

STAR Science Needs Meeting: 2025 WIP Outcome

Jeremy Hanson, CRC, WQGIT Coordinator



Chesapeake Bay Program
Science. Restoration. Partnership.

Disclaimers and reminders

- Suggested changes to existing/ongoing science needs are DRAFT and open to feedback
- Placeholders for new science needs are very fresh and are mentioned for discussion and feedback today and at upcoming STAR meeting
- We can update or add science needs as warranted, we don't have to wait another two years

Completed Science Needs for WIP outcomes

- None – all WIP outcome science needs remain active or ongoing (each needs at least minor updates)

Four science needs associated with 2017 WIP and 2025 WIP outcomes (all four need updates)

Numerous other science needs in database relate to WIP outcomes (only one mentioned in these slides)

Ongoing Needs

Science needs currently in the
database

Ongoing Need: Finer scale [watershed] modeling

Current text

- “1) refine urban phosphorus sensitivities & 2) investigate the impact of urban BMPs using SWAT and/or SWMM models.”
- Why needed? “1) to come up with a more robust representation of parameters that govern phosphorus simulation in urban areas 2) improve stream bank erosion simulation”

Changes

- Revise need to “Variable scale watershed modeling” to be consistent with Phase 7 development
- Add references to Phase 7 modeling development webpage
- Add point of contact: Gary Shenk

Status of the resource

<https://star.chesapeakebay.net/Need/NeedDetail?needID=50>

- **Full resources**
- Partial resources
- No resources

Determine cost and timeline for updating CAST BMP cost info

Current text:

- “CAST does not have updated state specific BMP cost information beyond 2010.”

Changes

- Change need to: “Continue updating CAST BMP cost info as needed for new and existing BMPs”
- Change description to: “Default cost profiles for BMPs in CAST have been updated to 2018 dollars. CAST users are able to edit or create cost profiles for BMPs at any time, for use in their scenarios. When new BMPs are added to CAST, default cost estimates are needed but not always provided.”
- Add point of contact: Olivia Devereux
- Change status of resource from “no resources” to “partial”
- Add engaged resources: CAST team

<https://star.chesapeakebay.net/Need/NeedDetail?needID=62>

Status of the resource

- Full resources
- **Partial resources**
- No resources

Incorporation of monitoring and trends data into assessment of jurisdictions' progress in achieving the Bay TMDL planning targets

Current text

- Current description simply states: "WQGIT working on finalizing details"

Changes

- Change description to: "There is a need to better understand differences between observed water quality data from simulated load outputs from the modeling tools. Available tidal and nontidal monitoring and trends data already supplements progress evaluations, alongside simulated loads, BMP implementation and programmatic details. The WQGIT will continue discussions about details and any changes to the evaluations or associated expectations will be vetted through the partnership. One emerging resource is a 'TMDL indicator' in development as of 2022, which will serve as a bridge between observed data and simulated loads by accounting for lag times and other factors."
- Change to "partial resources" (or "full resources"?)
- Add a point of contact (TBD)

Status of the resource

<https://star.chesapeakebay.net/Need/NeedDetail?needID=216>

- Full resources
- **Partial resources**
- No resources

Ongoing/In Progress Science Need: Implement a estuary model in local waters

Current text

- Current description simply reads “Investigate if other models can better represent tidal tributaries”

Changes

- Change title of the need to: Continue development of finer scale estuary models with improved shallow water simulation to support the Main Bay Model
- Change description to read: As part of development of Phase 7 suite of models, the CBP Modeling Team and outside modeling teams will develop multiple tributary models for six tributary systems, which will simulate associated tidal segments at a finer resolution grid than what is used for all 92 segments in the Main Bay Model.
- Outcome: change from 2017 WIPs → 2025 WIPs with WQSAM listed as “other outcome”
- Add point of contact: Lew Linker

Status of the resource

<https://star.chesapeakebay.net/Need/NeedDetail?needID=51>

- **Full resources**
- Partial resources
- No resources

Ongoing Need: Data and research needs for impacts of SLR, storm surge, increased temperatures, extreme precipitation events and saltwater inundation on BMP climate resilience (i.e., maintenance, shelf life, siting and design, etc.)

Current context

- Associated with Climate Resiliency Monitoring and Assessment outcome; 2025 WIPs is a related outcome (as such these are only initial thoughts/comments)

Changes to consider (need to coordinate with Climate Resiliency Workgroup)

- Correct engaged resources' reference to [BMP Climate Change synthesis report](#); other updates to reflect PSC climate directive?
- Add USWG/CRWG Joint Research Needs to the “engaged resources”
- Add points of contact: Julie Reichert-Nguyen & Jeremy Hanson
- At a later date: include forthcoming RFA into “engaged resources” when awarded

<https://star.chesapeakebay.net/Need/NeedDetail?needID=204>

Status of the resource

- Full resources
- **Partial resources**
- No resources

New & emerging science needs

proposed placeholders, to add to
the database if we can articulate
one or more of these

Placeholder for additional MTMs - TBD Priority

- Additional fine-scale tributary models if funding is available
 - Multiple Tributary Models (MTMs) decision pending, expected at next Management Board
 - Additional 1+ tributary models to supplement 6 planned MTMs if funding is available
 - Can refine this new science need following MB decision and selection of MTMs

Status of the resource (TBD)

- Full resources
- Partial resources
- **No resources**

Placeholder: BMP success/failure data – TBD

Priority

- Would follow recommendation from Climate Change BMP systematic literature review
 - BMP longevity (empirical data about BMP failure) is a major gap in scientific BMP literature
 - States spend a lot of time and effort tracking data, managing their QAPPs – can the CBP leverage that work and fill the gap by occasionally reporting out on aggregated BMP longevity statistics?
 - Requires data gathering and coordination to define available data and many vital caveats/discrepancies; define how to represent the information in a logical manner that can be replicated periodically
 - Need final documentation from BMPVAHAT to better understand what's available and how this might be approached

Status of the resource

- **Full resources**
- Partial resources
- No resources

Placeholder: 3rd party assessment (TBD priority)

- Would resemble NRC (2011) report, a detailed assessment of BMP reporting, and evaluation of the BMP verification framework so far
 - What needs to be done to address it?
 - What is the urgency/reason for the need?
 - Who are the currently engaged resources?
 - Are there potential resources and do you need support engaging them?

Status of the resource

- Full resources
- Partial resources
- **No resources**

Placeholder: social science need (TBD priority)

- TBD, something to address capacity? (collaboration, data gathering, workforce development)
 - What needs to be done to address it?
 - What is the urgency/reason for the need?
 - Who are the currently engaged resources?
 - Are there potential resources and do you need support engaging them?

Status of the resource

- Full resources
- Partial resources
- **No resources**

Placeholder: BMP targeting or pay-for-performance science need (TBD priority)

- TBD (collaboration, data gathering, emphasizing what is needed to fill existing gaps)
 - What needs to be done to address it?
 - What is the urgency/reason for the need?
 - Who are the currently engaged resources?
 - Are there potential resources and do you need support engaging them?

Status of the resource

- Full resources
- Partial resources
- **No resources**

Questions?

Feedback and suggestions welcome now

- will try to incorporate thoughts or input from today ahead of Thursday's STAR meeting
- Feedback or suggestions requested by COB Nov 8 (SSRF deadline is Nov 10)

Jeremy Hanson, CRC, WQGIT Coordinator (hansonj@chesapeake.org)