

The background of the slide is a photograph of submerged aquatic vegetation (SAV) in a bay. The foreground is filled with dense, green, blade-like plants, likely eelgrass, growing in shallow water. The water surface is visible in the middle ground, reflecting the sky. In the far background, a hazy shoreline with some buildings and trees can be seen under a clear blue sky.

Attaining 185,000 Acres of Submerged Aquatic Vegetation (SAV) for a Restored Chesapeake Bay

**Part 1: Status and Trends of SAV 1984 to
Present**

Lee Karrh (Md-DNR)

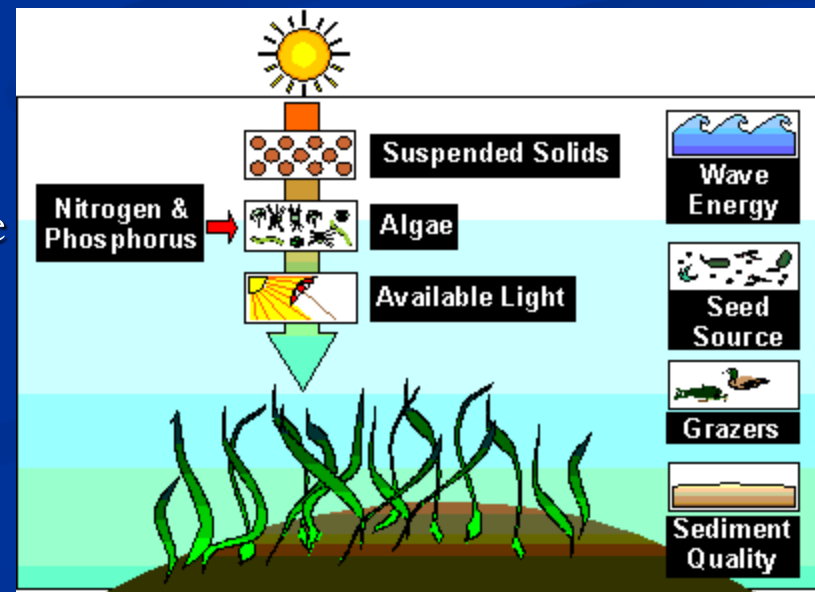
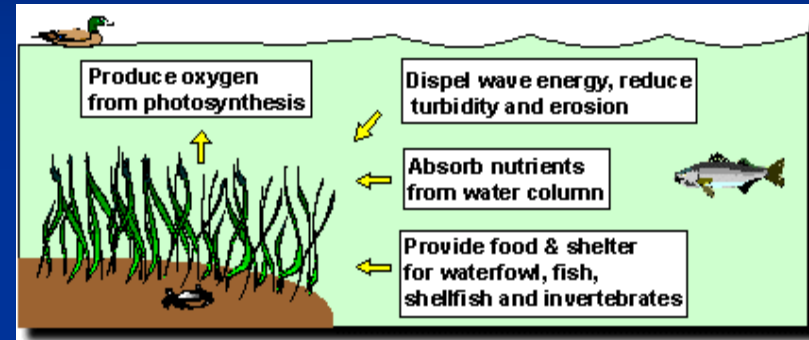
Bob Orth (VIMS)

Topics to be covered

- *SAV 101*
- Patterns in *SAV* distribution over time and space
- Persistence
- Challenges and Opportunities

What is SAV and why do we care?

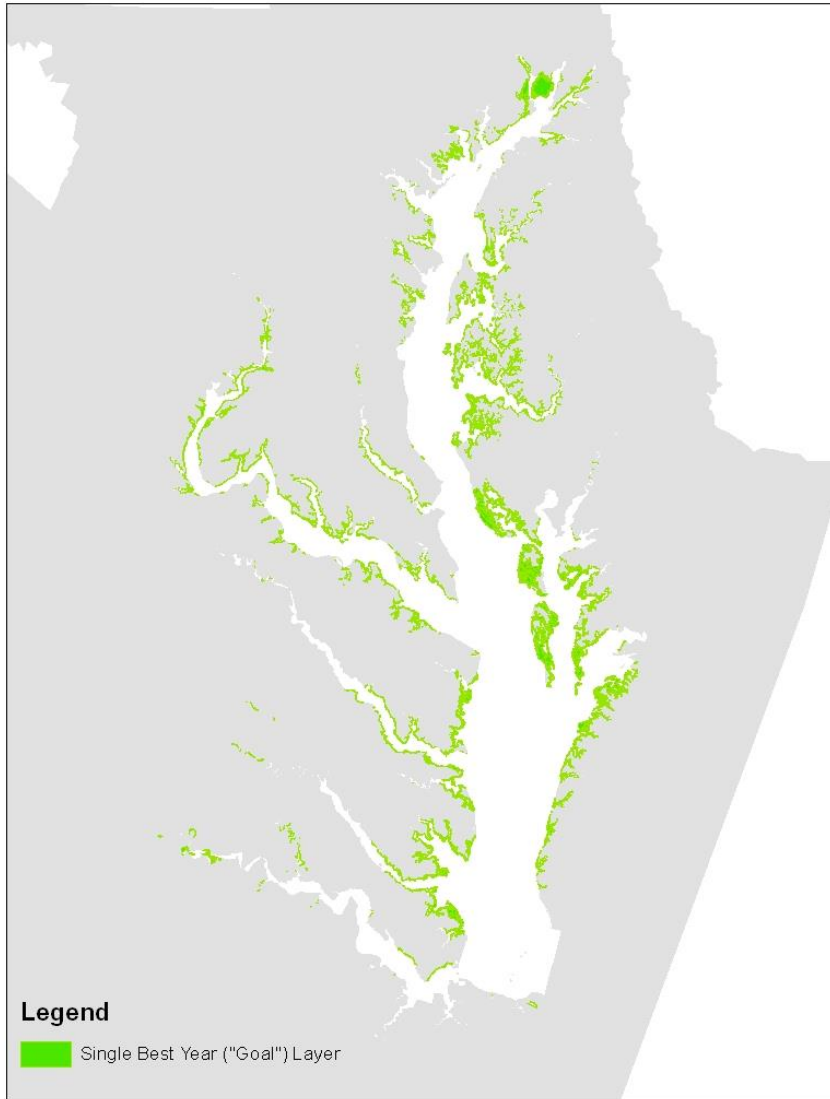
- There are at least 17 different species of vascular plants that live part, if not all, of their lives completely submerged in Chesapeake Bay
- SAV provides services
 - Food for waterfowl and other things
 - Habitat (i. e. blue crab, prey items for other things we like to eat)
 - Improves water quality
 - (Uptake and sequester nutrients, add DO, reduce turbidity, dissipate wave energy)
 - Indicator for water quality, since SAV are sensitive to both improvements and degradation in water quality



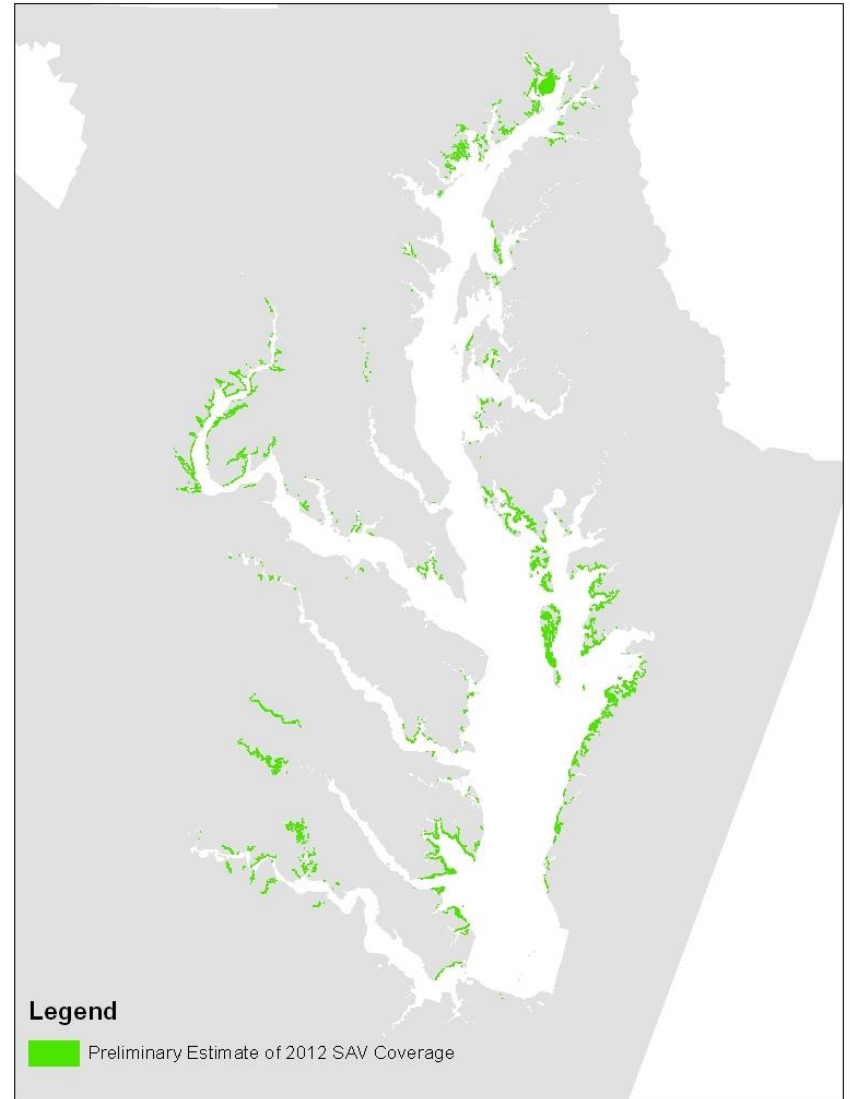
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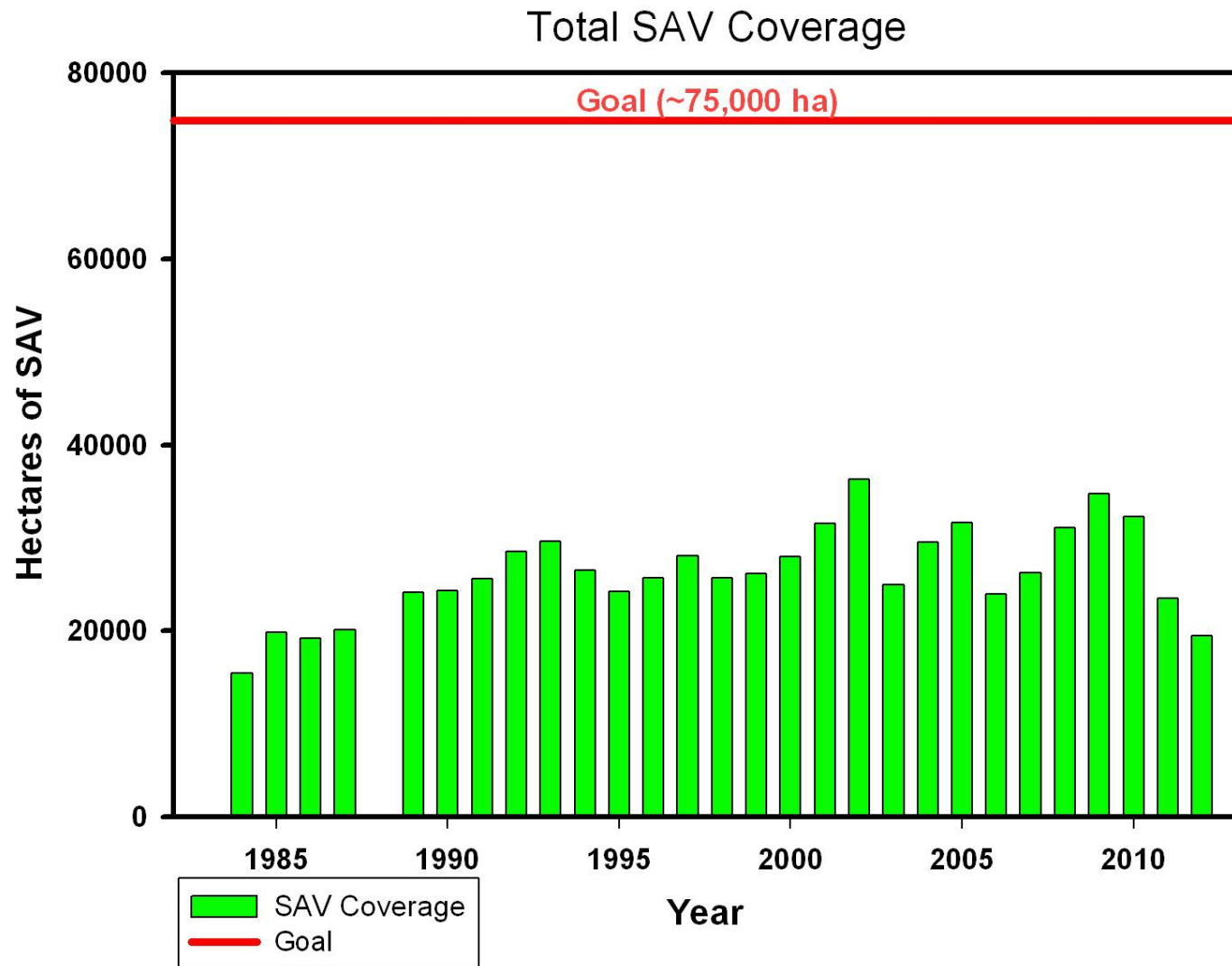
That was then



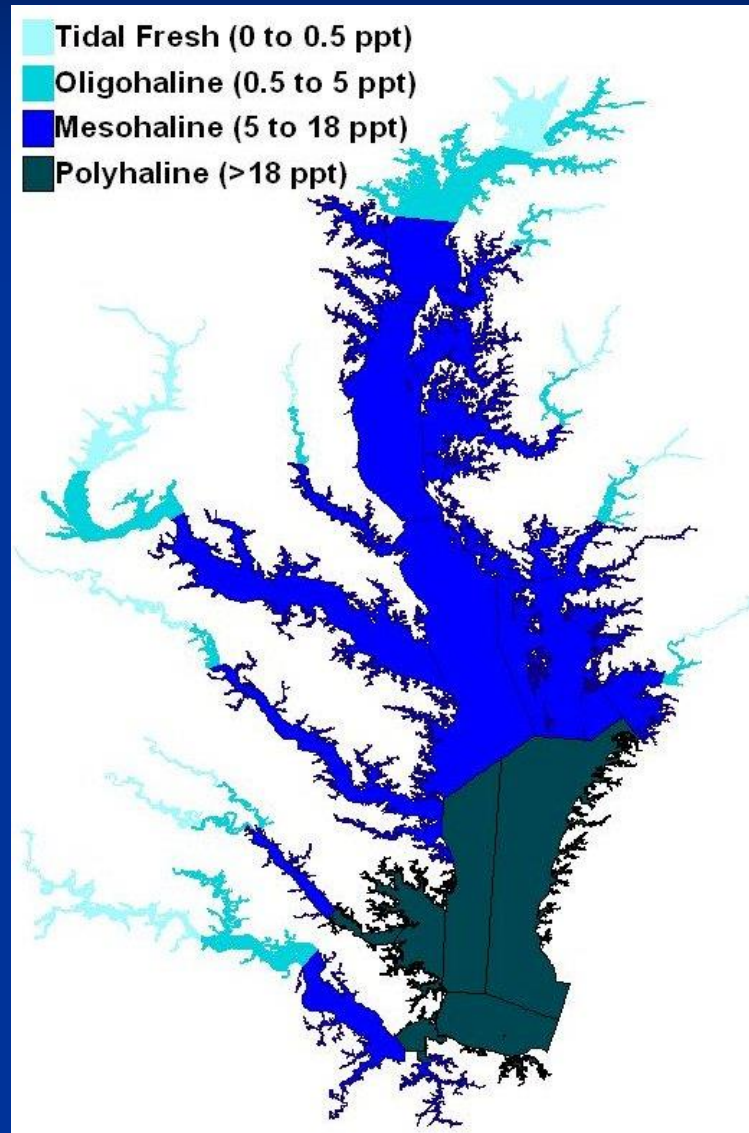
This is now



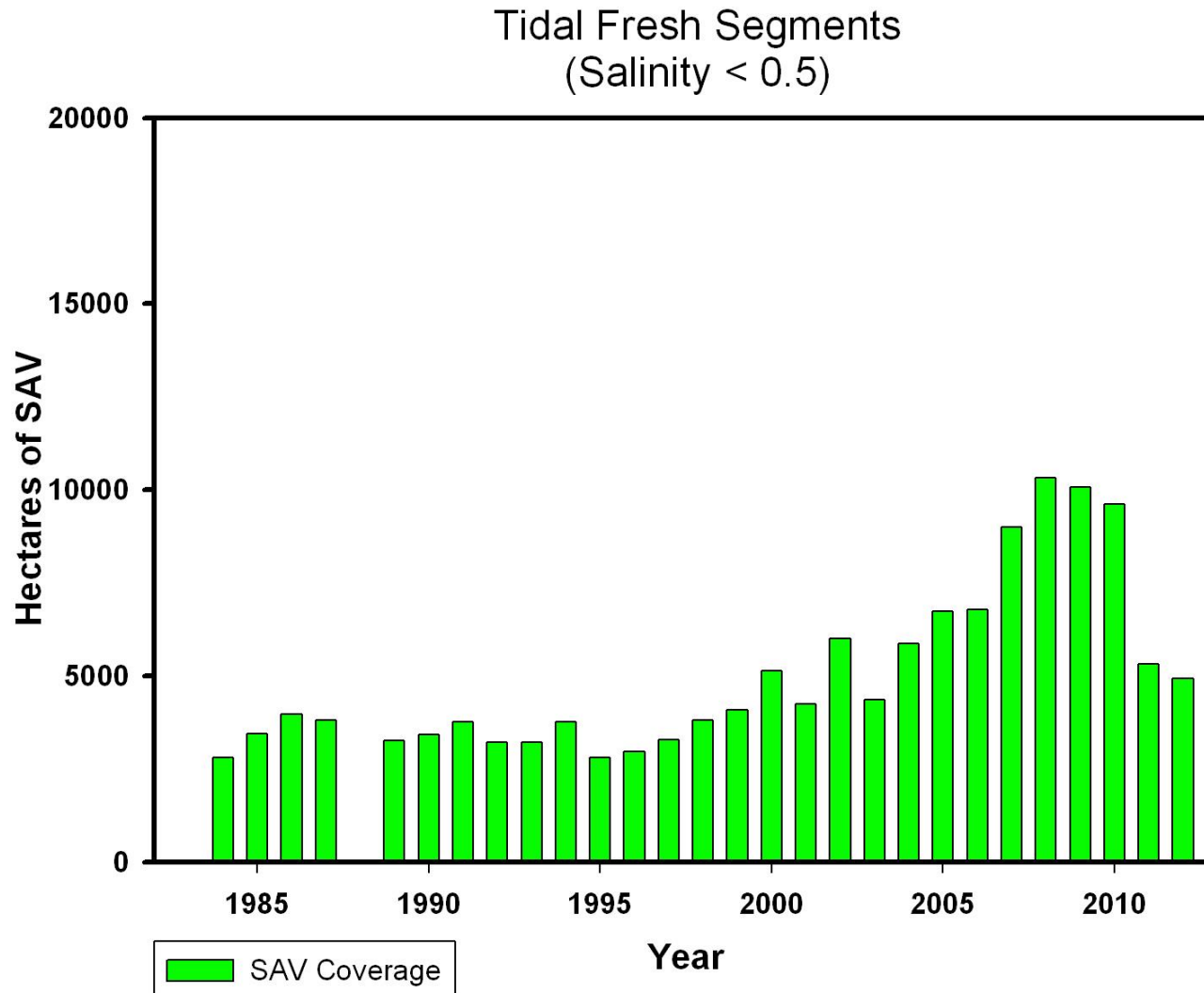
Progress towards the 185,000 acre Goal



Baywide numbers lose the subtleties we see in SAV distribution patterns



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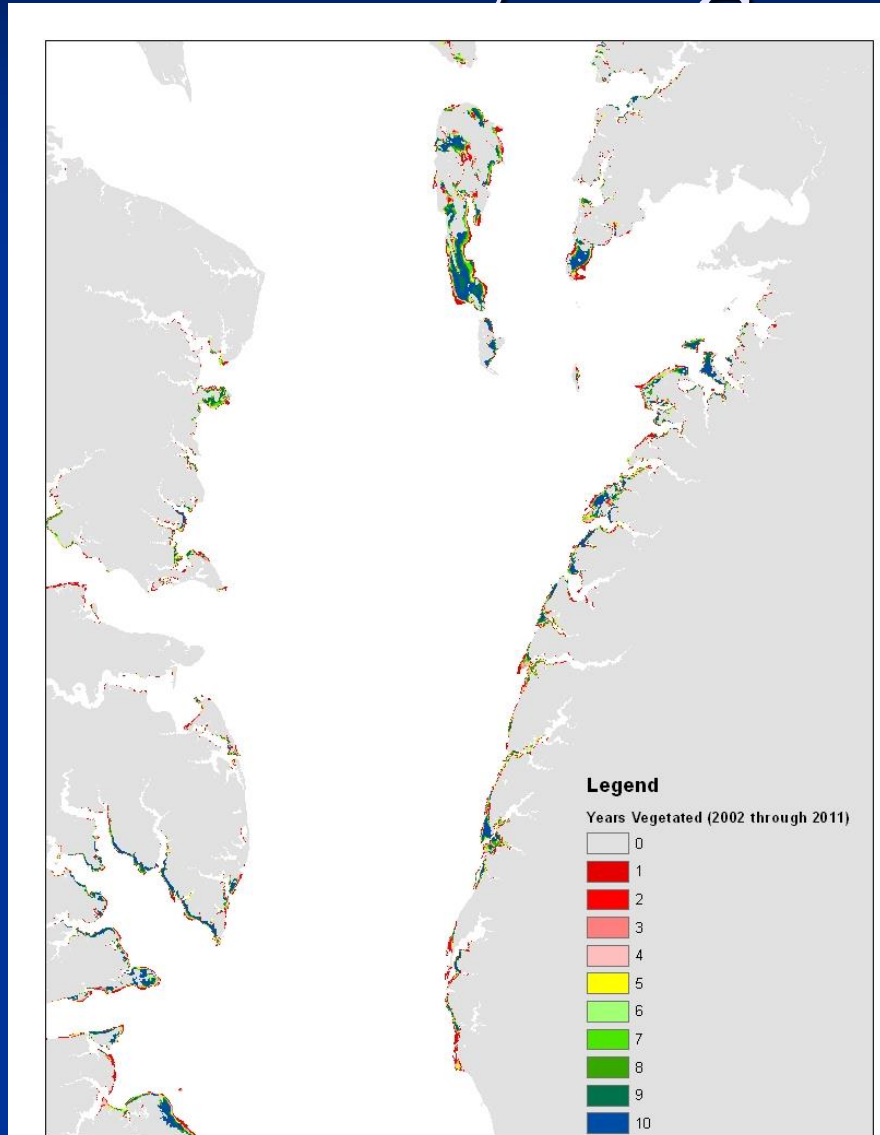
SAV distribution over time and space

- There is high variability, but SAV does exhibit regional patterns
- Peak distributions were
 - 1993 in the polyhaline Bay
 - 2002 in the mesohaline Bay
 - 2005 in the oligohaline Bay
 - 2008 in the tidal fresh Bay
- Over the last 10 years, 21 segments have passed SAV goals, with another 4 coming very close
 - Mostly tidal fresh and oligohaline segments

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There are places within the Bay that are always vegetated



Persistence

- Even when there have been dramatic challenges to SAV (heat stress in the lower Bay, tropical storms in the Upper Bay, general water quality issues), places have remained vegetated
- It's these refuges that provide the materials necessary (seeds, tubers, plant fragments etc.) to fuel re-vegetation when the stress is relieved.

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Challenges and Opportunities

- Our existing understanding of the relationship between SAV and water quality is sufficient for explaining persistence or declines of existing SAV populations
- However, it has become apparent that higher water quality conditions are necessary to go from an unvegetated state to having grass
 - Tech Syn III

When all the pieces are in place dramatic results can occur

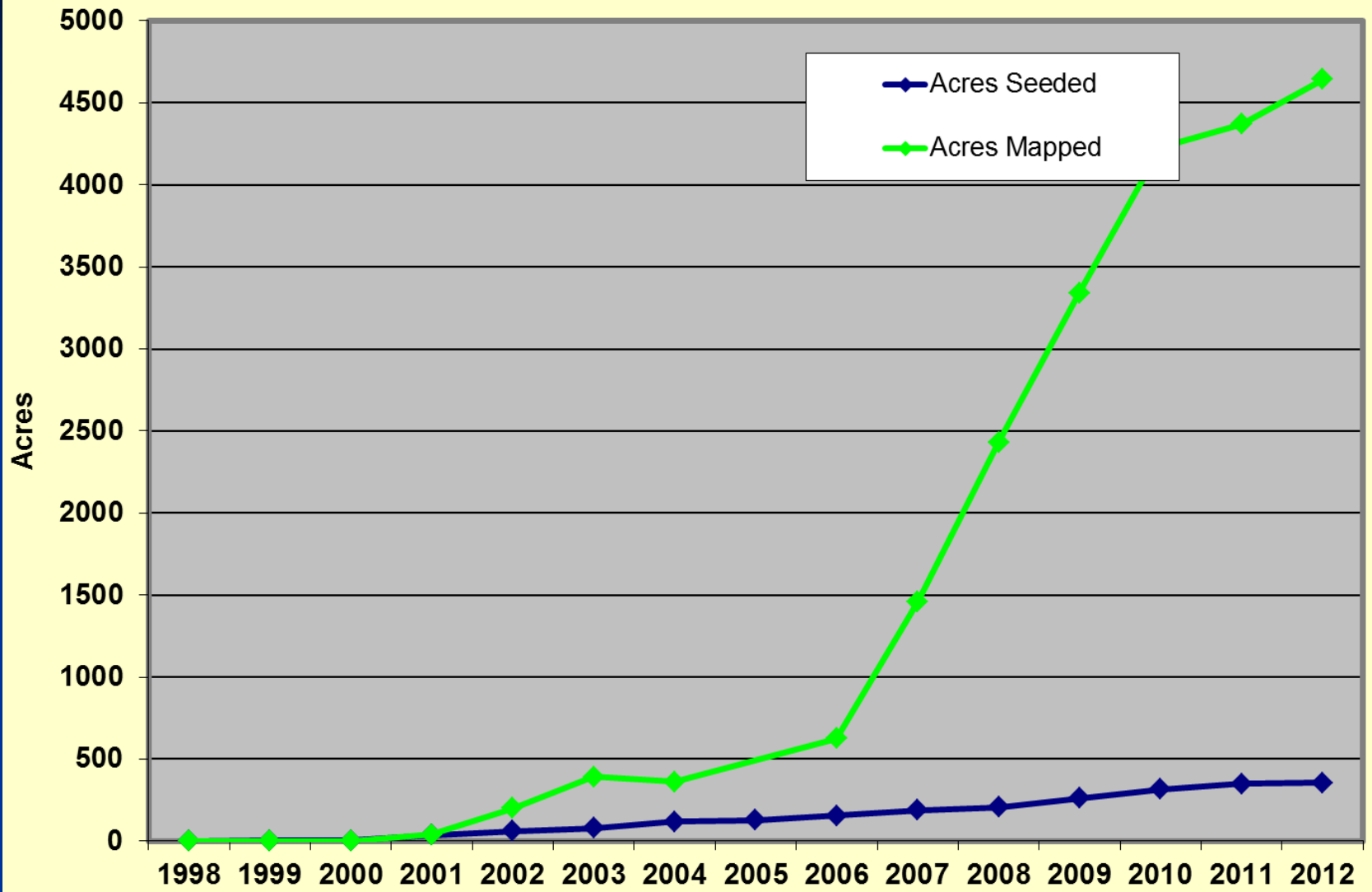
- For example, the work done by VIMS in the seaside bays on the DelMarVa Peninsula
 - The single most successful SAV restoration project EVER
 - The VA seaside bay project represents 73% of all directly restored (seeded or planted) SAV **world-wide**

Seed Based Eelgrass Restoration Effort

Volunteers Collecting Eelgrass Seeds

Chesapeake





In Summary

- SAV populations are well below what we know the Bay has been able to support in the past
- However, some Bay Program segments have surpassed their goals, so restoration is possible
- Water quality is the biggest driver of SAV distribution in the Bay (more on that next)
- Direct SAV restoration can work and can be part of the mix when viewing coastal habitats as a whole

Thanks for your attention!

