Recommendations of the Expert Panel to Define Removal Rates For Floating Treatment Wetlands in Existing Wet Ponds

Source: Winston et al. 2013

Panel met 7 times over 3 years

Panel came to consensus in April of 2016

Panel included numerous FTW researchers and practitioners

Literature review was a critical phase

Panel created an engineering model to support its pollutant removal protocol

Long version of report has:

- Full List of All Literature Reviewed
- Panel meeting minutes
- Response to Comments
- Conformity to BMP protocol
- REVISED Scenario Builder Appendix
- Technical Documentation for i-FTW model

CBP Approval Process

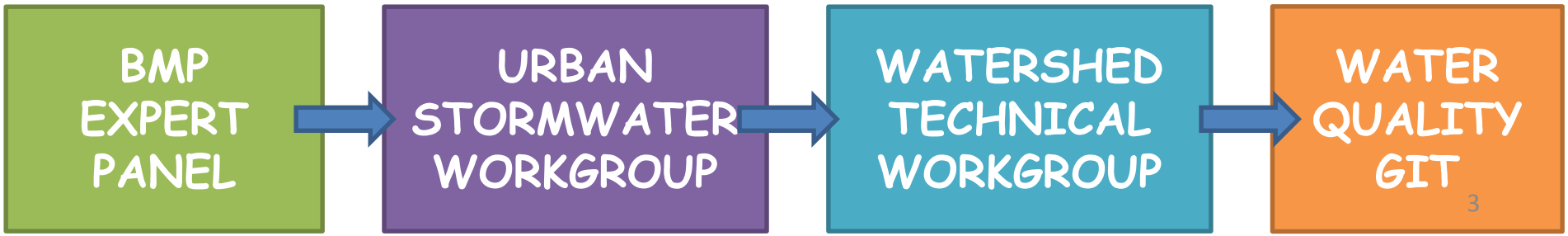
Expert Panel Report Released in June w/ Webinar

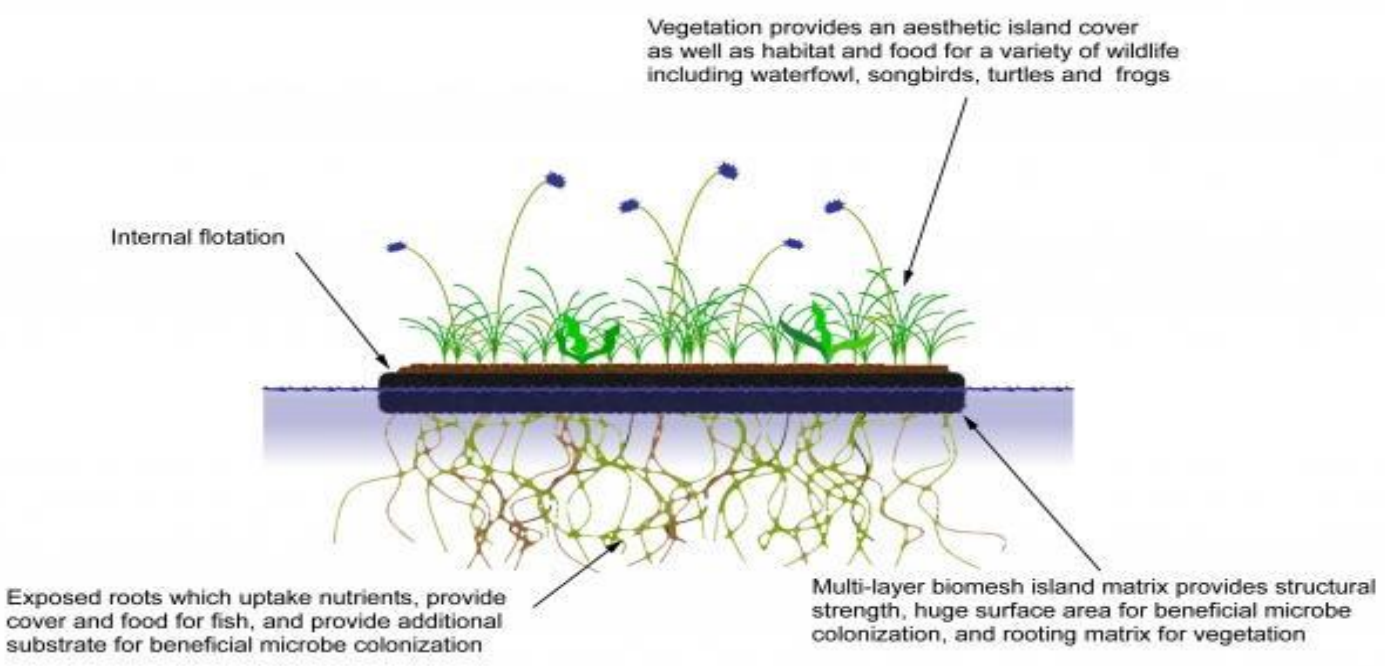
30 Day Comment Period Expired on 7/8

Response to Comments Memo Released on 7/12

Approved by USWG on July 26

Seeking WTWG approval today





PRACTICE DEFINITION AND QUALIFYING CONDITIONS

Floating Treatment Wetlands

- A proprietary or non-proprietary floating island design that incorporates the following general elements:
  - A buoyant artificial raft that floats on the surface
  - Constructed from non-toxic materials such as, but not limited to, HDPE plastic, marine grade polystyrene foam and PVC pipe
  - Containing growing media planted with aquatic macrophytes whose roots extend well below the water surface.

FTW Definitions

- *Wet Pond (aka stormwater retention pond, wet extended detention pond):* an existing stormwater retention pond with a permanent pool of water that has an average depth of 3.5 to 8 feet and meets performance criteria for an effective FTW retrofit application.
- Floating treatment wetlands are a variant of the BMP enhancement RETROFIT category, as defined by the stormwater retrofit expert panel

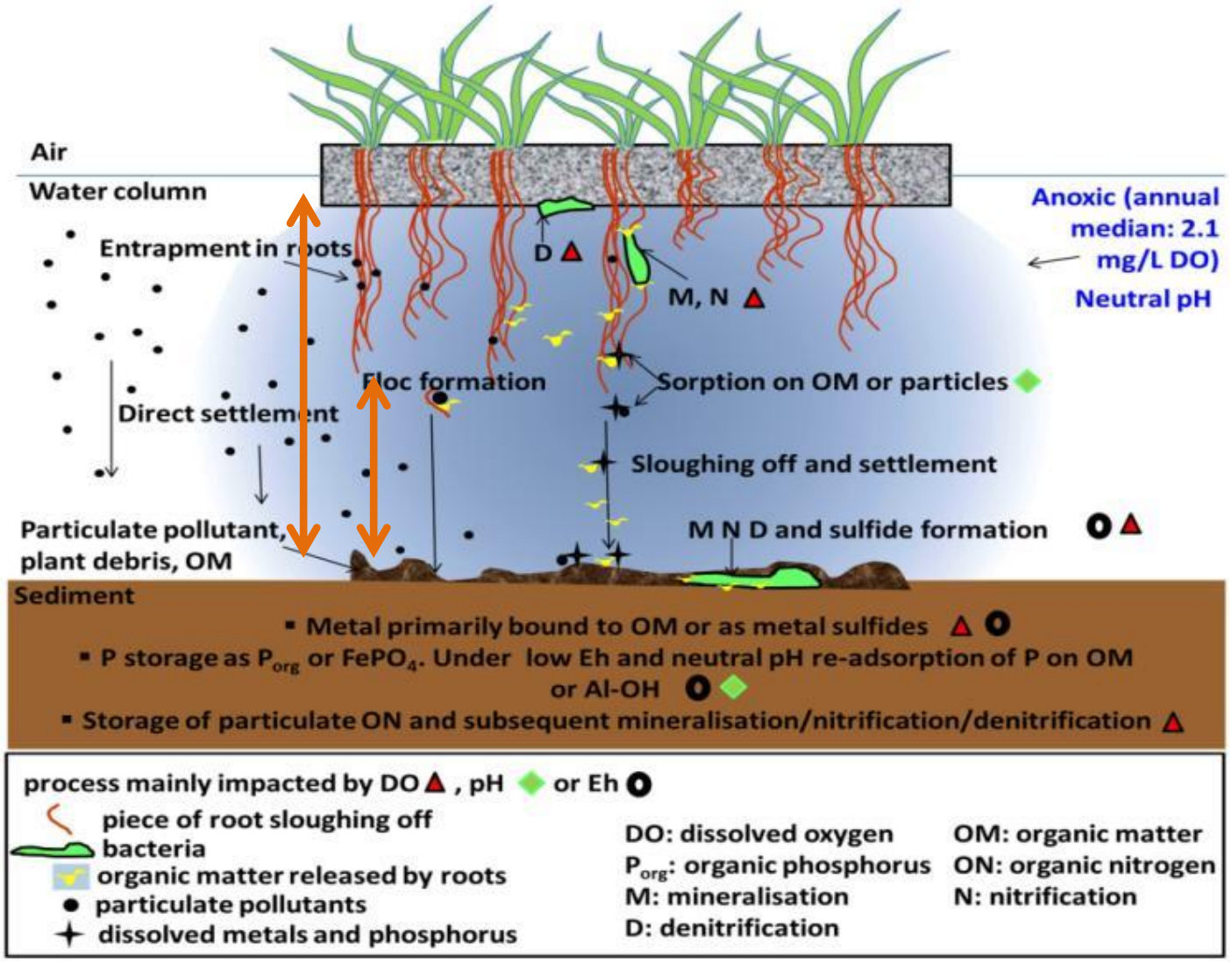
FTW performance criteria

- Achieve a minimum pond surface coverage of 10% and a maximum cover of no more than 50%
- Have an initial planting density of 2 plugs per square foot and attain a 80% plant coverage on the raft by the end of the growing season
- The raft should be placed perpendicular to the stormwater flow path and be at least 3.5 feet above the bottom of the pond
- Be adequately anchored or tethered in the pond to protect its flood control function during major storms and enable retrieval for periodic maintenance, yet anchoring should not be too taut to inundate the surface and flood the raft
- Not be infested with invasive plants and should be initially protected with netting from geese and turtles during plant establishment
- Use native wetland plant species that are appropriate for the ecoregion

Other Criteria

- Pond drainage area cannot exceed 400 acres
- Not allowed to treat new development unless approved by state stormwater agency
- No credit for open tidal water FTW applications at this time
- No agricultural applications allowed at this time

Key Removal Processes at Play



Incremental Pollutant Removal Rates for FTW Pond Retrofits

Pollutant	Raft Coverage in Pond				
	10%	**20%**	**30%**	**40%**	**50%**
TN	0.8%	1.7%	2.5%	3.3%	4.1%
TP	1.6%	3.3%	4.9%	6.5%	8.0%
TSS	2.3%	4.7%	7.0%	9.2%	11.5%

ACCOUNTABILITY MECHANISMS

Shorter Credit Duration

- FTW pond retrofits should be subject to the verifcation procedures established for stormwater retrofits as defined by the 2013 expert panel, except that they have a shorter credit duration
- Credit is for 3 years, if a responsible party exists to inspect and maintain the facility, credit can be renewed for 3 more years if field inspections shows it is in operable condition and meets plant coverage requirements

FTW Retrofit Reporting

- Retrofit class (i.e., Enhancement of existing BMP)
- GPS coordinates for the wet pond (lat/long)
- Year of installation (and year credit lapses)
- 12 digit watershed in which it is located
- Total drainage area and impervious cover area treated by the wet pond
- FTW coverage over pond surface area (new Table D.1)

DISCUSSION