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MAINTAIN HEALTHY WATERSHED GIT MEETING – APRIL 11,2022

CONGRATULATIONS!

Jeff Lerner, Partnerships Program Branch Chief within EPA's Office of Wetlands Oceans and Watersheds

Maintain Healthy Watersheds Goal Implementation Team, Chair, Chesapeake Bay Program

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water#wetlands

Increasing Engagement Between
the Chesapeake Bay Program Partnership
and Region 3 Federally Recognized Tribes (March 22-23, 2022)

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Purpose Statement: The purpose of this showcase is to initiate discussions with the Region III federally-recognized tribes on opportunities for increased engagement with the Chesapeake Bay Program partnership. This listening and informational session will highlight key partnership priorities and initiatives under the 2014 Chesapeake Bay Watershed Agreement and identify next steps for increased engagement.

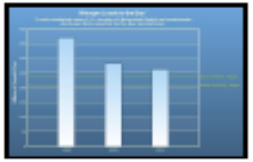
Sustainable Fisheries Goal

- *Blue Crab Abundance Outcome*
- *Blue Crab Management Outcome*
- *Oyster Outcome*
- *Forage Fish Outcome*
- *Fish Habitat Outcome*

Vital Habitats Goal

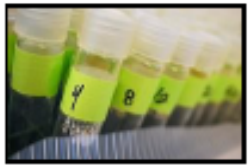
- *Wetlands Outcome*
  - *Black Duck*
- *Stream Health Outcome*
  - *Brook Trout*
- *Fish Passage Outcome*
- *SAV Outcome*
- *Forest Buffer Outcome*
- *Tree Canopy Outcome*

Water Quality Goal



- *2017 Watershed Implementation Plans (WIP) Outcome*
- *2025 WIP Outcome*
- *Water Quality Standards Attainment and Monitoring Outcome*

Toxic Contaminants Goal



- *Toxic Contaminants Research Outcome*
- *Toxic Contaminants Policy and Prevention Outcome*

Healthy Watersheds Goal

- *Healthy Waters Outcome*

Stewardship Goal

- *Citizen Stewardship Outcome*
- *Local Leadership Outcome*
- *Diversity Outcome*

Land Conservation

- *Protected Lands Outcome*
- *Land Use Methods and Metrics Development Outcome*
- *Land Use Options Evaluation Outcome*

Public Access Goal

- *Public Access Site Development Outcome*

Environmental Literacy Goal

- *Student Outcome*
- *Sustainable Schools Outcome*
- *Environmental Literacy Planning Outcome*

Climate Resiliency Goal

- *Monitoring and Assessment Outcome*
- *Adaptation Outcome*

HEALTHY WATERSHEDS GOAL

Goal: Sustain state-identified healthy waters and watersheds recognized for their high quality and/or high ecological value

Outcome: 100 percent of state-identified healthy waters and watersheds remain healthy.

HEALTHY WATERSHEDS VISION

Sustain watershed health where it is ***high, exceptional and/or outstanding…***

to ***increase the number of healthy watersheds*** in the future…

Provide the forum for mutual shared learning…

Develop information resources…
and
Promote the science

CHESAPEAKE PROGRESS

Outcome Status Summary

The Outcome Status Summary provides a visual overview of the Chesapeake Bay Program's recent progress and current course outlook toward achieving the outcomes of the *Chesapeake Bay Watershed Agreement*.

HEALTHY WATERSHEDS

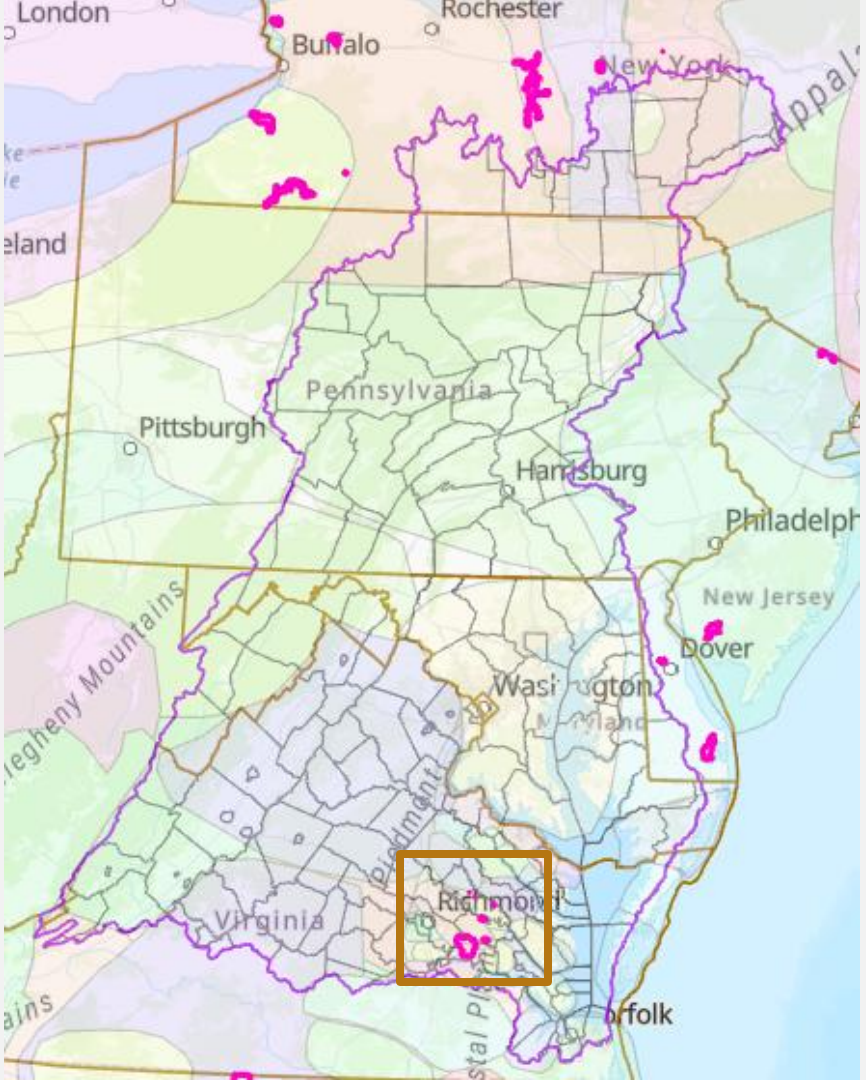
	Recent Progress	Outlook
Healthy Watersheds Outcome	NO CHANGE *Updated April 2018*	UNCERTAIN *Updated November 2021*

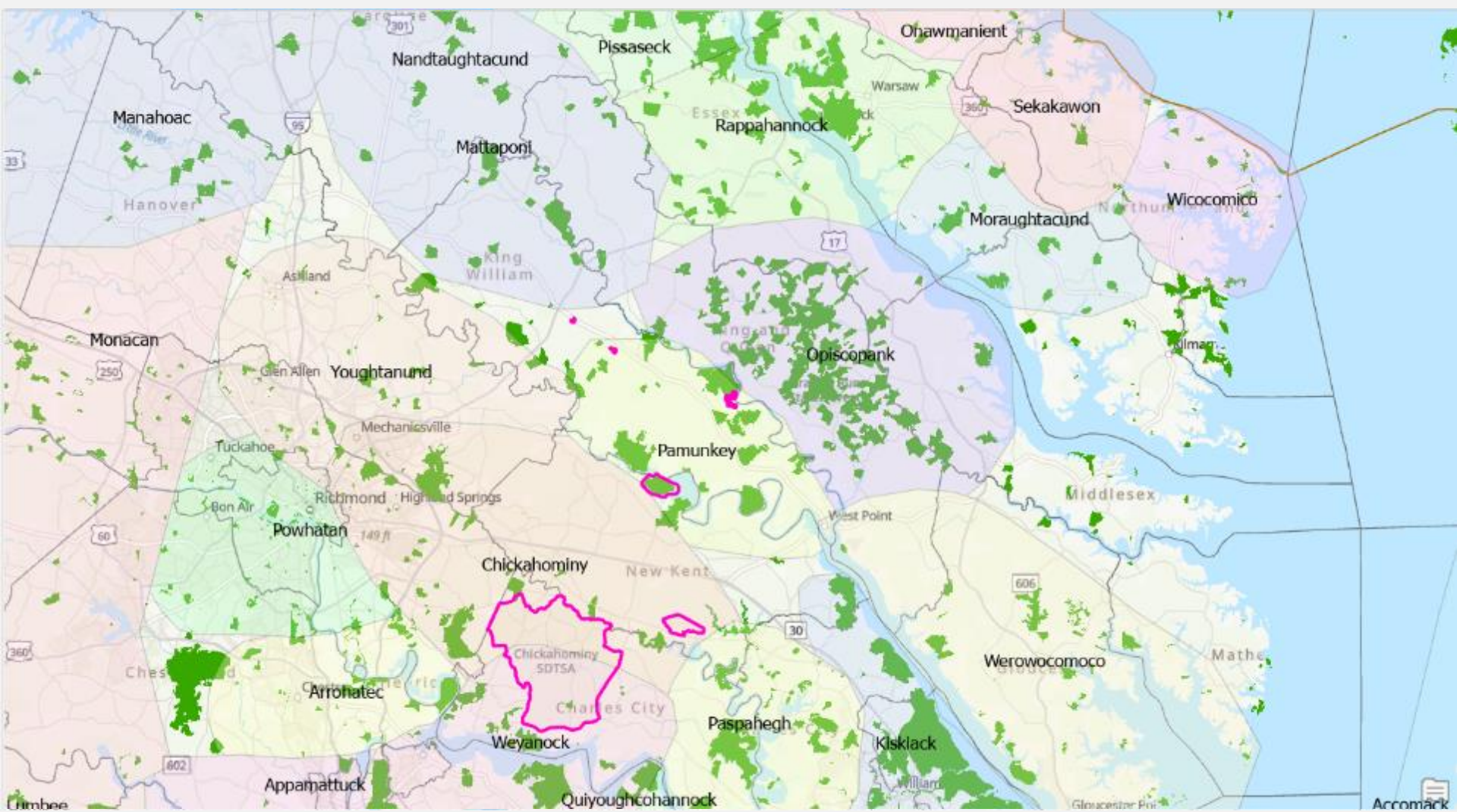
LAND CONSERVATION

	Recent Progress	Outlook
Land Use Methods and Metrics Development Outcome	NO CHANGE *Updated September 2016*	ON COURSE *Updated November 2021*
Land Use Options Evaluation Outcome	INCREASE *Updated March 2018*	ON COURSE *Updated November 2021*

HISTORIC NATIVE TERRESTRIAL TERRITORIES AND NATIVE LAND AREAS

Demonstration of the Chesapeake Healthy Watersheds Assessment and Connections to Native lands and territories.

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Powhatan
Middlesex
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Chickahominy
New Kent
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Paspahegh
Weyanock
Kisklack
Appamattuck
Quiyoughcohannock
Accomack

MARTHA SHIMKIN, CBP DEPUTY DIRECTOR

- The information you delivered to the federally recognized tribes in Virginia is critical in assisting in their understanding and future engagement with the restoration efforts of the Chesapeake Bay.

- Both days of presentations yielded rich discussion among the meetings participants that will undoubtedly be utilized as we move forward in integrating the tribes into the many facets of work that is ongoing within the partnership.

- Thank you again. I look forward to discovering how we can work together with our tribal partners to help them attain the engagement they wish with the Chesapeake Bay Program partnership.

2022 HWGIT FUNDING PROJECTS

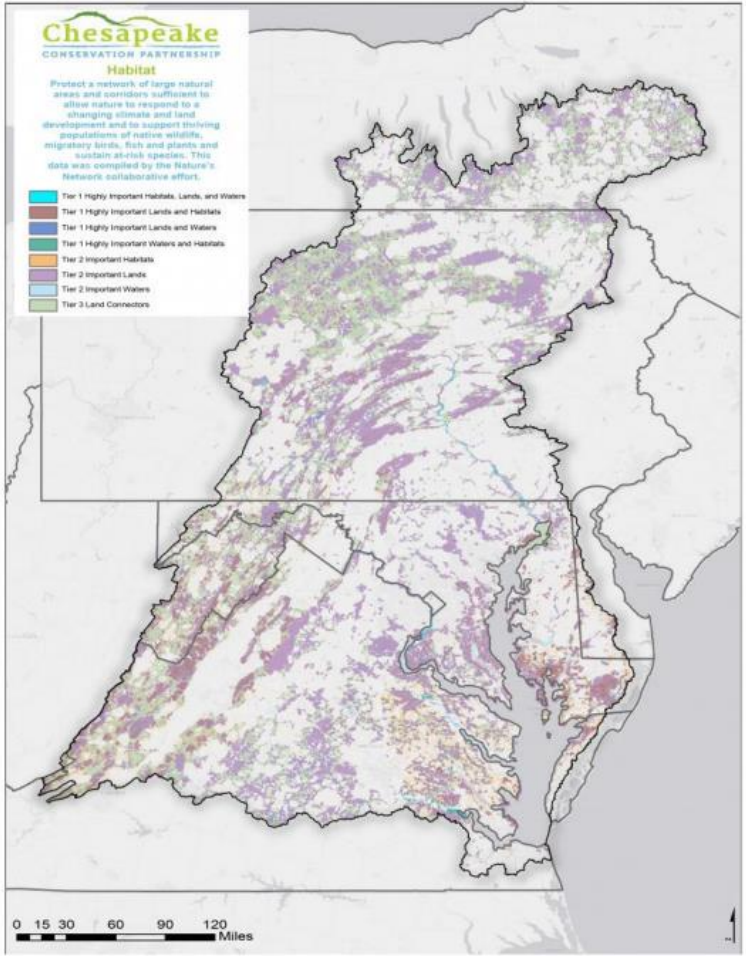
Updates and Progress

Chesapeake Bay Program Goal Implementation Team (GIT) Funding Program

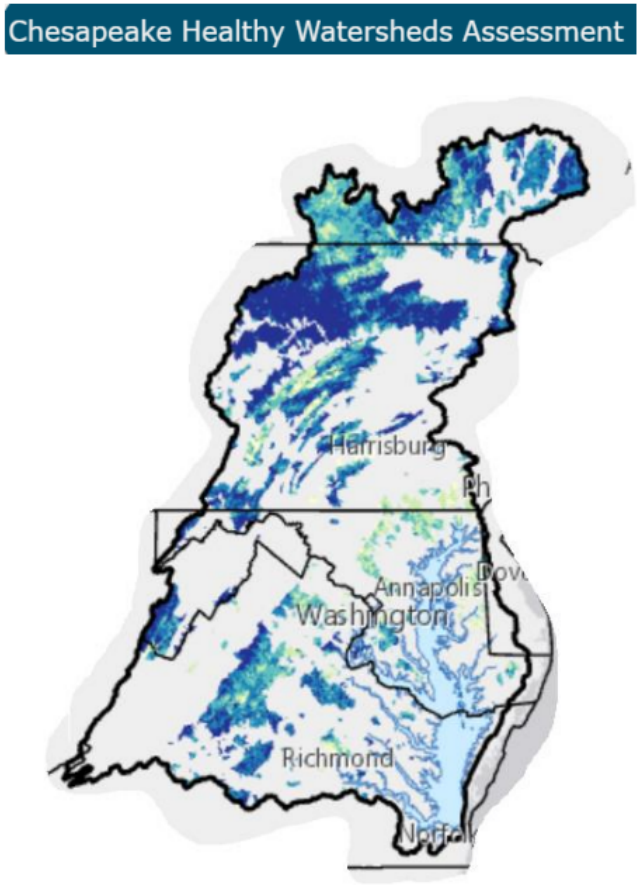
https://cbtrust.org/grants/git/

Scope #	FFY21 Scope Title	Maximum Bid Amount
Scope of Work 1:	Chesapeake Healthy Watersheds Assessment 2.0	$85,000
Scope of Work 2:	Partnership-Building and Identification of Collaborative Tidal Marsh Adaptation Projects	$75,000
Scope of Work 3:	Equitable Grant Funding in the Chesapeake Bay Watershed	$74,500
Scope of Work 4:	Updating the Chesapeake Bay Fish Passage Prioritization Tool	$65,000
Scope of Work 5:	Strategy Development for Innovative Finance of Riparian Forest Buffer Programs	$70,000
Scope of Work 6:	Tree Canopy Funding and Policy Roundtable	$65,000
Scope of Work 7:	A Local Government Guide to the Chesapeake Bay: Phase II	$80,000
Scope of Work 8:	Facilitating Brook Trout Outcome Attainability through Coordination with CBP Jurisdictions and Partners	$80,000
Scope of Work 9:	A Population Simulation Model for Blue Crab Stock Assessment Performance Evaluation	$80,000
Scope of Work 10:	Updating the Chesapeake Conservation Partnership (CCP) Priority Habitat Dataset of the Chesapeake Conservation Atlas: A Scoping Project	$45,000
Scope of Work 11:	Understanding and Addressing the Impacts of Wetland Mowing to Facilitate Meeting the Chesapeake Bay Wetland Enhancement Goals	$75,000
Scope of Work 12:	Data Review and Development of Multi-Metric Stream Health Indicators	$75,000

Project	Updating the Chesapeake Conservation Partnership (CCP) Priority Habitat dataset of the Chesapeake Conservation Atlas: Scoping project
Technical Project Lead	Bill Jenkins, John Wolf, Renee Thompson
Outcomes	• Provide a scope of work describing various approaches and resources required for an updated, watershed-wide dataset of important habitat to guide land conservation and terrestrial and aquatic habitat conservation, restoration and stewardship • Recommendations related to data, methodology, process and cost estimates for the creation of an updated habitat dataset for CCP. • The outcome will lay the foundation for ecological assessment, ecosystem service valuation and metric development.



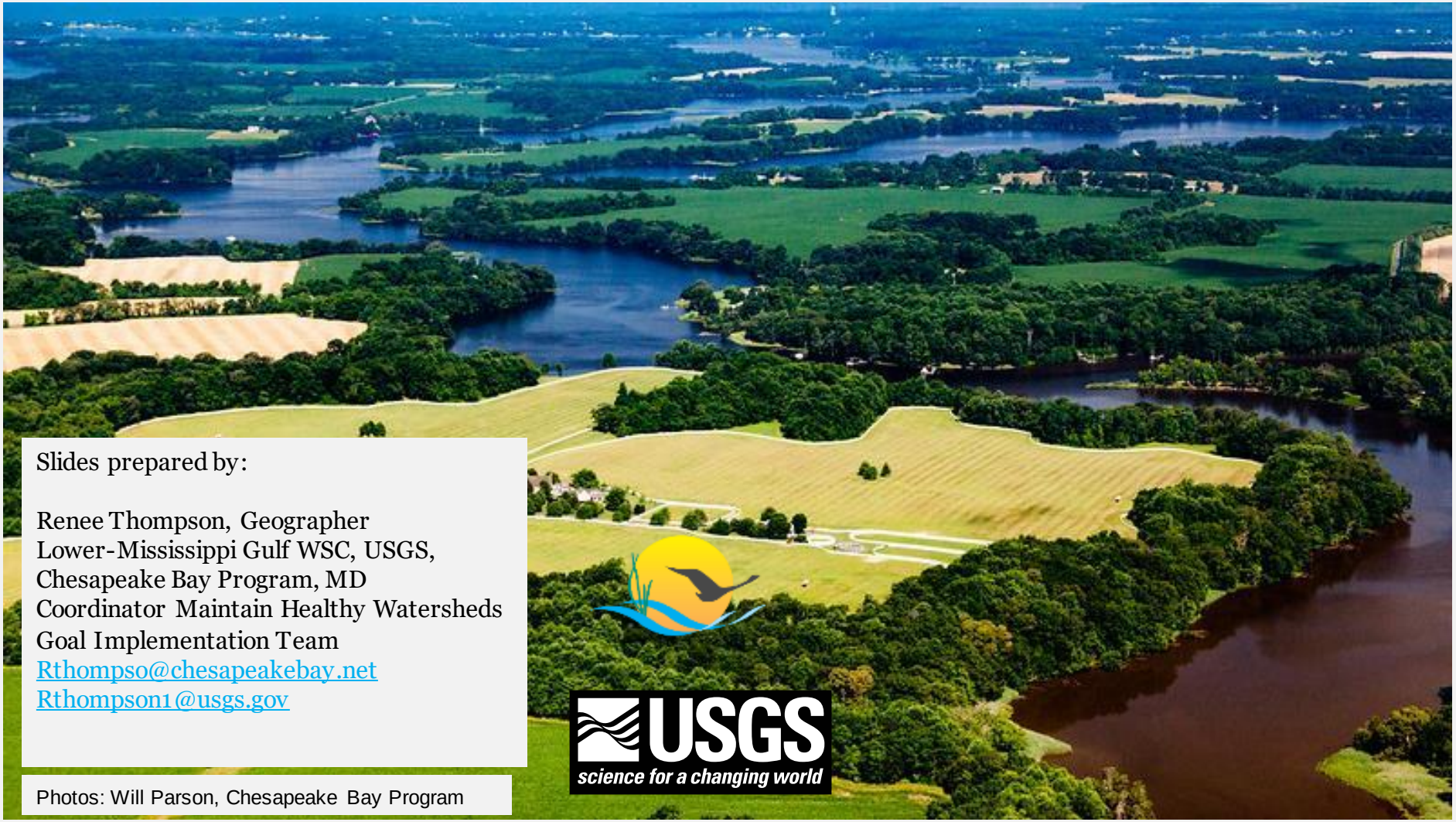
Project	Chesapeake Healthy Watersheds Assessment 2.0
Technical Project Lead	Renee Thompson
Outcomes	Further improve, refine, and finalize the Chesapeake Healthy Watersheds Assessment. The CHWA 2.0 outcomes include updated metrics for all Chesapeake Healthy Watersheds Assessment data layers, improved visualization, analysis, and filtering functionality to meet user needs, computed change statistics for appropriate metrics related to land use and vulnerability metrics and user customized fact sheets including interpretation of results.
Key Deliverables	• Results of stakeholder resources user needs research • CHWA 2.0 geodatabase, associated code, toolboxes, readme files etc. • Relaunched CHWA 2.0 website and all associated data download files Chesapeake Open Data • Overview Video tutorial for CHWA 2.0 Use Case video tutorials 3-5 total



2022 GIT FUNDING TIMELINE

- April 18th at 4pm EST (RFP application deadline)

Reviewer Scoring Period (Trust)	2 weeks	4/22/22 to 5/06/22
Schedule Meetings/Calls to Determine Winners (Trust)	1 week	5/6/22 to 5/13/22
Write Contracts for Winning Bidders (Trust)	2 weeks	5/18/22 to 6/1/22
Send out Awards (Trust)	--	6/6/22
CONTRACTORS BEGIN WORK		**6/15/22**



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Photos: Will Parson, Chesapeake Bay Program

USGS
science for a changing world

Watershed recommendations for management actions and science needs

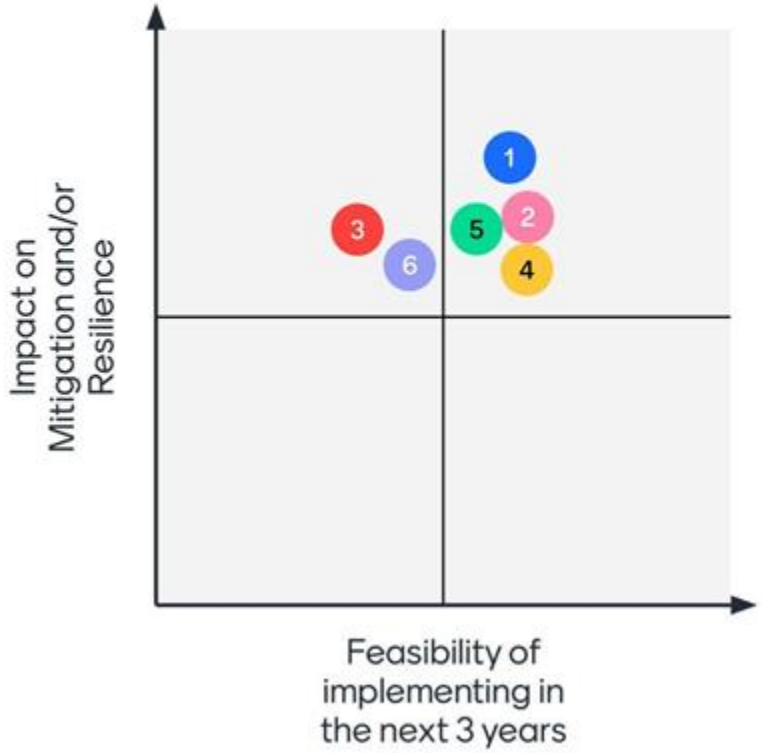
Rising Water Temperature STAC workshop
March 15, 2022

Coldwater Fisheries and Habitats: Management Actions

1. Prioritize protecting forested watersheds with high quality brook trout habitat by maintaining and enhancing current forest cover.
2. Promote good agricultural stewardship, including better use of cooling BMPs, to minimize the impacts of agricultural land use in watersheds with high quality brook trout habitat
3. Minimize the impacts of impervious land use by avoiding "heater" BMPs (e.g., headwater ponds) near brook trout streams and encouraging "cooler" BMPs. Relevant regulatory and stormwater permitting agencies should collaborate to review existing design criteria for new stormwater and restoration practices installed in cold and cool-water watersheds avoid further stream warming.
4. Develop stronger engagement with private landowners, including working with ag agencies to promote cooling practices, and improving conservation easement programs and incentives.
5. Work with local governments to improve land use planning in high quality habitat areas and to better utilize new and existing program for coldwater fisheries
6. Implement habitat restoration in degraded landscapes, including the reforestation of abandoned minelands and the restoration of degraded streams to improve connectivity and expand available habitat, while minimizing the loss of mature riparian trees

Please rank recommendations for management actions: Coldwater Fisheries and Habitats

Mentimeter



1. Protect forest watersheds
2. Promote good agricultural stewardship
3. Minimize impervious land use impacts
4. Improve engagement with private landowners
5. Work with local governments on land use planning
6. Restore degraded streams and landscapes

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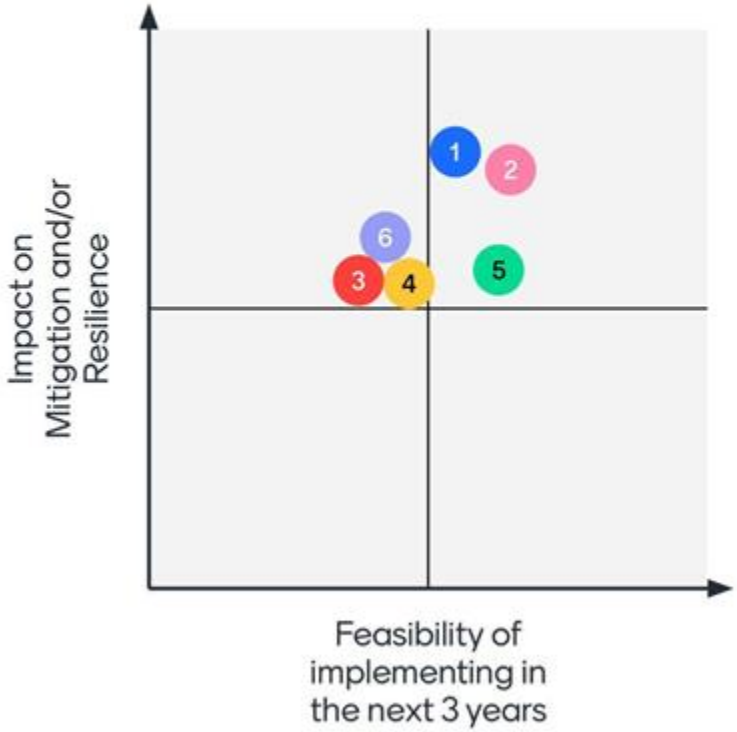
Coldwater Fisheries and Habitats: Science Needs

1. Develop geospatial modeling/mapping tools to identify stream reaches with thermally resilient groundwater inputs.
2. Determine how interactions between climate change and land use will affect brook trout and mussel populations including cumulative impacts.
3. Identify genetic metrics necessary to determine brook trout and mussel population resiliency to rising temperatures including adaptive variation to higher temperatures.
4. Evaluate genetic metrics as a management tool to boost climate resiliency.
5. Quantify BMP effectiveness (and cost-effectiveness) for cooling water temperatures in coldwater habitats, including the impacts of stream restoration practices
6. Establish science-based targets for restoration and conservation, including % watershed forest cover and the needed forest buffer width to provide cooling benefits
7. Develop multi-species prioritization tools to target conservation and restoration activities across the landscape based on local conditions and drivers of rising water temperatures
8. Identify riparian tree species recommendations to replace hemlock and ash

Rural Waters and Habitats: Management Actions

1. Improve forest cover throughout the landscape and ensure rivers and streams are well buffered
2. Use the improved Bay watershed mapping capability to prioritize specific headwater stream reaches that are the most suited for riparian buffer plantings to exert the greatest cooling impact in rural watersheds.
3. On agricultural lands, take a whole farm approach to achieve a net reduction in temperature while still addressing water quality concerns.
4. Use aquatic habitat restoration to improve connectivity between suitable habitat patches and improve access to thermal refugia.
5. Improve technical assistance and programs available to private landowners for tree planting and conservation
6. Work with local government planning departments to modify codes and laws where appropriate to require conservation BMPs and cooling practices.

Please rank recommendations for management actions: Rural Waters and Habitats



1. Improve forest cover
2. Prioritize buffer plantings to maximize cooling
3. Integrate temperature into whole farm planning
4. Improve connectivity through habitat restoration
5. Improve technical assistance and programs for landowners
6. Work with local governments to improve codes/laws

Rural Waters and Habitats: Science Needs

1. Conduct targeted research in small agricultural watersheds to measure temperature impacts of agricultural land and water management practices, including infiltration practices. Align priorities for getting reliable BMP field monitoring data to include cropping, tillage and field drainage practices.
2. Perform demonstration research projects that measure the cooling impact of scaled-up riparian buffer plantings on stream and groundwater temperatures in rural watersheds and determine whether particular buffer designs are more effective for cooling (i.e. 1-sided vs 2-sided buffers, optimum buffer width).
3. Perform research to define how wetlands and other stream corridor habitats influence hydrologic processes that can enhance cooling in streams and rivers.
4. Conduct groundwater mapping to determine where practices that improve hyporheic exchange may be most effective
5. Use new CBP data to calculate the maximum rural stream mileage available for forestation and develop models to determine whether the installation of future stream “cooler” and “shader” practices will mitigate watershed warming factors.
6. Investigate the potential for dam/pond removal, floodplain restoration, and beaver analogue projects as a cooling mitigation strategy for sensitive rural watersheds.
7. Investigate the potential benefits of improving roadside ditch management for minimizing heating
8. Determine how interactions between climate change and rural land use will affect mussel populations, including cumulative impacts.

Urban Waters and Habitats: Management Actions

1. Work with local governments to identify opportunities to incentivize stacking multiple stormwater “cooler” BMPs over “heater” BMPs in the Bay watershed for pollutant reduction going forward.
2. Decrease the amount of lawns in cities, using lawn conversion programs to increase urban tree cover
3. Update urban and forestry BMP plant lists to make sure the species we are planting are appropriate for the future hardiness zones in our warming watershed. Encourage diversity in plant selection to hedge against potential losses to invasive pests and plants.
4. Encourage the retention and expansion of urban tree cover (both in the riparian zone and upstream), especially in under-served urban areas which historically suffer the worst heating and human health outcomes.
5. Use aquatic habitat restoration to improve connectivity between suitable habitat patches and improve access to thermal refugia.
6. Emphasize the multiple co-benefits of cooler BMPs beyond rising water temperatures and nutrient reductions to better communicate about these practices with residents and local governments and to access additional sources of funding

Please rank recommendations for management actions: Urban Waters and Habitats

1. Incentivize stacking multiple cooler BMPs for pollutant reduction
2. Convert lawns to trees
3. Update plant lists for climate resilience
4. Conserve and expand tree cover in under-served areas
5. Improve connectivity through habitat restoration
6. Communicate multiple co-benefits of cooler BMPs

Urban Waters and Habitats: Science Needs

1. Update the CBP watershed model to simulate expected trends in future stream warming in urban watersheds and determine whether it is possible to mitigate warming with BMPs.
2. Investigate the benefits of retrofitting older legacy ponds to reduce downstream warming and pollutant reduction performance
3. Conduct BMP field monitoring to determine the temperature impact of widely used stormwater LID practices, such as bioretention, permeable pavement, infiltration and green roofs.
4. Institute Temperature Screening analysis for urban CBP BMPs—this entails a rapid effort to synthesize existing research on BMP temperature impacts for the most common BMPs applied to urban and suburban watersheds. A structured expert elicitation process could be used to establish Bay-wide delta-Ts for each class of urban BMPs and to develop recommendations for stormwater BMP design and construction criteria to mitigate stream warming.
5. Utilize higher-frequency continuous monitoring of urban streams and floodplains to better understand the ecological implications of stream warming for urban waters.
6. Improve understanding of the implications of rising water temperatures for drinking water treatment and recreational use, including connections with HABS and human health implications
7. Explore the use of a proffer system for development that incorporates cooler BMPs.

State temperature Water Quality Standards: Management Actions

1. CBP jurisdictions have water temperature policy in place through their temperature water quality standards (WQS). Explore what needs to be done to make them more effective to combat rising water temperatures.
2. Modernize these Clean Water Act tools can protect indigenous populations of coldwater, coolwater and warmwater aquatic life from climate-related water temperature increases using WQS designated use zones, temperature and biological health criteria, monitoring, and management instruments like TMDLs.
3. Interstate cooperation through CBP could increase effectiveness through information-sharing, problem solving and monitoring-modeling support.
4. Stronger anti-degradation measures could improve protection of temperature-threatened high-quality waters, e.g. native trout streams.

State Temperature Water Quality Standards: Science Needs

1. Evaluate whether WQS temperature monitoring networks designed for point source control are adequate for detecting and evaluating climate-related thermal increases, including land use influences.
2. As a follow-up to the PSC report to improve monitoring, have the CBP work with appropriate federal and state agencies to review monitoring to support temperature standards in streams, and develop recommendations for improvements needed to assess rising water temperatures.
3. Use fine-scale CBP mapping to identify priority monitoring areas (and help target studies and restoration priorities) and evaluate if infrared imagery could aid water temperature monitoring?

Recommendations for Monitoring

1. Use existing monitoring data to assess temperatures in rivers and streams. An inventory of data collected by multiple agencies is available from the USGS. Status, trends, and correlations with land use types and other factors should be investigated.
2. Monitoring data is insufficient and needs to be improved for assessing temperatures in streams draining all landscape areas. Smaller streams generally lack consistent monitoring for temperature and new temperature monitoring is needed in smaller streams important for cold-water fisheries.
3. Integrated monitoring programs should be established that can differentiate the influences of air and groundwater on stream temperatures in places important for coldwater fisheries and detect responses to management actions.
4. Paired air and water relationships should be evaluated throughout to help identify thermally resistant watersheds and those where land uses are exacerbating water temperature rises above air temperature rises.

Recommendations for Modeling

1. Develop locally focused models that better simulate the influence of land use and groundwater on local steam temperatures. The model results should be useful by fishery managers to identify areas in danger of exceeding temperature thresholds important for coldwater species.
2. Conduct a vulnerability assessment of how climate and land change may affect stream temperatures. The assessment could link climate, land change, and watershed models to forecast changes in stream temperatures linked to different climate and land-use scenarios.
3. The Chesapeake Healthy Watersheds Assessment (CHWA) should be used to enhance local and regional models. The CHWA includes data and metrics related to key landscape factors and watershed characteristics that may influence stream temperature. There are additional opportunities to incorporate stream temperature, and vulnerability thresholds for key habitat and species into the CHWA.
4. Temperature impacts on watershed biota and fisheries should be better represented in the CBP's existing management tools to influence land use and BMP implementation decisions, including CAST and stream/fish habitat models.