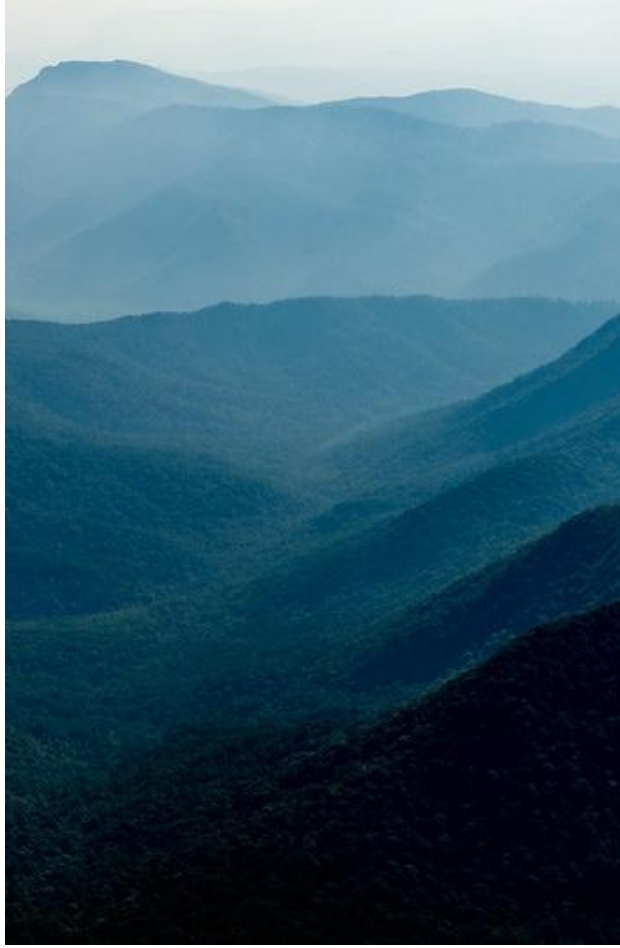


Climate Small Group

Beyond 2025 Steering Committee Symposium

February 28, 2024

Chesapeake Bay Program

40 years of science, restoration and partnership

CLIMATE SMALL GROUP MEMBERS

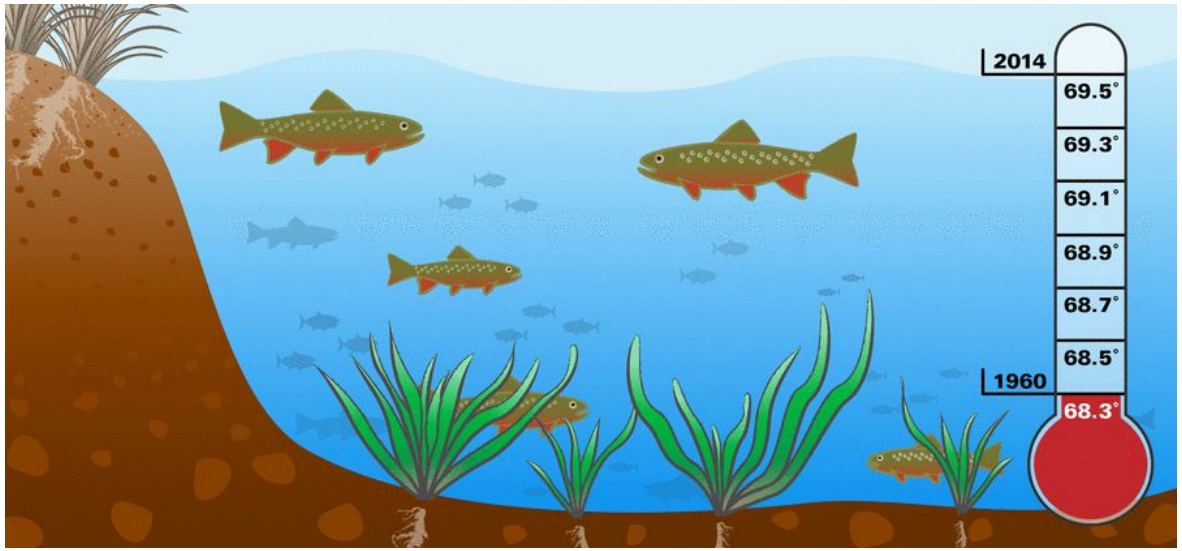
- Breck Sullivan (Co-Chair), USGS
- Bo Williams (Co-Chair), EPA
- Lewis Linker, EPA
- Julie Reichert-Nguyen, NOAA
- Chris Guy, FWS
- Ashley Kelly, DOD
- Katie Brownson, USFS
- Jackie Specht, MD DNR
- Kathy Boomer, Foundation for Food & Agriculture
- Ruth Cassilly, UMD
- Rosa Hance, Choose Clean Water Coalition
- Sharon Baxter, VA DEQ
- Ben McFarlane, Hampton Roads Planning District
- Joseph Galarraga, TNC
- Jay Ford, CBF

SCOPE AND PURPOSE

Providing recommendations to transform Chesapeake Bay Program partnership policies, programs, and projects to address the significant ongoing and future impacts climate change will impose on the Bay and its watershed and people across generations. These recommendations should include strategies to better incorporate climate adaptation, resiliency, and mitigation across the watershed and tidal Bay.

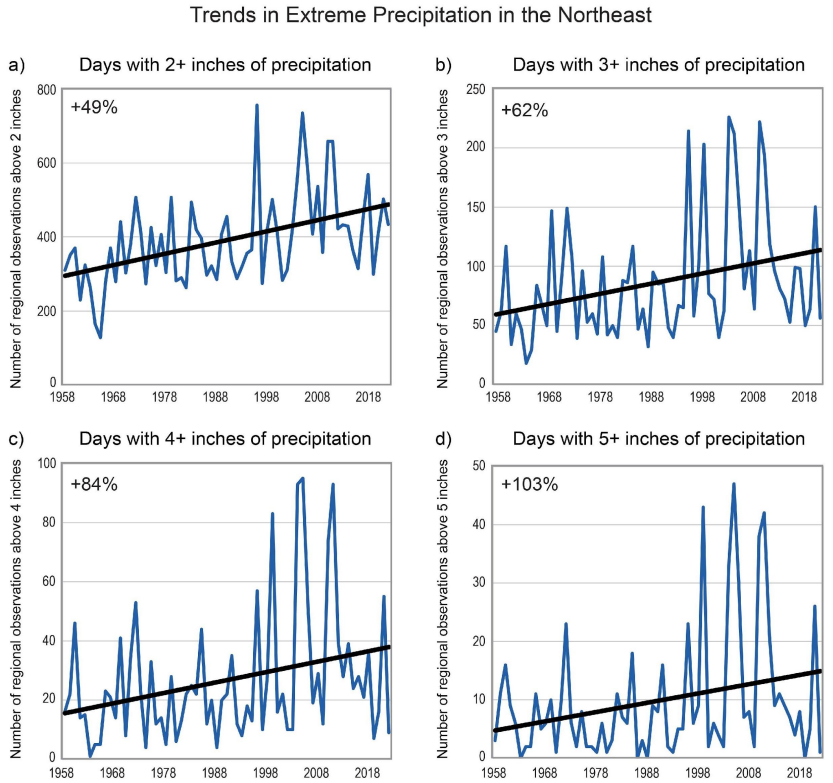
A CHANGING CHESAPEAKE

Air and water temperatures are rising across the Bay and its watershed



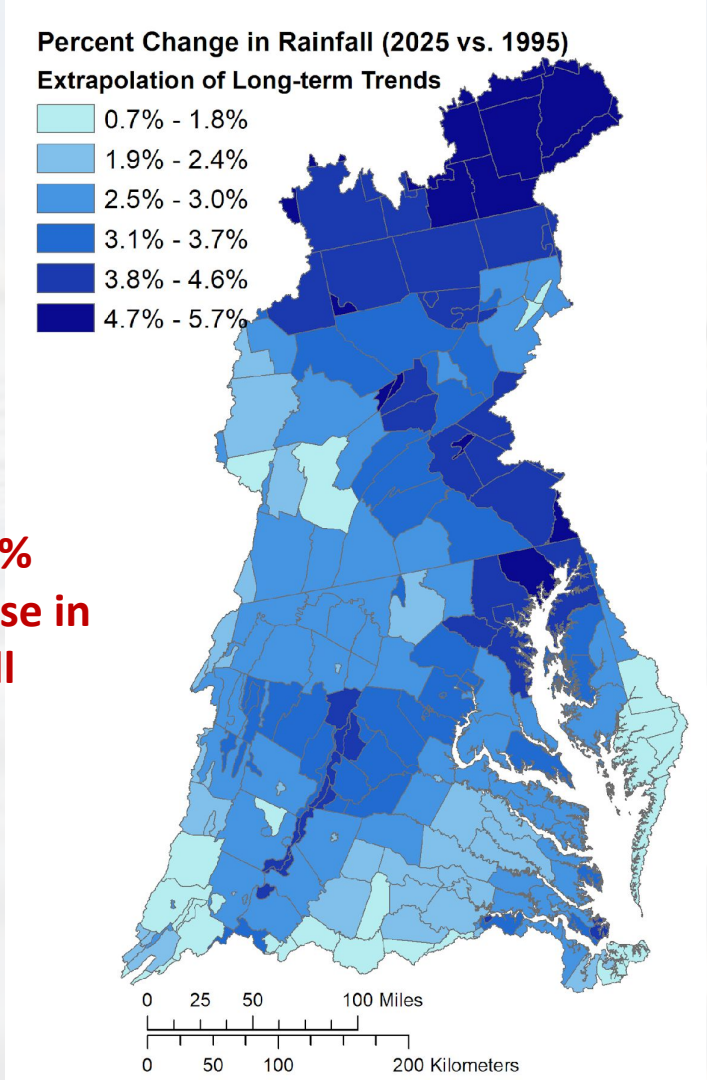
Source: Chesapeakebay.net, EPA.

Precipitation and precipitation extremes are increasing



Source: USDA Forest Service, Drexel University, NOAA NCEI, and CISESS NC.

Elements of 2025 Climate Change (1995-2025)



+3.11 % Increase in rainfall

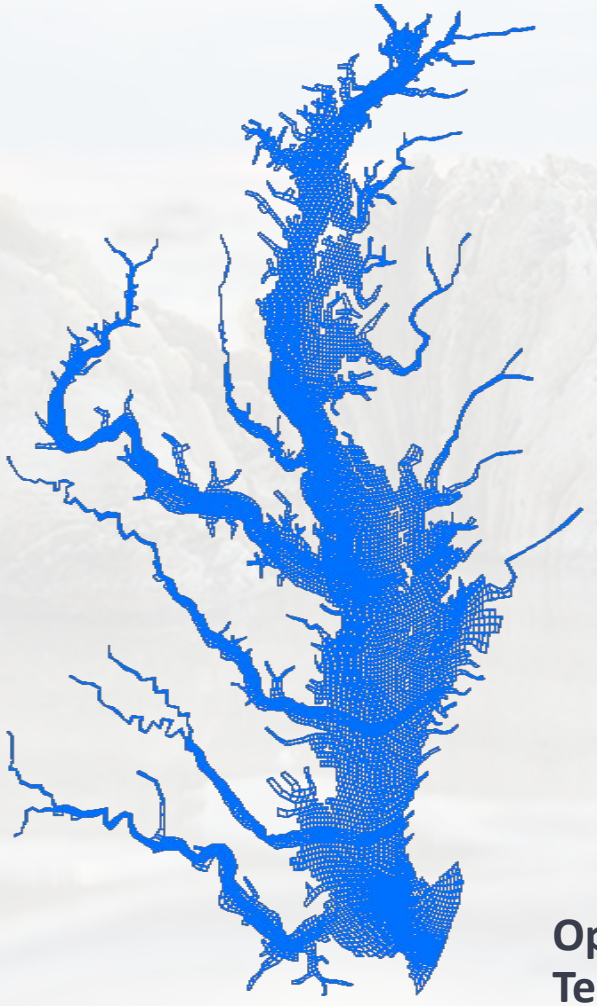
Phase 6 Watershed Model

Flow → 2.4% Increase

Nitrogen Load → 2.6% Increase

Phosphorus Load → 4.5% Increase

Sediment Load → 3.8% Increase



Model: CH3D-ICM
400m-1km Resolution

Air-temperature increase: 1.06 °C

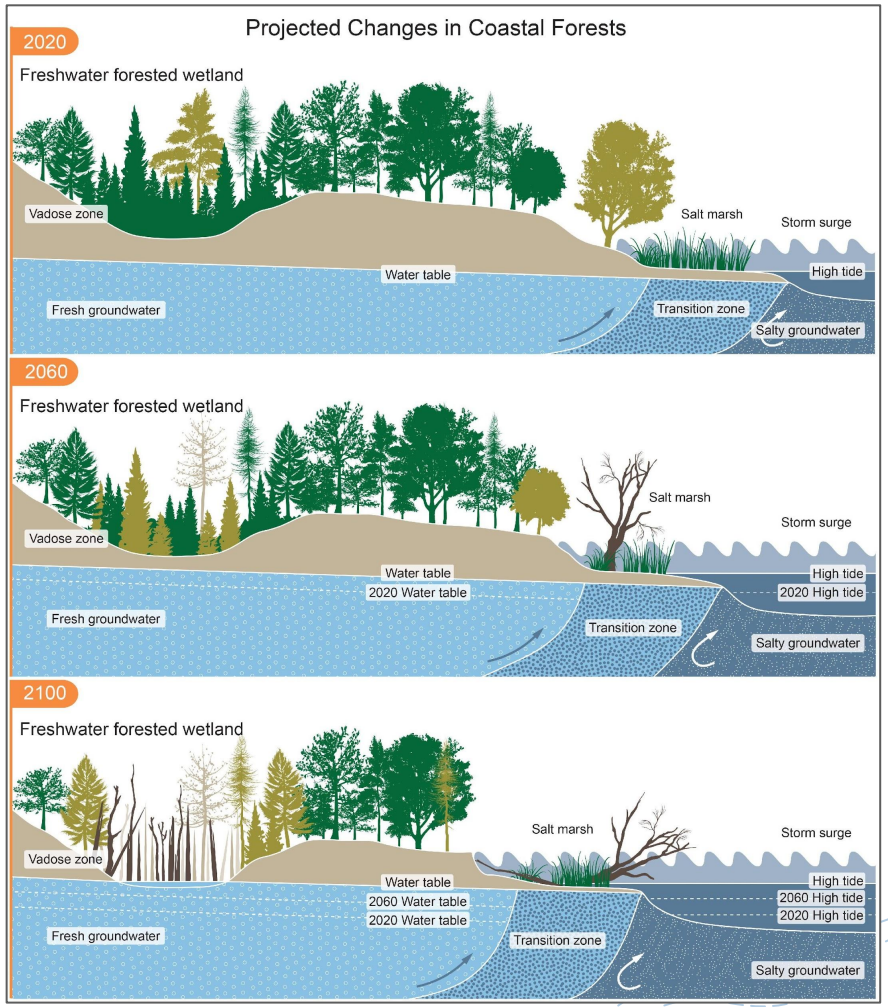
Sea Level Rise: 0.22m

Open boundary:
Temperature: +0.95 °C;
Salinity: +0.18 psu
(Thomas et al., 2017)

A CHANGING CHESAPEAKE

Sea levels are rising

Source: Chesapeakebay.net



Source: 5th National Climate Assessment

Chesapeake Bay Program
40 years of science, restoration and partnership

Develop and implement a framework for a climate adaptive Bay and watershed of the future

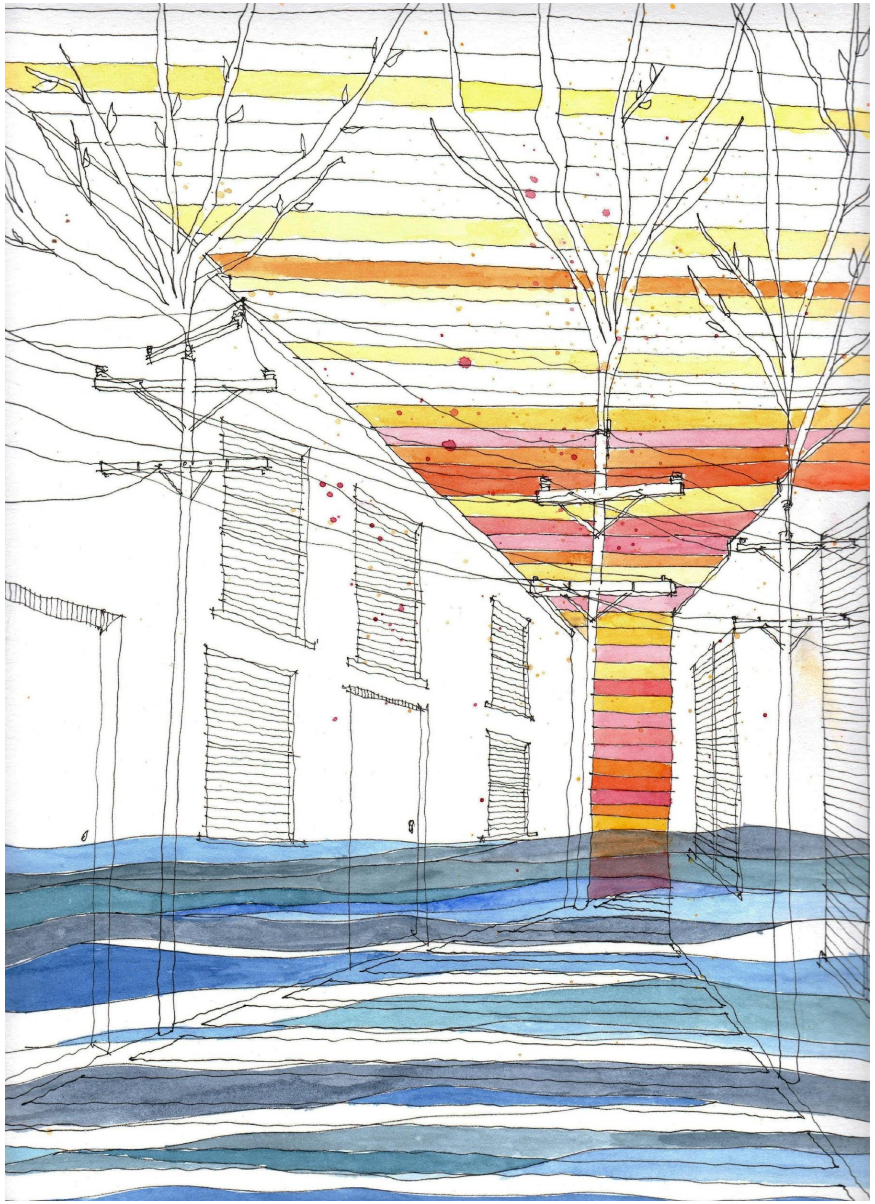
Replanting Resilience—Jillian Pelto

…envision the Bay of the future

Develop and implement a framework for a climate adaptive Bay and watershed of the future

- Align Chesapeake Bay Agreement goals with climate change
- Establish holistic climate *adaptation* goal(s)
- Adapt partnership structure and increase capacity to integrate climate science into current programs and decision making
- Invest in climate adaptation initiatives
- Apply structured decision making at all levels

Replanting Resilience—Jillian Pelto



Under Pressure—Andrea Ruedy Trimble

Improve Resilience of Communities to Key Regional Climate Vulnerabilities

- Prioritize climate adaptation and resilience for most vulnerable communities
- Build community capacity to adapt to climate change
- Improve involvement by engaging communities and building networks of practice
- Maintaining cultural identity and historical resources in a changing landscape

Promote Carbon Stewardship as a Holistic Approach to Climate Mitigation

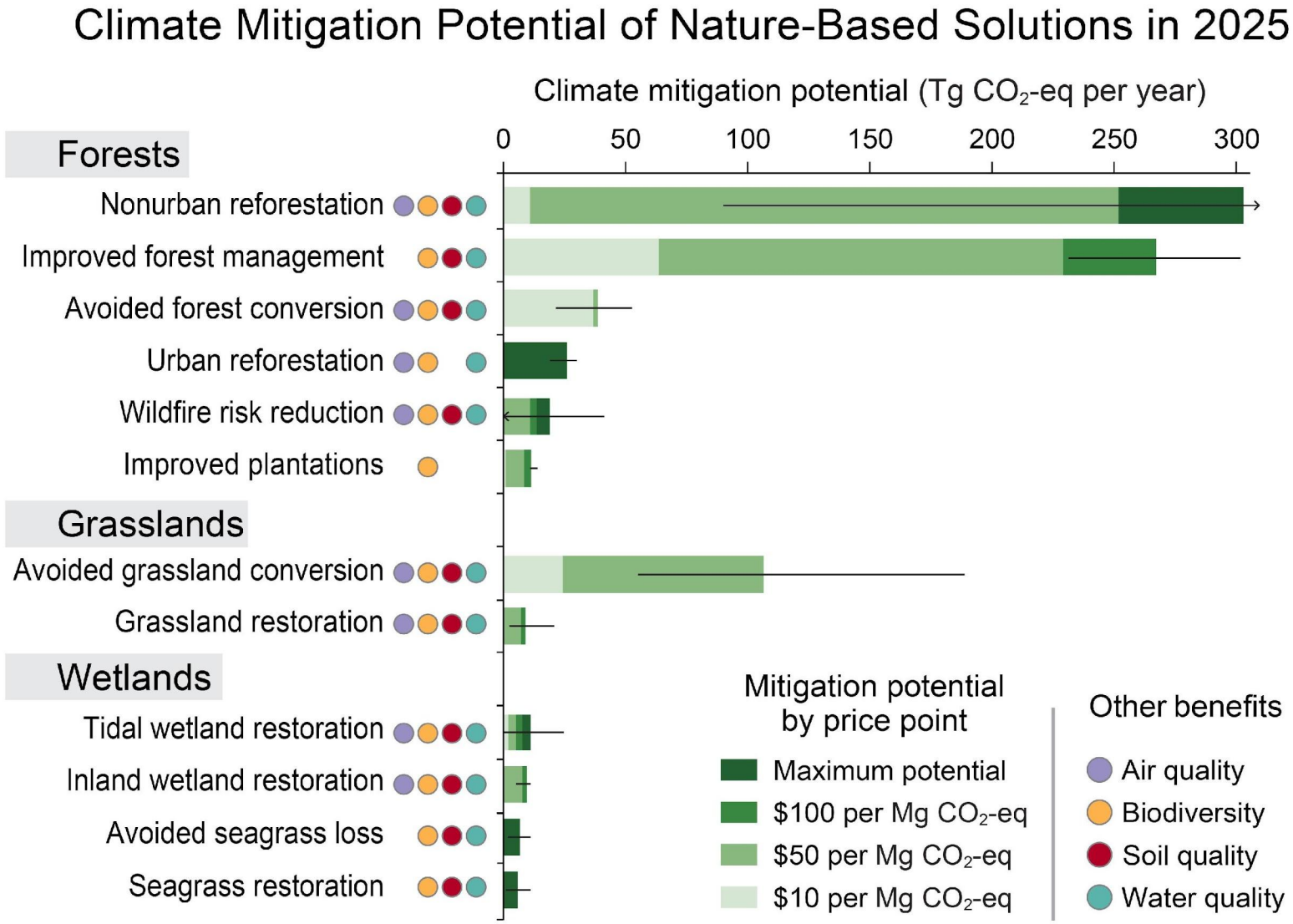


Figure 1. Adapted from Fargione et al. 2018

Promote Carbon Stewardship as Holistic Approach to Climate Mitigation

- Advance understanding of carbon stewardship science
- Improve consideration of carbon in land use planning and decision-making
- Improve regional coordination around carbon stewardship using natural climate solutions

Photo Credit: Chesapeake Bay Program

Promote Strategies for Healthy and Productive Ecosystems Under Changing Climate Conditions

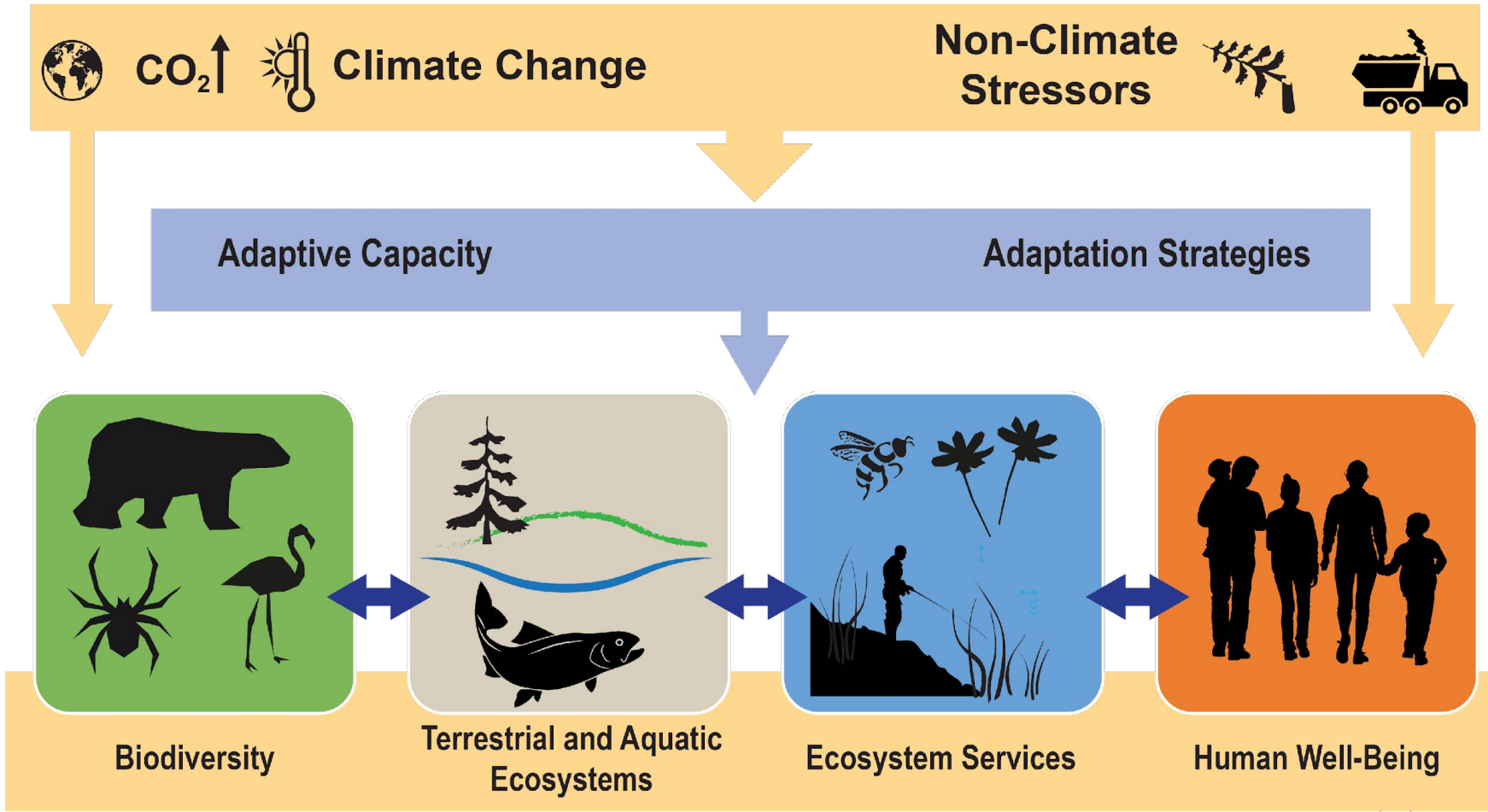
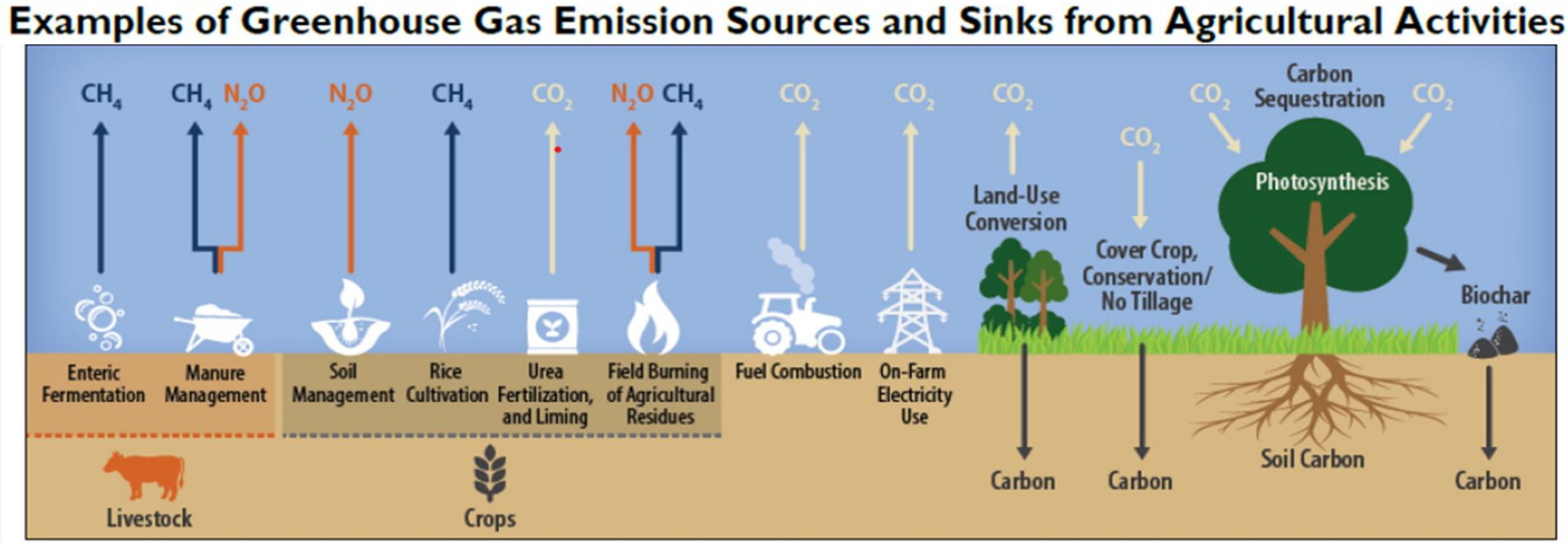


Figure 2. Adapted from 4th National Climate Assessment

Promote Strategies for Healthy and Productive Ecosystems Under Changing Climate Conditions

- Additional research to estimate future conditions under different scenarios of management and compounding stressors.
- Development and application of indicators for better understanding and tracking of ecosystem health status and change.
- Enhance the confidence and use of nature-based solutions
- Need support for social science, communication strategies, and venues for partnership discussion to provide a proactive approach in preparing for ecosystem change

Promote Regenerative Agricultural Production and Regionally Based Food Systems in the Chesapeake Bay Watershed



Promote Regenerative Agricultural Production and Regionally Based Food Systems in the Chesapeake Bay Watershed

- Transform agricultural production with a shift to regenerative agriculture.
  - CBP development of a soil health outcome
  - Soil Health = Continued and expanded capacity of soil to function as a vital living ecosystem that sequesters and stores carbon and sustains plants, animals, and humans.
- Transform food systems to regionally based food systems
  - Regionally Based Food Systems support local/regional production, sourcing and processing, regenerative and organic nutrient dense food, reduced meat consumption, reduced food waste

Promote Regenerative Agricultural Production and Regionally Based Food Systems in the Chesapeake Bay Watershed

- Expand and increase collaboration with other entities that share common goals around regenerative and regional-based food systems
- Support scientific advances in accounting for agricultural carbon/soil health and the impacts of BMPs and other climate-smart agricultural practices on soil health
- Identify strategies within the CBP framework to further incentivize policies and practices that benefit soil health and promote regenerative regional food systems
- Evaluate how the current CBP structure could be modified to promote the long-term, systemic change needed to move towards regenerative regional food systems

1. Develop and Implement a Framework for a Climate Adaptive Bay of the Future

2. Improve Resilience of Communities to Key Regional Climate Vulnerabilities

3. Promote Carbon Stewardship as a Holistic Approach to Climate Mitigation

4. Promote Strategies for Healthy and Productive Ecosystems Under Changing Climate Conditions

5. Promote Regenerative Agricultural Production and Regionally Based Food Systems in the Chesapeake Bay Watershed