

Climate Resiliency WG: Indicator status update, looking at next steps

Peter Tango (USGS)
STAR Co-coordinator
and
Julie Reichert-Nguyen
(NOAA)
CRWG Coordinator

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The screenshot shows the top navigation bar of the Chesapeake Bay Program website. The 'Climate Change' link is highlighted in blue. Below the navigation bar, the 'Climate Change' section is displayed with a large heading and a paragraph of text. The text describes the risks of a changing climate to life in the Chesapeake Bay and mentions that monitoring and assessing the influence of climate change helps create programs and policies to build resiliency. A goal for 'Climate Resiliency' is also listed.

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Abundant Life Clean Water Conserved Lands Engaged Communities **Climate Change**

Climate Change

A changing climate puts all aspects of life in the Chesapeake Bay at risk. Warming temperatures, rising sea levels and more extreme weather events have already been observed in the region, along with coastal flooding, eroding shorelines and changes in the abundance and migration patterns of wildlife. Continued changes in environmental conditions will affect the health of the ecosystem and the success of our restoration efforts. Monitoring and assessing the influence climate change has on our work helps us create programs and policies that build the resiliency of our resources, habitats and communities.

Goals: [Climate Resiliency](#)

Goals

This section details the 'Climate Resiliency' goal. It includes a sub-header 'Climate Resiliency' with a house icon, a paragraph explaining the challenge of changing climate conditions, and a specific goal statement. A progress indicator shows the goal is 'Progress Even'.

Climate Resiliency

Changing climatic and sea level conditions may alter the Chesapeake Bay ecosystem and human activities, requiring adjustment to policies, programs and projects to successfully achieve our restoration and protection goals. This challenge requires careful monitoring and assessment of these impacts and application of this knowledge to policies, programs and projects.

Goal

Increase the resiliency of the Chesapeake Bay watershed, including its living resources, habitats, public infrastructure and communities, to withstand the adverse impacts from changing environmental and climate conditions.

Progress Even

Outcomes

This section lists two outcomes: 'Climate Adaptation' and 'Climate Monitoring and Assessment'. Each outcome is represented by a button with a right-pointing arrow.

Climate Adaptation

Climate Monitoring and Assessment



Goal: Increase the resiliency of the Chesapeake Bay watershed, including its living resources, habitats, public infrastructure, and communities, to withstand adverse impacts from changing environmental and climate conditions.

o **Monitoring and Assessment outcome:**

Continually monitor and assess the trends and likely impacts of changing climatic and sea level conditions on the Chesapeake Bay ecosystem, including the effectiveness of restoration and protection policies, programs and projects.

o **Adaptation outcome:**

Continually pursue, design, and construct restoration and protection projects to enhance the resiliency of Bay and aquatic ecosystems from the impacts of coastal erosion, coastal flooding, more intense and more frequent storms and sea-level rise.



Overview – First CRWG indicators project. 2017-18.

- GIT funded project:
 - Eastern Research Group, Inc. (ERG), Chesapeake Bay Program Office (CBPO), and the Climate Resiliency Workgroup (CRWG) worked together.
- **Conceptualize, select, and partially develop a suite of indicators** that can be used to track progress toward the “Climate Resiliency” goal and outcomes in the 2014 Watershed Agreement.



Indicator development process

- Develop a master list of potential topics—the “universe” of topics for consideration.
- **The resulting list included approximately 210 topics.**
 - See https://www.chesapeakebay.net/who/group/climate_change_workgroup Climate change indicator frameworks theme, Initial Topic List 6-14-17 file.
 - Many sources were sought to develop this list



Criteria were created for choosing indicators for development

- **ERG proposed a suite of 21 indicators for possible development**
- An implementation plan was produced
CRWG website:
https://www.chesapeakebay.net/channel_files/31218/indicator_implementation_plan_-_revised_-_07-13-18.pdf

Climate Change Indicators for the
Chesapeake Bay Program:
An Implementation Strategy

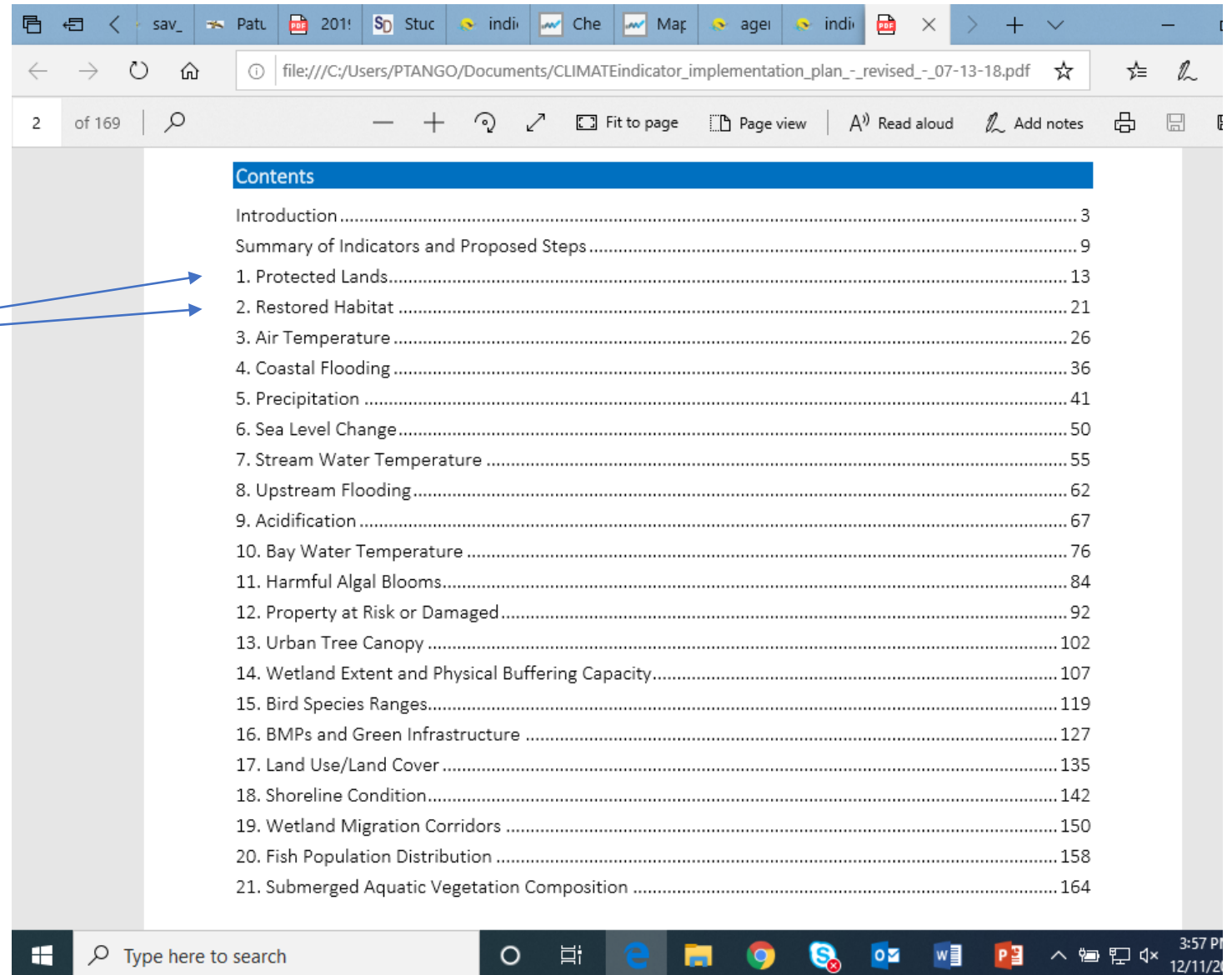
Submitted to:
Chesapeake Bay Program
410 Severn Avenue, Suite 109
Annapolis, MD 21403

Submitted by:
Eastern Research Group, Inc.
2300 Wilson Blvd, Suite 350
Arlington, VA 22201

Indicators report Table of Contents

9 Indicators are available

- 2 were existing

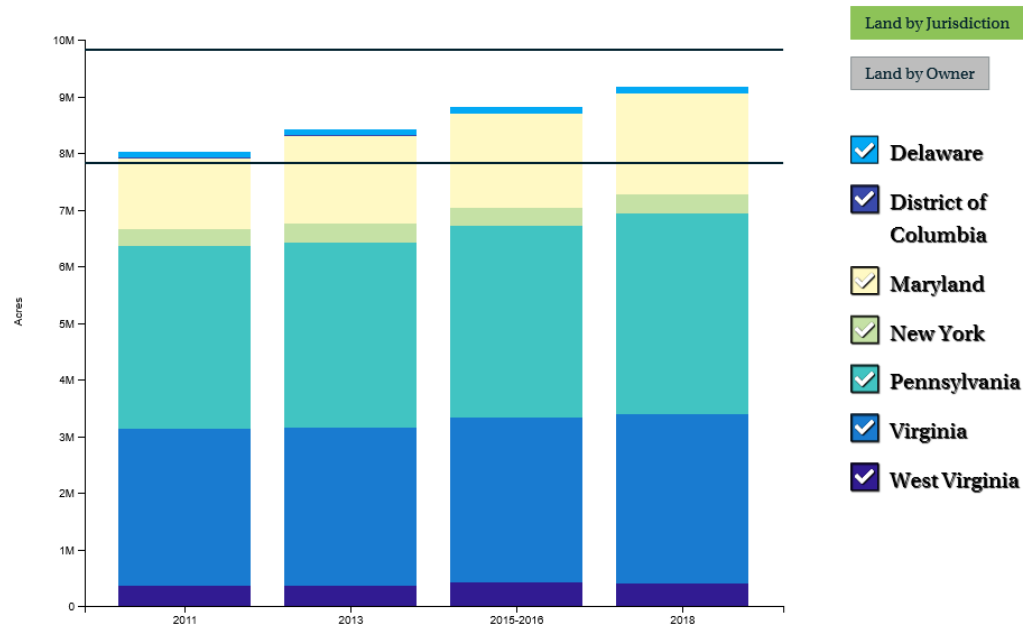


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Existing indicators: Protected Lands and Restored Habitat (Oysters, Wetlands)

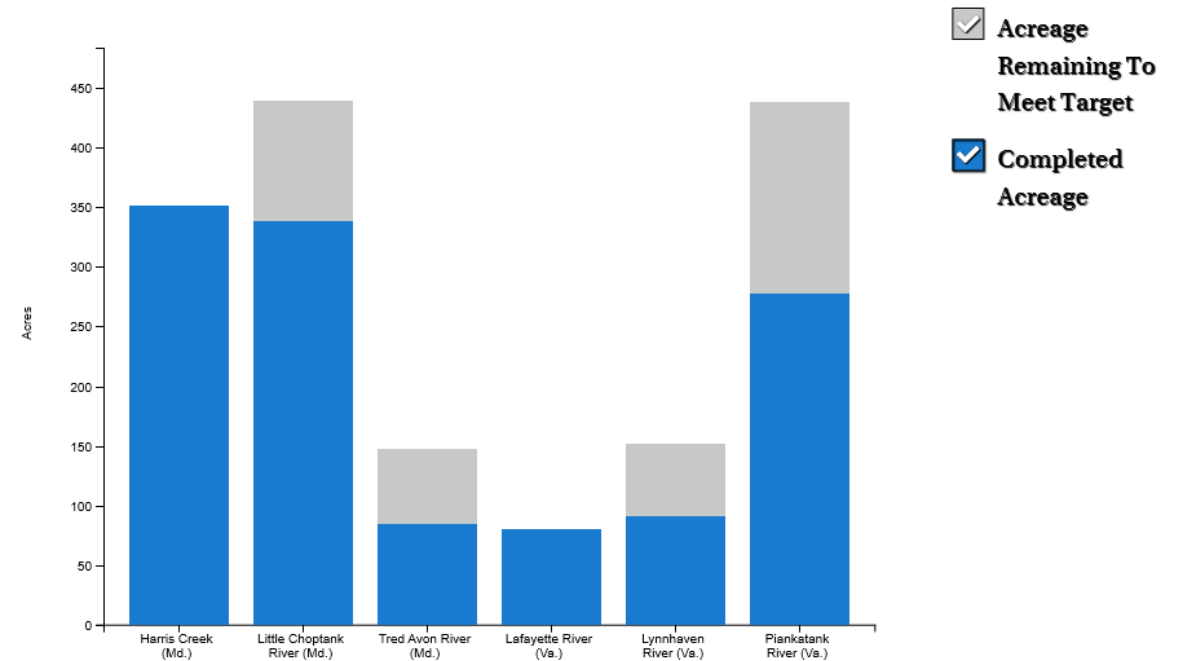
Protected Lands (Cumulative) (2011-2018)

Some increases in acreage can be attributed to newly protected parcels of land. Other increases can be attributed to the addition of previously protected but newly digitized, corrected or refined parcels.



Oyster Reef Restoration (2018)

Individual acreage targets are based on a tributary's historic oyster habitat and currently restorable area. The Upper St. Mary's, Manokin, Great Wicomico, and Lower York rivers will be added to this chart once their target acreages are established.



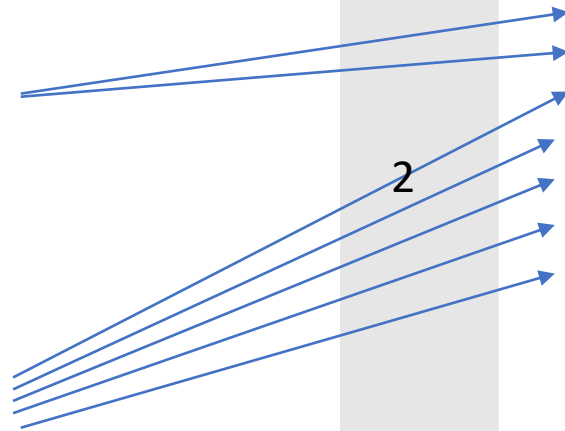
<https://www.chesapeakeprogress.com/chart/protected-lands>

<https://www.chesapeakeprogress.com/?/abundant-life/oysters>





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9 Indicators are available

- 2 were existing
- 7 were new



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Climate Change

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Goals: [Climate Resiliency](#)

Goals




Climate Resiliency

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Progress Even

Outcomes




Climate Adaptation






Climate Monitoring and Assessment



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Chesapeake Bay Program

410 Severn Avenue, Suite 111, Annapolis, MD 21405



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www.chesapeakebay.net



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13 remaining indicators are evaluated for their implementation readiness

- Implementation plans provided for the other 13

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Where do we go from here?

- Continue down the list?
- Example: Bay Water Temperature

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#10: Bay Water Temperature

2003-2016 example

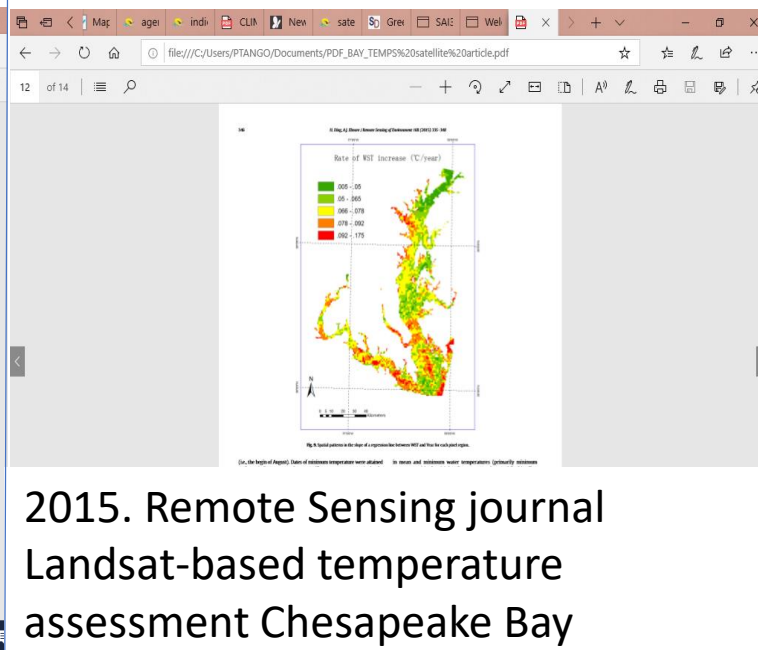
Satellite Water Temperature Indicator for Chesapeake Bay

Indicator Development and Cross-comparison with Chesapeake Bay Program Monitoring Data

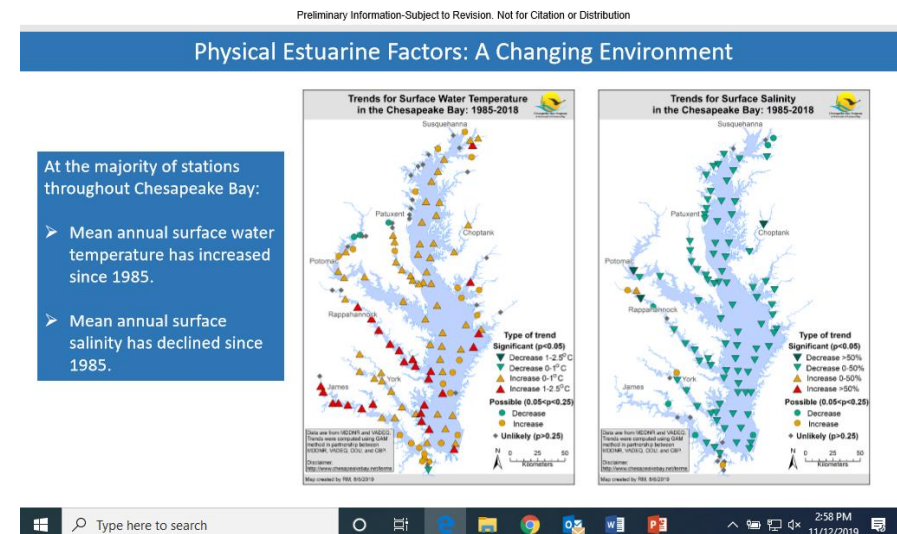
Ron Vogel, SMRC for NOAA CoastWatch
Michael Craghan, EPA Oceans, Wetlands & Communities Division
Shelly Tomlinson, NOAA National Ocean Service & NOAA CoastWatch
Zoe Johnson, NOAA Chesapeake Bay Office

CBP Climate Resiliency Workgroup Meeting

October 16, 2017

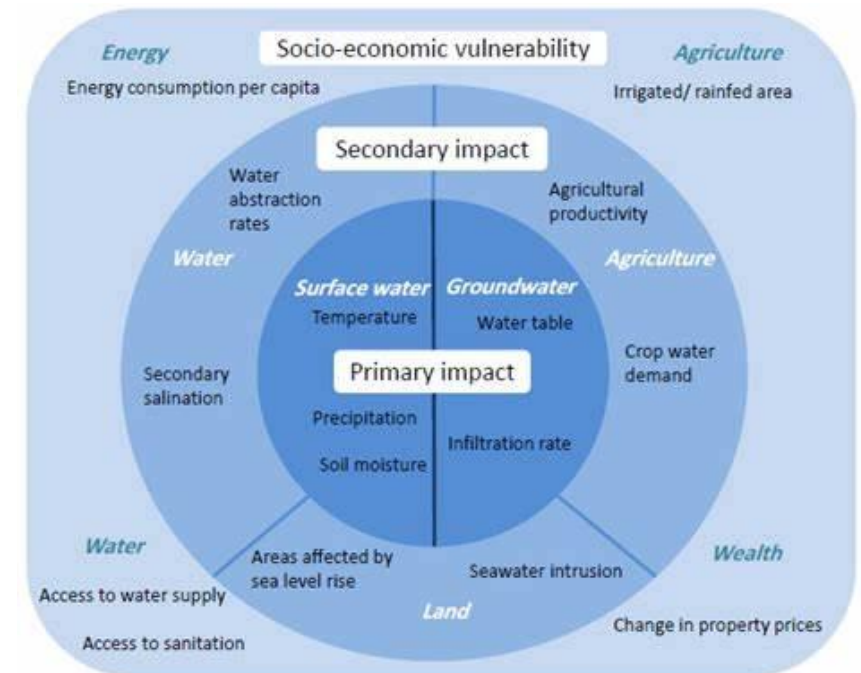


Chesapeake Bay Long-term Water Quality Monitoring Program 1985-present station-based temperature, salinity. GAMs assessment.



Suggested next steps on indicator work for the CRWG

- Within CRWG:
 - Ensure any annual updating on existing indicators is addressed
 - Share the list of 13 candidates from the original 21 for considering 1 or more new indicators for development, approval and implementation in 2020, and/or,
 - Share the 200+ list of candidate topics and re-evaluate if anything new has risen to the top due to new science, reporting, available information?
- Interact with STAR and the GITs to evaluate cross-GIT indicator needs for prioritizing new indicators from:
 - The remaining 13 short-list candidate indicators
 - The original 200+ list for highlighting priority needs based on the past SRS cycle findings
 - Understand if there are previously undocumented indicator needs rising up as priorities since 2016.





Thank you