducks.org](mailto:epurcell@ducks.org)