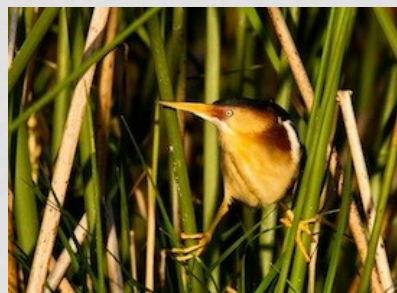# Shorelines and Tidal Wetlands in the Chesapeake Bay

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Photo: Will Parson

NEW REPORT ENABLES CREATION OF CARBON CREDITS FOR RESTORED WETLANDS

Study Finds $600M Plus in Property Losses Averted by Coastal Wetlands

October 31, 2016

In Maryland, wetlands reduced property damages by nearly 30%, and in New Jersey, wetlands prevented US$425 million in property damages. In Ocean County, NJ, the conservation of salt marshes is predicted to reduce average annual coastal property losses by more than 20%. (Additional findings available online here).

Wetland credited with reducing flood's crest
More absorbent watershed 'makes an impact,' Department of Natural Resources biologist says

Fish Need Wetlands

Fish[1] and humans have similar basic survival needs. Both require food, shelter, and a healthy environment. Wetlands fulfill these essential needs for fish across the United States. For example, shrimp feed and grow in the tidal marshes of the Mississippi delta. Striped bass pursue killifish living in the salt marshes along the Chesapeake Bay. Young salmon rest in the brackish marshes along the Pacific Coast, until their bodies adapt to salty ocean waters. Alewife and blueback herring lay eggs in the forested wetlands along rivers in the eastern United States. Different types of wetlands provide fish with food, refuge, and safe areas to lay their eggs.

Coastal Wetlands Found to Reduce Hurricane Property Damage by 10%-30%

Climate Change Impacts
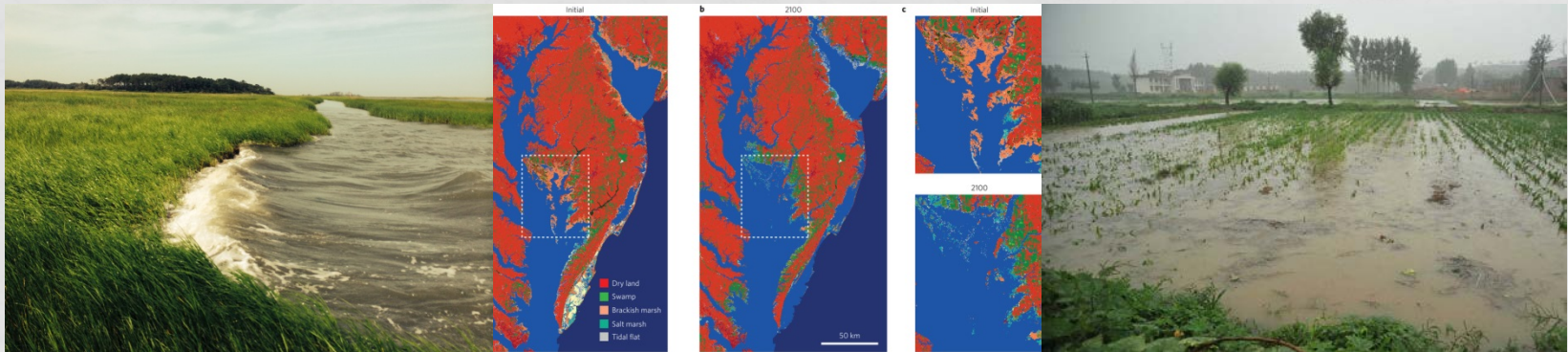
Upland Land Use

Shoreline Modification

Who speaks for Tidal Wetlands?

- Numerous tidal wetland efforts and research are ongoing
- Efforts are captured within the Chesapeake Bay Program, but are shared amongst workgroups and action teams, without a central focus.
- Currently, no specific group within CBP focuses solely on tidal wetlands.

CBP's Fish Habitat Action Team is in a position to convene and focus collaboratively on tidal wetlands to spotlight the importance of this habitat.

Project Scope

1. Reach out to agencies currently conducting tidal wetland studies for relevant literature

2. Identify important results and utilize to form recommendations

3. Provide results and recommendations to targeted audiences

Intended Audience

Local Government Advisory Committee
Management Board
Chesapeake Bay Sentinel Site Cooperative
Coastal Zone Management

SERC Shoreline Hardening and Watershed Land Use Study Summary

Benthic Macrofauna

- **Natural shorelines** have **higher** invertebrate abundance, biomass and diversity.

- **Riprap-sill** structures provide **higher habitat quality** than riprap revetments.

Fish and Crabs

- **Higher % agriculture** in a watershed **decreases** blue crabs and some bottom-oriented fish species.
- **Higher % hardening** is associated with **decreased abundance** of many fish and crabs
- **Higher % of wetlands** is associated with **increased** fish and crab abundance
- Diversity and abundance of development-sensitive waterbird species **increases** with **% wetland** in a subestuary and **decreases** with **% bulkhead**

SERC Shoreline Hardening and Watershed Land Use Study Summary

SAV and Refuge Habitat

- SAV abundance, density and diversity are less in watersheds dominated by agriculture and developed land.

- Shoreline hardening reduces SAV abundance and habitat availability.

- Hardened shoreline disrupts refuge habitat provided by natural shorelines

Invasions of Wetlands by Phragmites

- Invasive *Phragmites* abundance in wetlands is highest in developed and agricultural watersheds.
- Invasive *Phragmites* abundance along individual shorelines increases with shoreline agriculture and shoreline hardening
- Wetlands dominated by this invasive species have reduced habitat quality.

Water Quality

- Urban Land increases total nitrogen and Chlorophyll
- Ag Land increases total Nitrogen, total Phosphorus, and chlorophyll

Discussion:

1. Do you see potential applications for your organization?

2. Who else should be included in the audience?

3. Who should be involved in this effort?