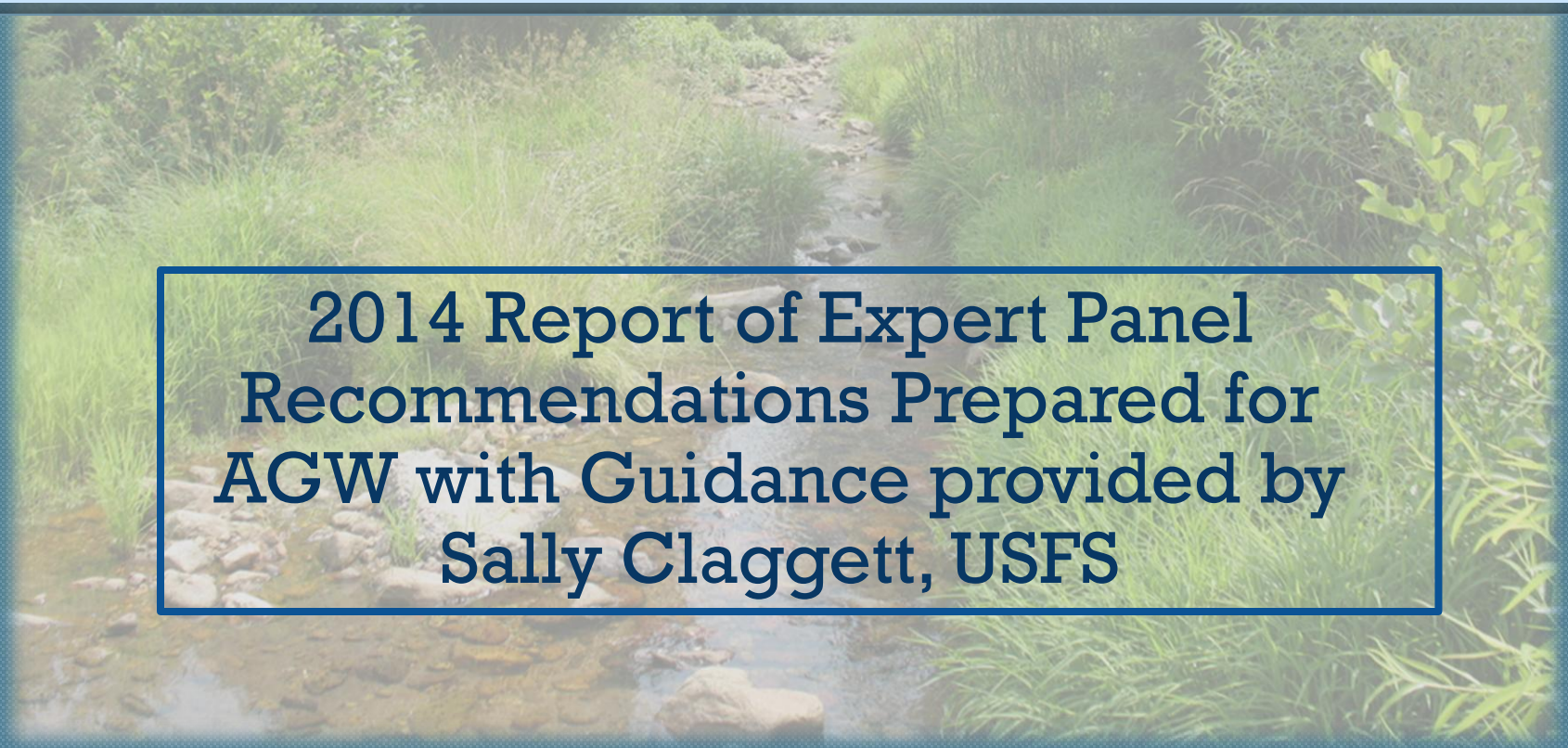
# Riparian Buffer Effectiveness for the CBWM



2014 Report of Expert Panel Recommendations Prepared for AGW with Guidance provided by Sally Claggett, USFS

# Conformity to BMP Review Protocol

- Expert Panel
- 21 points of conformity
  - Definitions
  - Loading, land use application,
  - Practice baseline, temporal performance
  - Units of measure
  - Life of BMP
  - Issue to be resolved in future
  - Time line for re-evaluation of panel
  - BMP Maintenance
  - Tracking and Reporting

# Expert Panel

**Panelists and Organizations**

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# Definition

- **A RIPARIAN BUFFER IS: a newly established area along a stream, on average 100 ft (30m) wide, of either grass or trees, and is managed to maintain the integrity of stream channels and shorelines and reduce the impact of upstream land uses. It is a minimum of 35 ft (10m) wide to receive credit.**

# Recommended Credits Applied To Agricultural Lands

| 2014 | Forest on1 side of stream | | | Grass on1or both sides stream | | | Forest on both sides stream | | |
|---|---|---|---|---|---|---|---|---|---|
| | TN | TP | TSS | TN | TP | TSS | TN | TP | TSS |
| Coast Plain | | | | | | | New Recommendation 4%> | | |
| Inner | 65 | 42 | 56 | 46 | 42 | 56 | 69 | 42 | 56 |
| Out well drained | 31 | 45 | 60 | 21 | 45 | 60 | 35 | 45 | 60 |
| Out poor drained | 56 | 39 | 52 | 39 | 39 | 52 | 60 | 39 | 52 |
| Tidal Influence | 19 | 45 | 60 | 13 | 45 | 60 | 23 | 45 | 60 |
| Pied schist | 46 | 36 | 48 | 32 | 36 | 48 | 50 | 36 | 48 |
| Pied sandstone | 56 | 42 | 56 | 39 | 42 | 56 | 60 | 42 | 56 |
| Valy/Rdge karst | 34 | 30 | 40 | 24 | 30 | 40 | 38 | 30 | 40 |
| Valy/Rdge sst/shle | 46 | 39 | 52 | 32 | 39 | 52 | 50 | 39 | 52 |
| Applach Plateau | 54 | 42 | 56 | 38 | 42 | 56 | 58 | 42 | 56 |

**Note: Effectiveness credit is applied to upslope land at a ratio of 1:4 for TN, 1:2 for TP and TSS. For each acre of riparian buffer 4 acres of upland are treated at the rate assigned for the location in the watershed. (This is not a new recommendation)**

# Justification

- **2008 –** Literature review + scientists' opinions related to their research.

**2014 – 2008** findings + new information + on the ground experience of Expert Panel scientists

**New recommendation for In Stream Processing –**
Based on current information that represents forest buffer benefits for stream health, landscape scale nutrient cycling related to the **input** of forest buffers (handout with equations for >) **=Wider streams, more habitat, more TN removal. There are multiple lines of evidence in literature to support this recommendation.**

**To further justify, recommendations "hot topics" were addressed**

# Justification continued…

- **Hydrologic flow paths** – nutrient reduction value always higher where organic matter, root density and soil moisture is highest "hot spots" for denitrification. (hydrogeomorphic values reflect this on regional level**). In forests flow is concentrated and infiltration time >.**

**Practice Longevity** – For forest can be 40- 120 years. Cost share life 15 yr, however PA study shows 85% landowners will retain forest buffer.

**Lag Time–forest** = grass for first five years, increased effectiveness 5-15 years a functional uplift ~ + 5%. Current values are conservative, simple and clear for accountability.

**In 2008** the need for more research was noted to support a change for crediting grass buffer values of 70% of the nutrient reduction effectiveness of forest buffers. The situation remains and it is recommended to **keep the 2008 effectiveness credits for grass riparian buffers.**

# Conclusion

- **Draft of Recommendations available – www.chesapeakebay.net/who'swho/Group/FWG/Feb. 2014 meeting**

**Improves on 2008-9 information-More diverse Expert Panel, in depth look at available studies and data.**

**Acknowledge gaps in understanding buffer function and the difficulty of modeling this function across the watershed.**

**Future Research needs- groundwater discharge, channelization of surface runoff, map hot spots of denitrification, overbank flow influences.**

**Suggest a group such as Expert Panel continue to meet and share info, beyond the CBWM needs, but still of value to CB Goals.**

# Other Thoughts Considered

- Ancillary reasons for planting buffers
- Longevity of research history
- A regenerative practice with a positive cost benefit relationship
- Promote all benefits of buffers

# Tracking & Reporting

- **Verification** – Will continue to use the technical assistance partners confirmation of establishment at 1 or 2 yr schedule. "Establish means the "buffer" meets the practice 391standards for stocking and survival. We're looking at net gain for forests, because we feel it is an important issue.
- **States report + FWG**– Parcel identification #; State; Latitude; Longitude; Linear Miles; Forest buffer width; Planting date; Ownership (public/private);Field notes; Watershed name and HUC.