

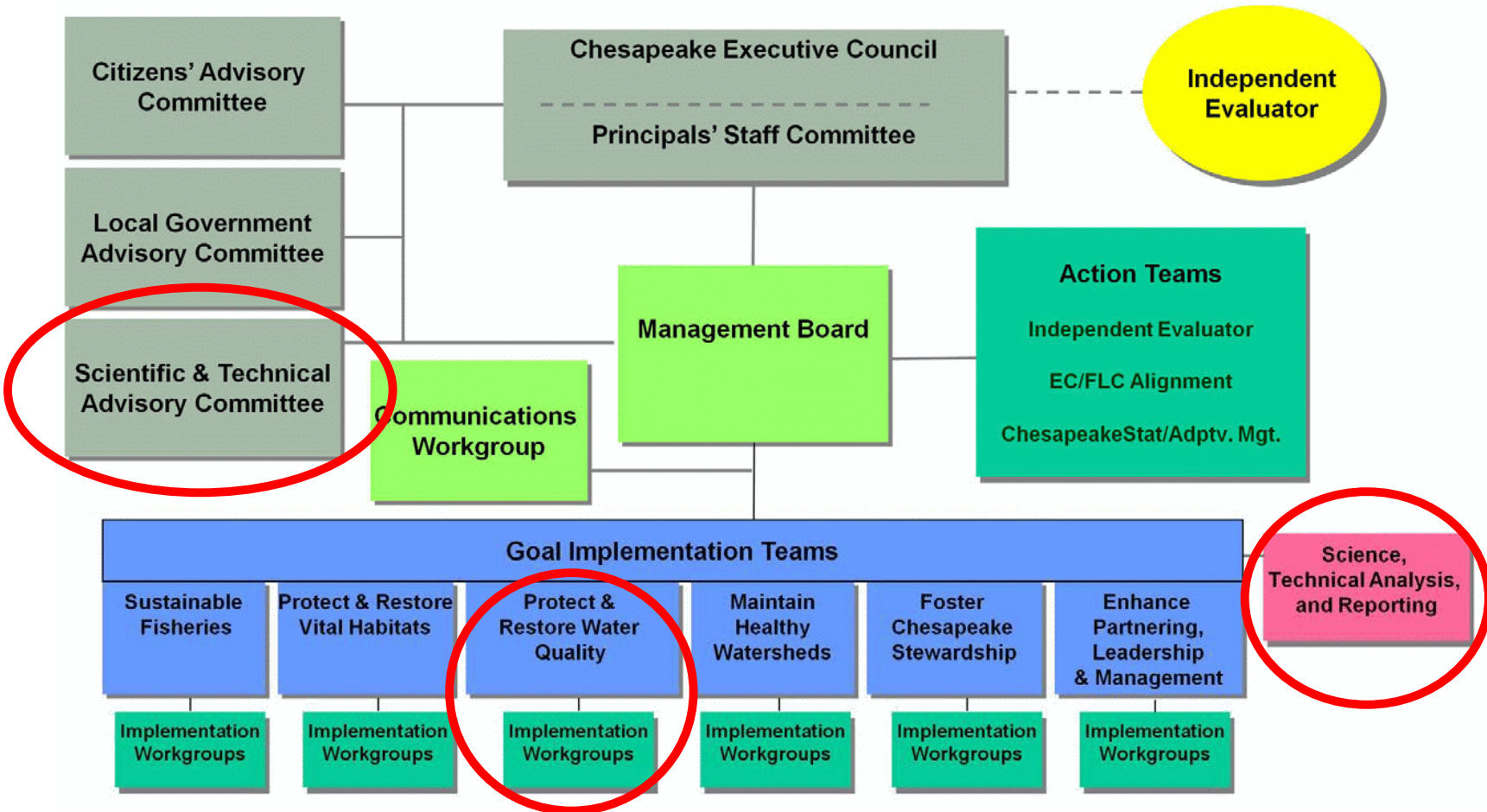


CBw Science, Technology Advisory Committee (STAC) State of the Science Workshop

**Using Carbon to Achieve Chesapeake
Bay (and Watershed) Water Quality
Goals and Climate Resiliency.**

The Science, Gaps, Implementation
Activities and Opportunities

CBP Organizational Structure and Leadership 09-20-10





STAC Technical Committee

- Jason Hubbard, Ph.D. – STAC Sponsor/Participate (West Virginia University)
- Chris Brosch – STAC Sponsor/Participate (DE Dept. of Agriculture)
- Chuck Hegberg – Workshop Chair
- Jennifer Egan, P.G. Ph.D. – Workshop Co-chair (UMD)
- Tom Miles – USBI
- Paul Imhoff, Ph.D. – University of Delaware
- Wayne Teel, Ph.D. – James Madison University
- David Wood – Chesapeake Stormwater Network
- Dominique Luekenhoff – Hugo Neu, Inc.
- Kenneth Pantuck – US EPA Region 3



STAC Workshop

Workshop Goal and Objectives:

- To elevate the use of biochar in practice Bay-wide by evaluating and translating current research for integration into current Chesapeake Bay protocols
- To hold a workshop and report detailing a clear state of the science with identified gaps and actionable recommendations on topics that link biochar and carbon strategies into current strategies including Agriculture – Soil Health & Manure Management, Forestry & Urban Trees, Toxic/Emerging Contaminants, Urban Stormwater, Wastewater Management and Climate Resiliency.
- Biochar research and demonstration projects have been going on since 2009 starting with poultry litter and moving to stormwater BMPs for both engineered media, soil restoration and agricultural BMPs.
- Currently not accepted in the protocols for crediting except for manure treatment technology protocols.



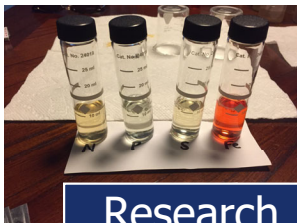
CENTER FOR
**WATERSHED
PROTECTION**

**Biochar in the
Chesapeake Bay**
August 10, 2022

Carol Wong

Background on CWP

- National non-profit 501(c)3 organization
- Founded in 1992
- Mission is to advance clean water resources and healthy ecosystems through responsible land and water management
- 22 staff- engineers and scientists
- Staff in MD, VA, NY, PA, MI, SC, WA



Chesapeake Bay TMDL Background



Chesapeake Bay

- **6 states and DC**
- **64,000 sq miles**
- **Home to over 18 million people**
- **Largest estuary in the US**
- **Watershed:Water Ratio 14:1**





Total Maximum Daily Loads (TMDL)

- Developed by state or EPA for impaired waterbodies
- Pollution diet to reach a healthy waterbody
 - Wlsyn\$fi\$ewih\$rw\$gmirgi
- TMDLs are not regulatory controls

Chesapeake Bay TMDL and Drivers

- States must develop Watershed Implementation Plan (WIP) to meet reductions and track and report reductions

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- Nitrogen (25%), phosphorus (24%), sediment (20%) reduction from 2009 base year by 2025

- E \$ s \$ j e g g s y r x r k \$ t e r r m k \$ w e g o n k \$ e r h \$ i t s v r k

- Expert panels help determine how much reduction “credit” a BMP should get

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Chesapeake Bay TMDL

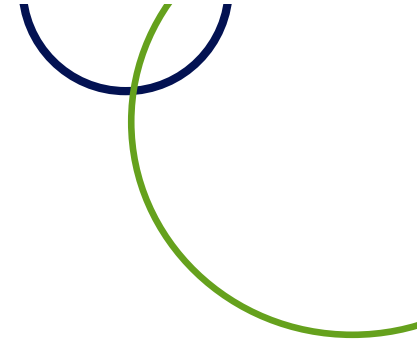
- MS4 Permits include requirements to achieve WIP goals (in some states)
- Green stormwater infrastructure (aka BMP) and stream restoration are two of the biggest strategies for urban stormwater
- Agriculture acknowledged as a significant contributor



Biochar in the Chesapeake Bay

- Not currently a creditable BMP
- Goals of projects is to justify that biochar should be added, and provide information such as:
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- Potential uses include
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Data Gaps for Biochar in Stormwater

Not all biochar is created equal

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Limited regional sources of certified, quality biochar

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Not currently creditable

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Lack of education and awareness

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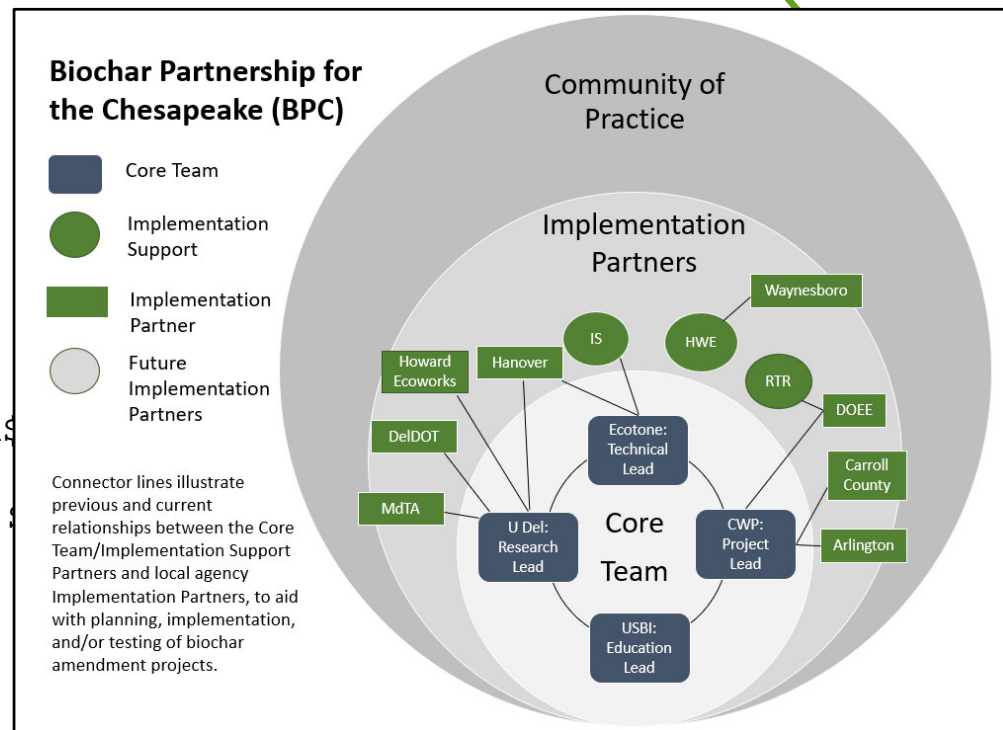
CWP's NFWF INSR Grant 2022

Aimed to address the needs listed in previous slide

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Goal to scale up biochar application in CB

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Project Team

Core Team

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- YWFM\$

• Implementation Support

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• Implementation Partners

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Participate Discussion

- Experience in biochar activities in the CBw or mid-Atlantic region?
- What do you see as the primary market opportunities (current or potential)?
- Any active research activities that can be shared?
- Existing/Planned Project Installation (production or applications)?
- What informational or research gaps exist?
- Challenges and Roadblocks?
- What do you see as needed to get biochar scaled in the CBw & mid-Atlantic region?
- What would you like to see addressed by the two grant teams?