

# Marshes for Tomorrow

## A Strategic Plan for the Restoration and Resiliency of Maryland's Salt Marshes



photo credit: Tim Tadder

### What is a salt marsh?

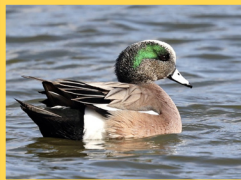
“Salt marshes” are regularly flooded and drained by salt water with the tides.

Within a single marsh there are multiple zones including “low marsh” which is regularly flooded and “high marsh” which is only flooded on the highest tides. Unique animals and plants inhabit this “high marsh” zone, including bird species found nowhere else in the world.



**Did you know?** Salt marsh plants, such as saltmarsh cordgrass, are important food sources for the wild horses of Assateague Island.

### A cultural resource...



#### Hunting

Salt marshes provide many hunting opportunities for a variety of game including wintering waterfowl and deer.



#### Harriet Tubman

Her familiarity with the marshes of Maryland's Eastern Shore were key to Tubman's success in escaping enslavement and guiding others to freedom.



#### Blue Crabs

Salt marshes are vital nursery habitat (protective habitat for juveniles of a species) for the Maryland Blue Crab.

photo credit: (left to right) Kim Abplanalp (Maryland Coastal Bays Program), Brian Henderson, Jody Arneson (midatlanticdaytrip.com)

### ...disappearing

**Rising sea levels are drowning our salt marshes.**



photo credit: Eric Liner, Cornell Lab of Ornithology

**75% of Maryland's high marsh will likely be lost to sea level rise by 2100.**

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## What benefits do saltmarshes provide?



**Coastal Protection:** Healthy, highly elevated salt marshes protect coastal communities by buffering against wave energy and storm surge.



**Healthy Fisheries:** Salt marshes provide food, or habitat for more than 75% of fishery species, including shrimp, finfish, and blue crab.



**Recreational Opportunity:** Salt marshes provide outdoor opportunities, such as fishing, kayaking, and wildlife-watching, boosting local economies.



**Clean Water:** Salt marshes protect water quality by naturally filtering out chemicals from agricultural runoff and breaking down excess nutrients.

## Why are Maryland's marshes disappearing so quickly?

### Sinking Land and Rising Seas

Sea levels across the globe are rising due to the impacts of climate change. Scientists predict that **sea level will rise about 3 feet by 2100**. Sea level is rising due to 2 primary causes:

- 1) polar melting:** As the atmosphere warms, glaciers at earth's poles melt, depositing ice that was previously trapped on land and increasing the amount of water in the ocean.
- 2) thermal expansion:** As water increases in temperature it also increases in volume, due to its physical properties. This accounts for about half of measured global sea level rise.

At the same time, the coasts of Maryland have been slowly sinking since the last ice age. This is a natural geological process, but it does mean that relative **sea level rise in Maryland is twice as fast compared to the global average**. This increased water on the marsh will lead to more vegetation die back and overall deterioration of our marshes.

### Historic Ditching



photo credit: Roman Jesien,  
Maryland Coastal Bays Program

You may notice that salt marshes in your area, have straight lines or ditches notched into them. Ditching changes the way water flows on the marsh and has caused severe damage in marshes over time. It is estimated that **90% of tidal marshes from Virginia to Maine were ditched** for salt hay farming in the 1600s, and later for mosquito control in the 1900s.

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## Species Highlight



photo credit: Frank Lehman

### Saltmarsh Sparrow

*Ammospiza caudacuta*

The Saltmarsh Sparrow is a songbird that only lives in the salt marshes of the Atlantic coast and only breeds in the Northeast United States.

**The saltmarsh sparrow has experienced an 87% population decline since 1998. Maryland is home to 25.2% of the breeding saltmarsh sparrow population. The highest of any state.**

**A Delicate Nesting Strategy:** The Saltmarsh Sparrow nests only in the “high marsh” zone above the reach of daily tides. Because it builds its nest on, or very close to, the ground, changes in water level have major impacts on the survival of chicks and overall breeding success.



photo credit: Rhonda Smith USFWS

## Marsh Restoration Techniques

### Runnels

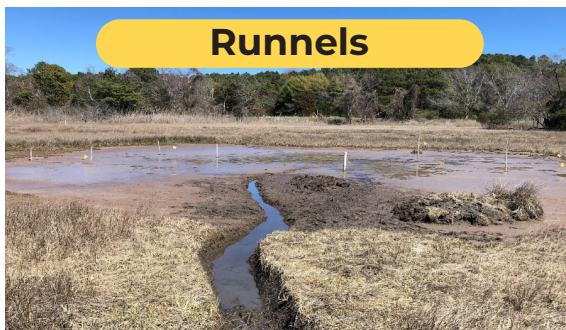


photo credit: Dave Curson, Audubon

**Use When:** Marsh is degrading due to water trapped on the marsh surface.

**What:** Shallow channels dug in the marsh to restore tidal flow and drain trapped water. Can be used to remediate impacts of historic ditching.

### Sediment Placement



photo credit: Middleton Evans

**Use When:** Raising the marsh surface is needed for its longterm survival.

**What:** Placement of dredged sediment onto the marsh surface to raise its height above the reach of daily tides

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## The “Marshes for Tomorrow” Initiative

Marshes for Tomorrow is an initiative to create a restoration plan for the tidal salt marshes of Maryland’s Eastern Shore. We cannot save all of our marshes from sea level rise, but we can preserve significant areas of marsh by carefully selecting and maintaining the best examples of this precious landscape.

We have based our conservation target of 25,000 acres of marsh on the needs of the imperiled Saltmarsh Sparrow because this species is a good indicator of marsh health. Ultimately, marsh restoration at this scale has the power to save the tidal salt marsh ecosystem—and along with it, **economic benefits to fisheries, tourism, and local communities.** The project will:

- 1 IDENTIFY** 25,000 acres of salt marsh to be maintained long-term to conserve the high marsh ecosystem and Saltmarsh Sparrow.
- 2 CREATE A SCHEDULE** of restoration projects on these priority marshes which will maintain them as healthy marsh over coming decades.
- 3 INCLUDE COMMUNITY FEEDBACK** by developing local/county level conservation strategies to guide restoration actions which are broadly approved by local communities.

### Project Partners



### Funding Acknowledgement



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*Design and Artwork by Sophia Blanco Seufert, USFWS*

For more information on the sources referenced in this brochure visit <https://www.delmarvarcn.org/marshesfortomorrow>