

An aerial photograph of the Chesapeake Bay watershed, showing a dense network of green agricultural fields and brown forested areas. The dark, winding lines of the bay and its tributaries are prominent, especially on the right side of the image. The text is overlaid on the upper left portion of the map.

# Restoring Chesapeake Bay

## Progress & Challenges

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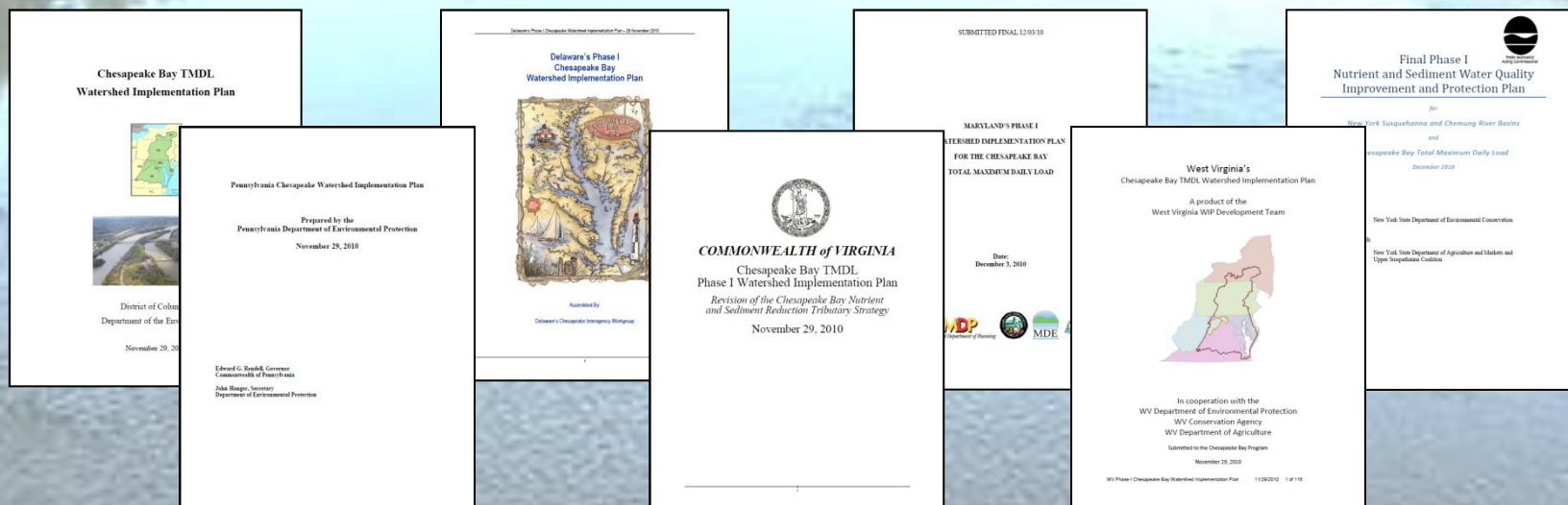
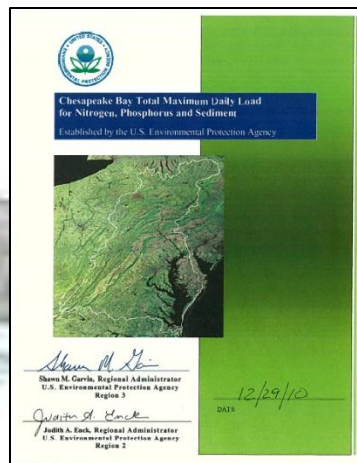




# PROGRESS

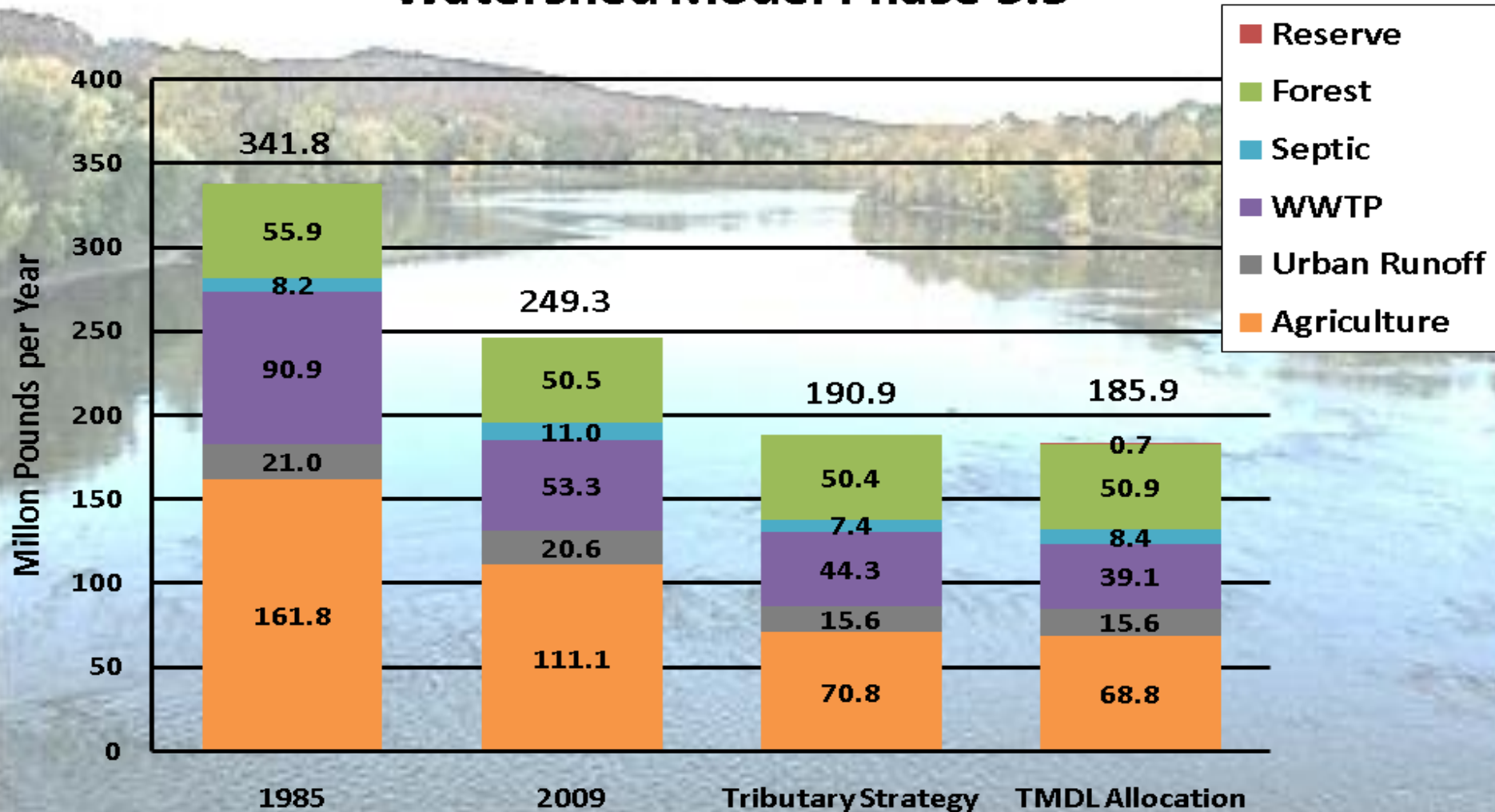


# Strong WIPs & Milestones



# Loads are Going Down

**Nitrogen Loads by Source Sector and Scenario -  
Watershed Model Phase 5.3**





# Trends are in the Right Direction

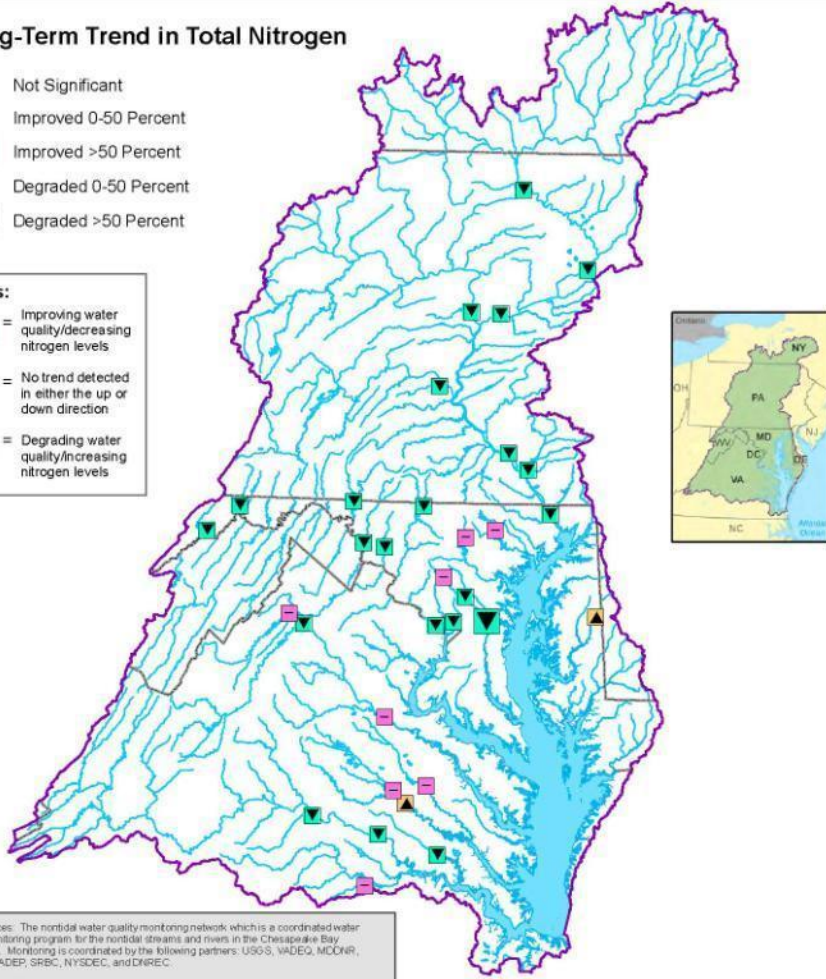
## Long-Term Flow-Adjusted Trends for Total Nitrogen for 32 Sites in the Chesapeake Bay Watershed, 1985-2009



### Long-Term Trend in Total Nitrogen

- Not Significant
- Improved 0-50 Percent
- Improved >50 Percent
- Degraded 0-50 Percent
- Degraded >50 Percent

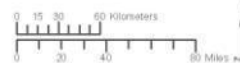
- Notes:**
- Improving water quality/decreasing nitrogen levels
  - No trend detected in either the up or down direction
  - Degrading water quality/increasing nitrogen levels



Data Sources: The nontidal water quality monitoring network which is a coordinated water quality monitoring program for the nontidal streams and rivers in the Chesapeake Bay Watershed. Monitoring is coordinated by the following partners: USGS, VADEQ, MDCNR, WWDPR, PADEP, SRBC, NYSDEC, and DNREC.

Trends in the Chesapeake Bay may differ from measured values due to downstream ecological processes. For more information on nitrogen trends in the Bay see [http://www.chesapeakebay.net/status\\_pollutants.aspx](http://www.chesapeakebay.net/status_pollutants.aspx)

For more information, visit [www.chesapeakebay.net](http://www.chesapeakebay.net)  
Disclaimer: [www.chesapeakebay.net/termsofuse.htm](http://www.chesapeakebay.net/termsofuse.htm)



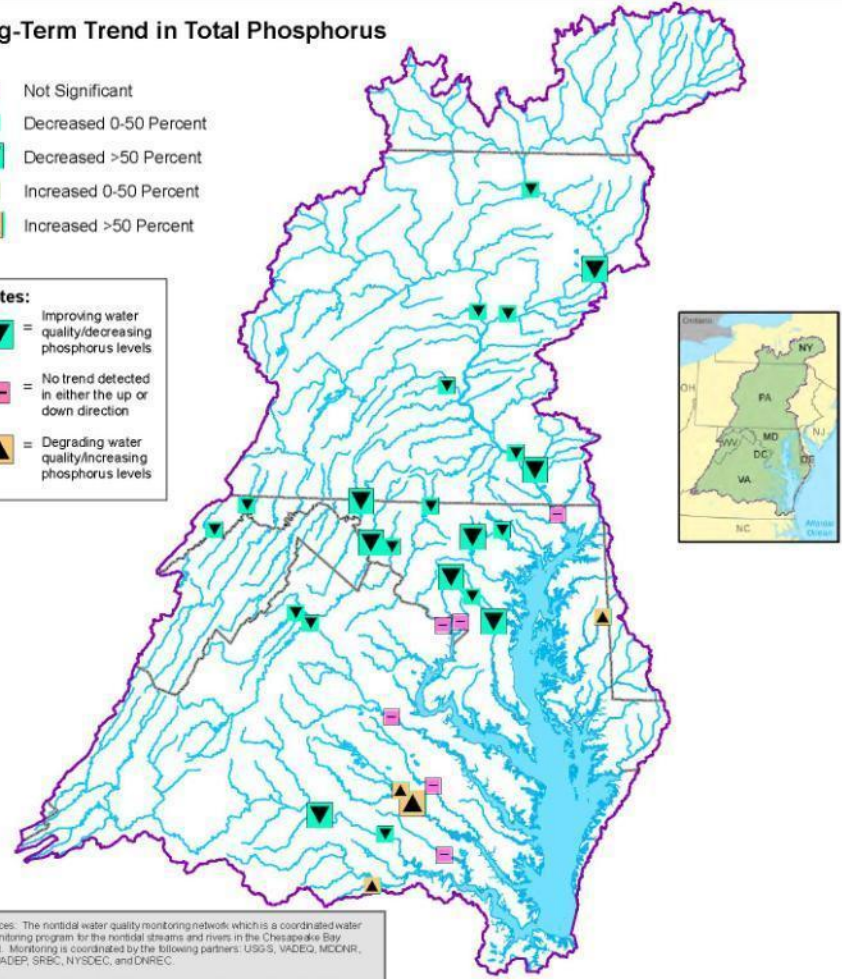
## Long-Term Flow-Adjusted Trends for Total Phosphorus for 32 Sites in the Chesapeake Bay Watershed, 1985-2009



### Long-Term Trend in Total Phosphorus

- Not Significant
- Decreased 0-50 Percent
- Decreased >50 Percent
- Increased 0-50 Percent
- Increased >50 Percent

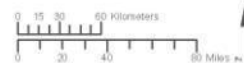
- Notes:**
- Improving water quality/decreasing phosphorus levels
  - No trend detected in either the up or down direction
  - Degrading water quality/increasing phosphorus levels



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Disclaimer: [www.chesapeakebay.net/termsofuse.htm](http://www.chesapeakebay.net/termsofuse.htm)



# Bay Health is Improving

State of the Bay – up 10% in 5 Years

Dead Zones Shrinking

- ❖ 2012 – 2<sup>nd</sup> smallest since 1985
- ❖ Declining since 1980s (Johns Hopkins/UMCES)

Crab Population Rebounding

Oysters – Turning the Corner??

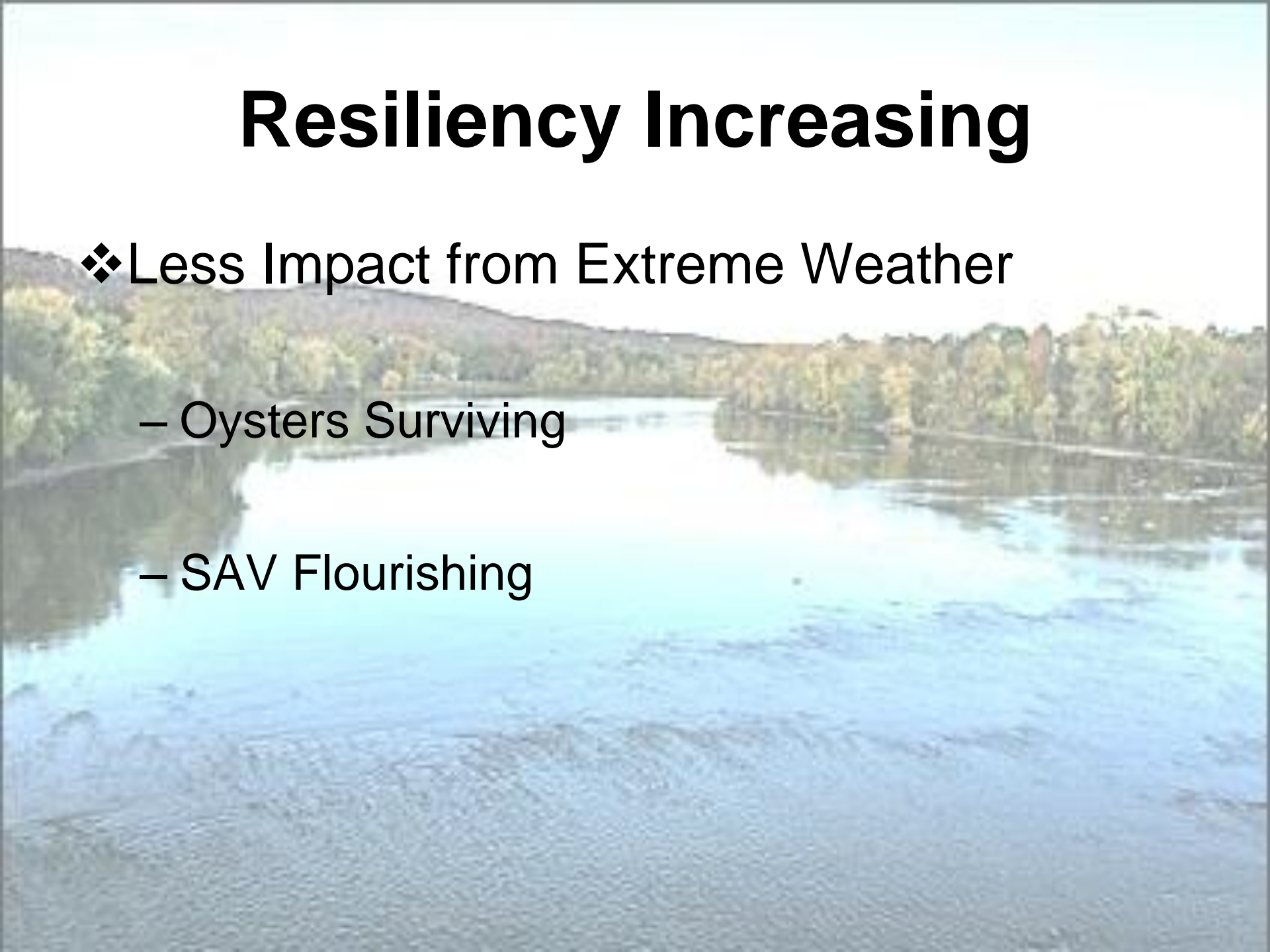


# Resiliency Increasing

❖ Less Impact from Extreme Weather

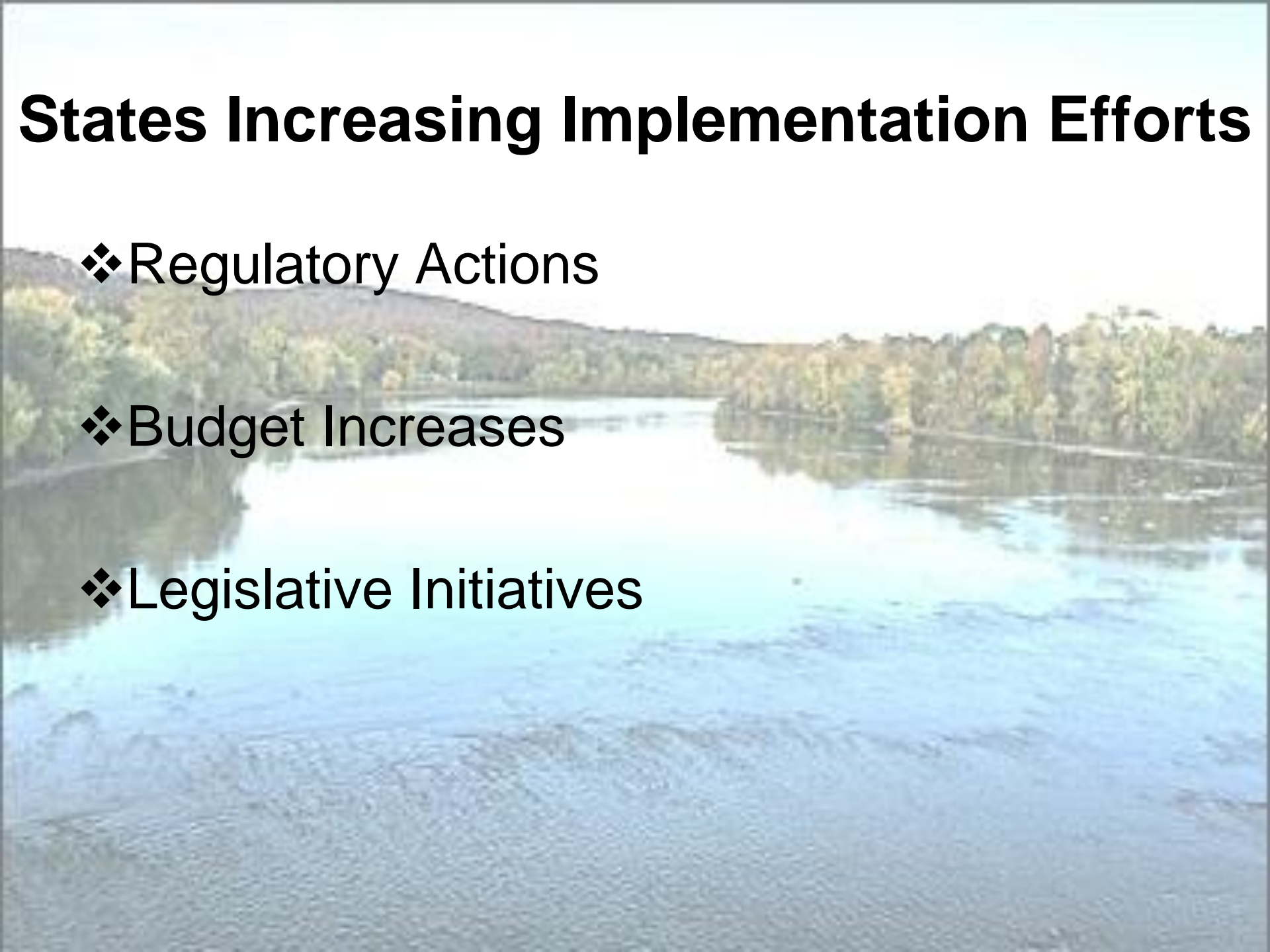
– Oysters Surviving

– SAV Flourishing



# States Increasing Implementation Efforts

- ❖ Regulatory Actions
- ❖ Budget Increases
- ❖ Legislative Initiatives





# So Why a TMDL?

- ❖ Progress – but not enough
- ❖ Impaired Waters Lists
- ❖ Legal Action in late 90s
- ❖ Chesapeake 2000 Agreement - Delist





# Restoring Chesapeake Bay

**TMDL**

~~A Voluntary/Cooperative~~  
**Approach**

**WARNING**



**CHALLENGES  
AHEAD**

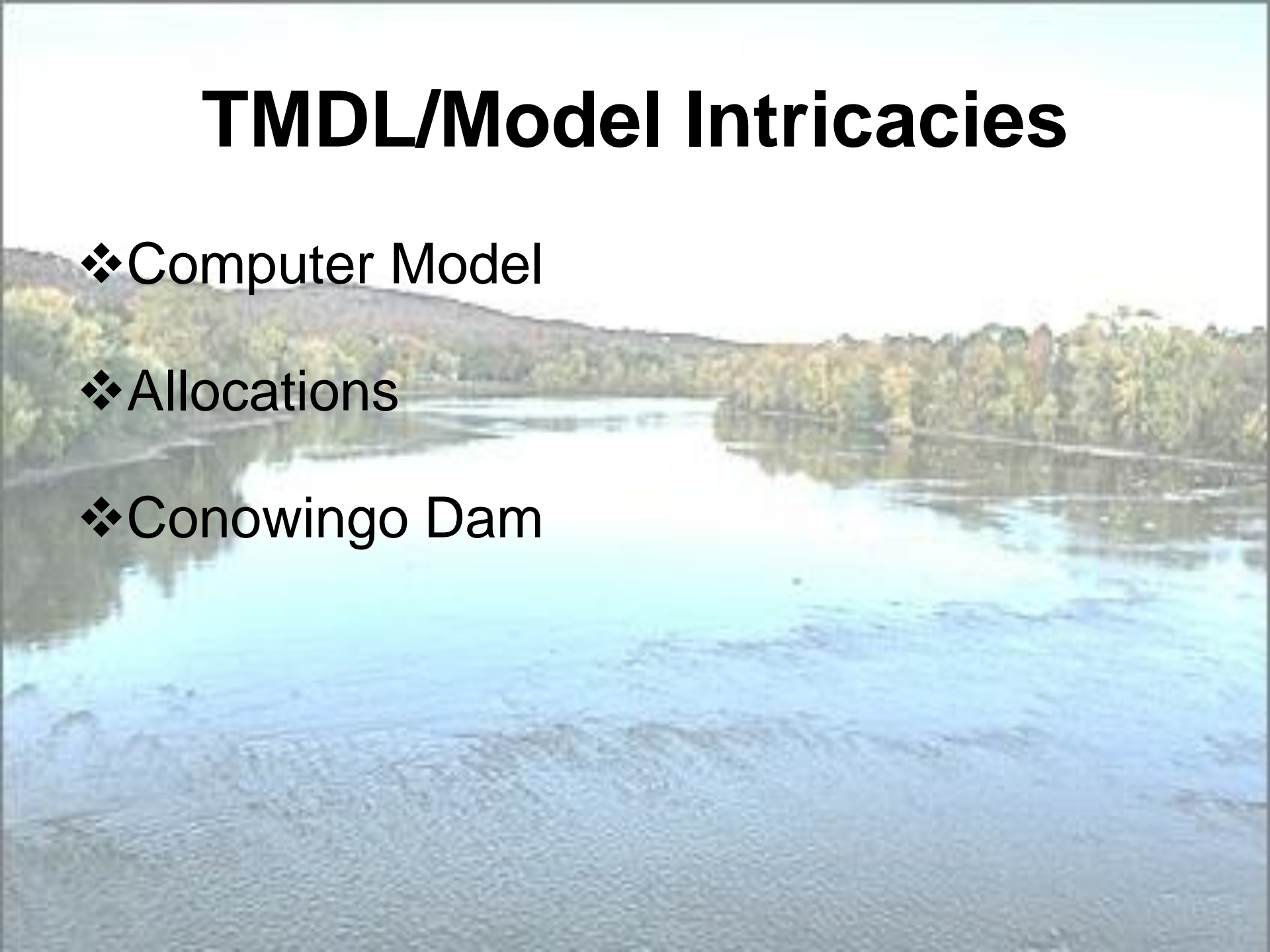


# Legal Challenges

- ❖ TMDL (Farm Bureau/Homebuilders)
- ❖ Trading (F&WW, Friends of the Earth)
- ❖ MD Counties (Funk & Bolton)
- ❖ Accotink Creek (VA and Fairfax Co.)

# TMDL/Model Intricacies

- ❖ Computer Model
- ❖ Allocations
- ❖ Conowingo Dam





# Data Tracking/Verification

- ❖ We can only count what's real
- ❖ How much info is enough? Too much?
- ❖ New Technologies?

**We have to show this works...and be certain about it!**

# Local Government Buy-In

Provide the tools they need:

- ❖ Env Finance Forums
- ❖ Technical Contractor Support
- ❖ Grant Funding - \$10m last year
- ❖ Permit Streamlining (e.g., Stream Restoration)
- ❖ Mid-Pt Assessment - improved tools
- ❖ LGAC Forums for Local Elected
- ❖ On-Line info (Ches Network, ChesStat)



# Stormwater

- ❖ 80/20
- ❖ Redesigning Communities
- ❖ MD, DC, VA Permits – Test Cases - New Era

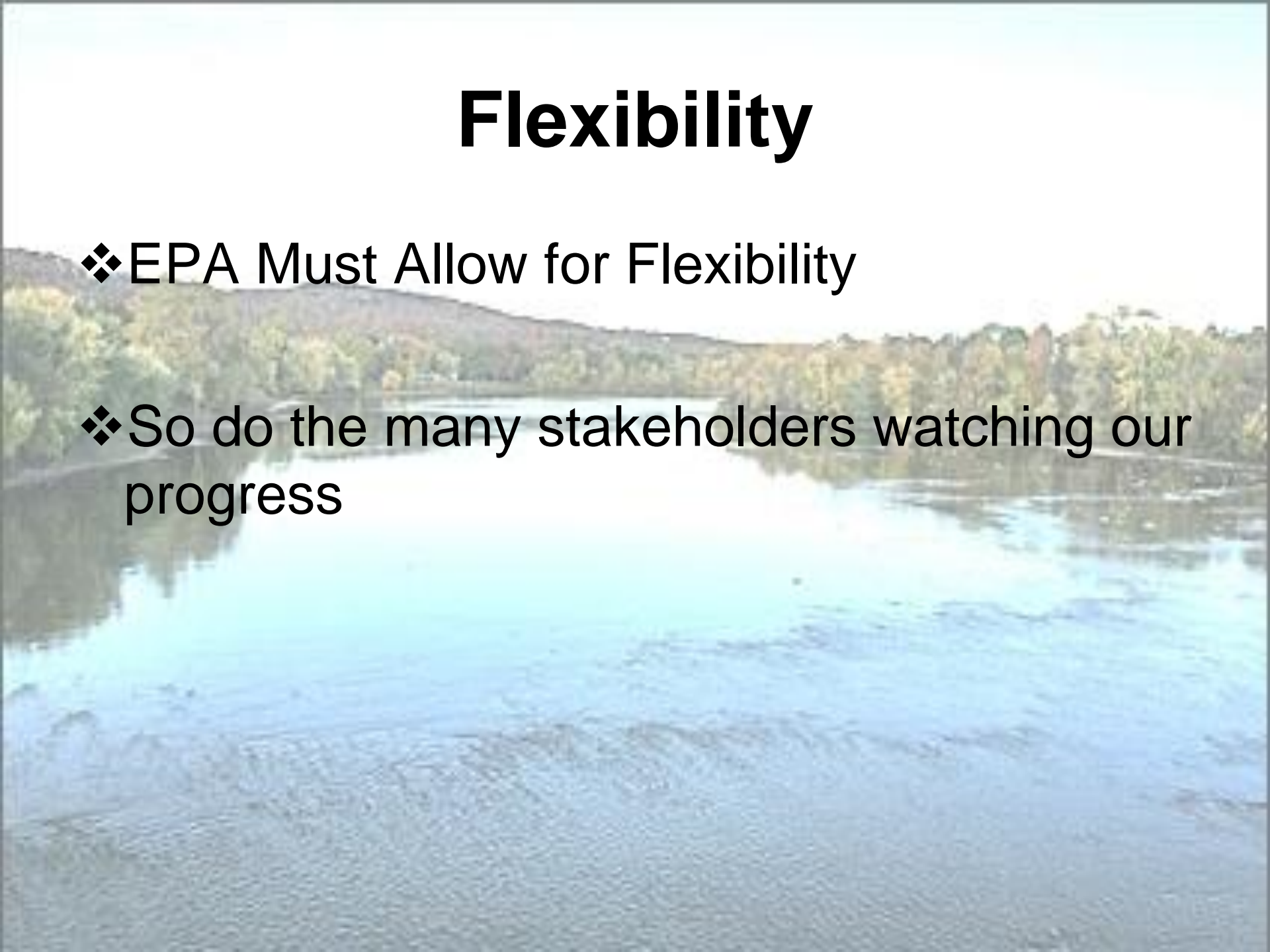
# Trading/Offsets

- ❖ It's Coming – Like it or not
- ❖ PRIVATE CAPITAL
- ❖ How much will it help?
- ❖ How to garner support from opponents?



# Flexibility

- ❖ EPA Must Allow for Flexibility
- ❖ So do the many stakeholders watching our progress

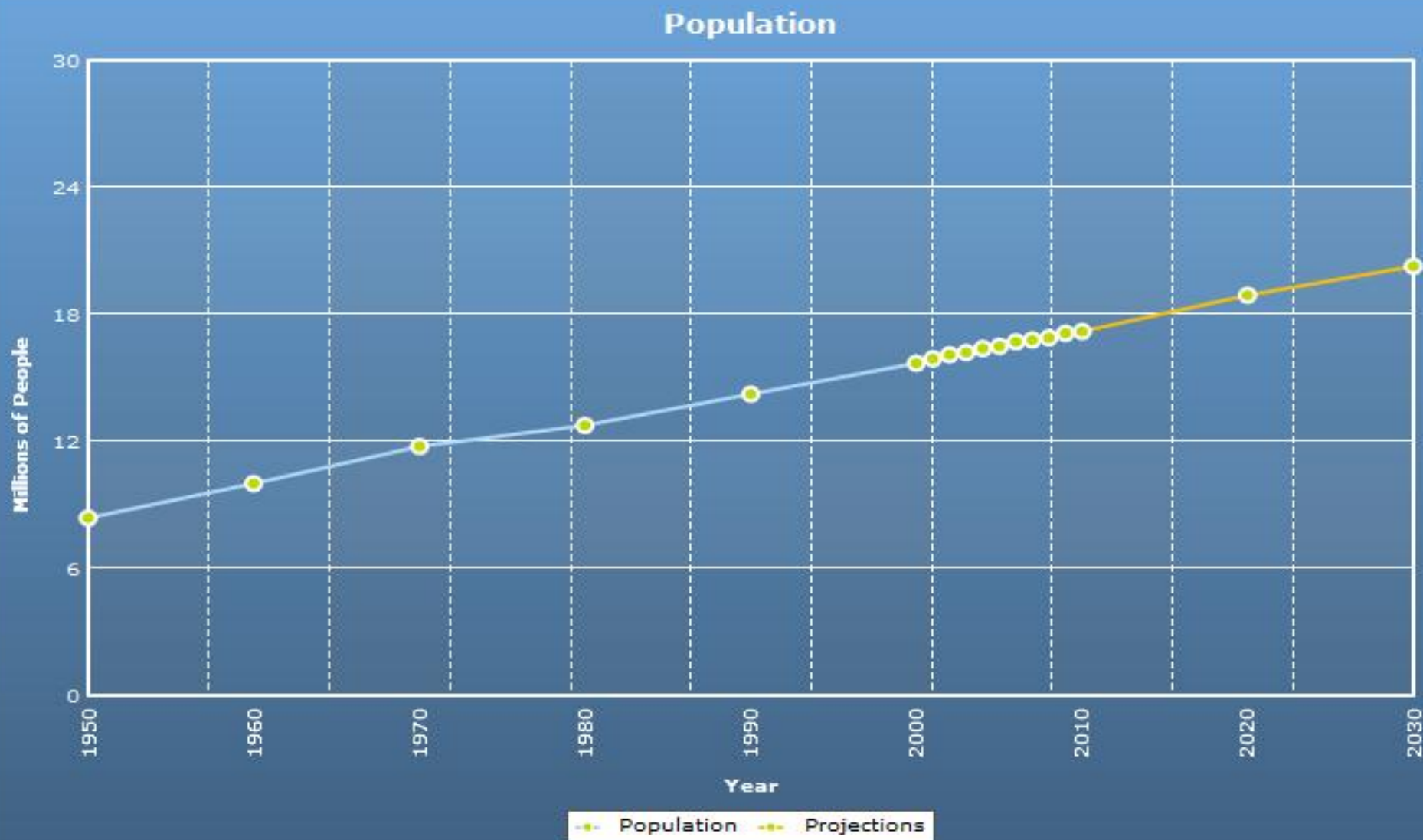


# Costs vs. Benefits

- ❖ We (none of us) have adequately emphasized the benefits of a restored Bay and rivers
- ❖ EPA has committed to calculating both costs and benefits



# TMDL is a Ceiling



# **Next Steps**

**Implement!!**

**Measure/Show Progress**

**Adapt/Flex/Innovate as Necessary**

**Milestones – Tough Decisions**

**Phase III (2017) – Reevaluate**

**Private Capital?**









Image courtesy Guy Stephens