2025 GIT-funded Project
“Scope #7: Hypoxia Collaborative: Sampling Strategy and Design for Chesapeake Bay Habitat Assessment.”
April 1, 2025-October 15, 2026 (18 months)

Review: CBP kick-off meeting with awardees and key stakeholders

July 14, 2025

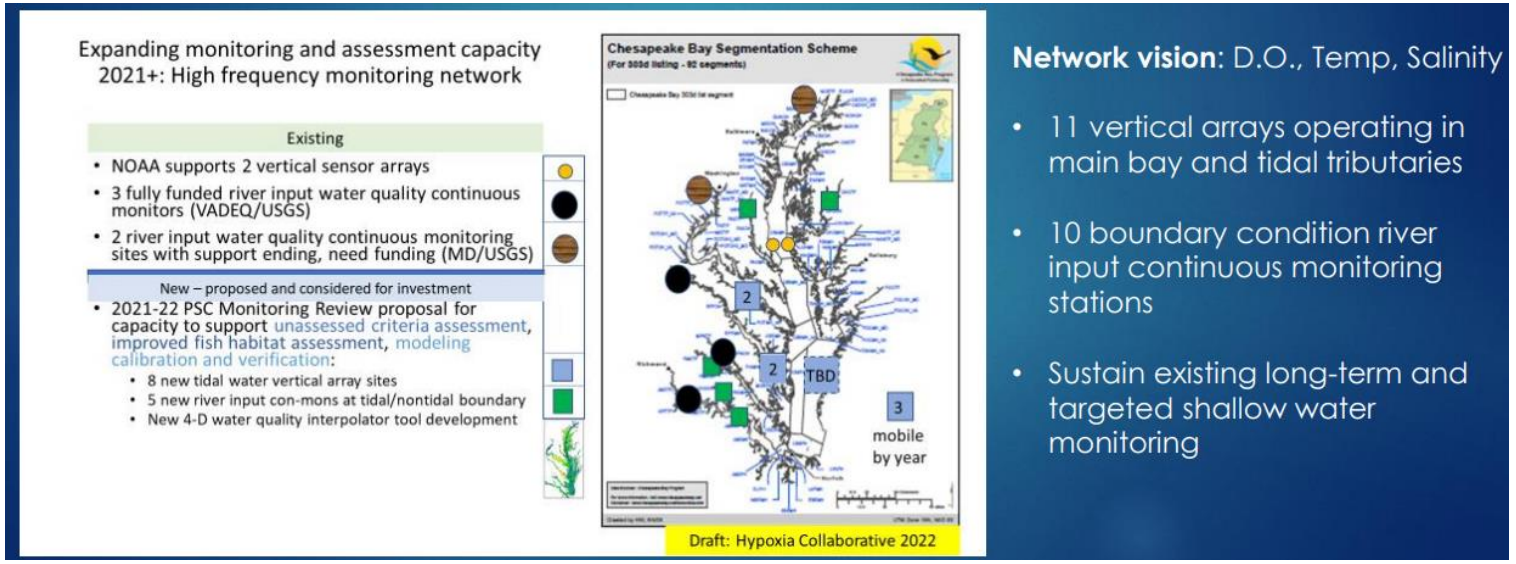
University of Maryland Center for Environmental Science:

Dr. Dong Liang, Dr. Lora Harris, Dr. Jeremy Testa

Purpose: Network sampling design options supports multi-purpose considerations and applications

- Justification for the present stage of the sampling design reflects
  - fisheries habitat information needs
  - modeling needs
  - research interests, and
  - water quality criteria assessment requirements

Hypoxia Collaborative meeting
October 2022



https://www.chesapeakebay.net/files/documents/ExpandingHypoxiaNetwork_10.6.22_Tango.pdf

Table 1: Project deliverables and timeline.				
Phase #	**Project Deliverable Period**	**Description of Project Deliverable**	**Date of Delivery**	**Invoice Amount**
1	04/01/2025 to 04/30/2025	The deliverable(s) include: ○ Kick-off meeting notes and list of attendees (Word/PDF)	04/30/2025	$10,000*

5 phases in the project plan outline

Phase 1 – Kick-off Meeting: Orientation

Table 1: Project deliverables and timeline.				
Phase #	**Project Deliverable Period**	**Description of Project Deliverable**	**Date of Delivery**	**Invoice Amount**
2	05/01/2025 to 8/31/2025 Late Spring + Summer 2025	The deliverable(s) include: ○ Agenda, notes, and list of attendees from the planning meetings with stakeholders (Word/PDF); ○ Agenda, notes, and list of attendees from the day-long (4 to 6 hours) planning meeting with Criteria Assessment Protocol Work Group (CAPWG) (Word/PDF); ○ A rule set for automated site evaluation (Word/PDF); ○ A GIS algorithm for site evaluation; ○ Summary from a scenario run for lower Choptank and Potomac (Word/PDF/Excel).	08/31/2025	$20,000*

Phase 2. Includes CAP WG engagement on planning; early products phase

Table 1: Project deliverables and timeline.				
Phase #	**Project Deliverable Period**	**Description of Project Deliverable**	**Date of Delivery**	**Invoice Amount**
3	09/01/2025 to 01/31/2026 Autumn + Early Winter 2025/26	The deliverable(s) include: ○ A table of 10 segments informed by stakeholders to address management needs (Excel); ○ Agenda, notes, and list of attendees from the day-long workshop with CAPWG, Bay Oxygen Research Group (BORG), and Hypoxia Collaborative (HC) and six-month progress updates with the larger community (Word/PDF); ○ A summary of draft scenario run of monitor suite options for 10 segments (Word/PDF); ○ Summary of an exploration of long-term monitoring and community-science-based data collection in a subset of 10 segments (Word/PDF/Excel);	01/31/2026	$30,000*

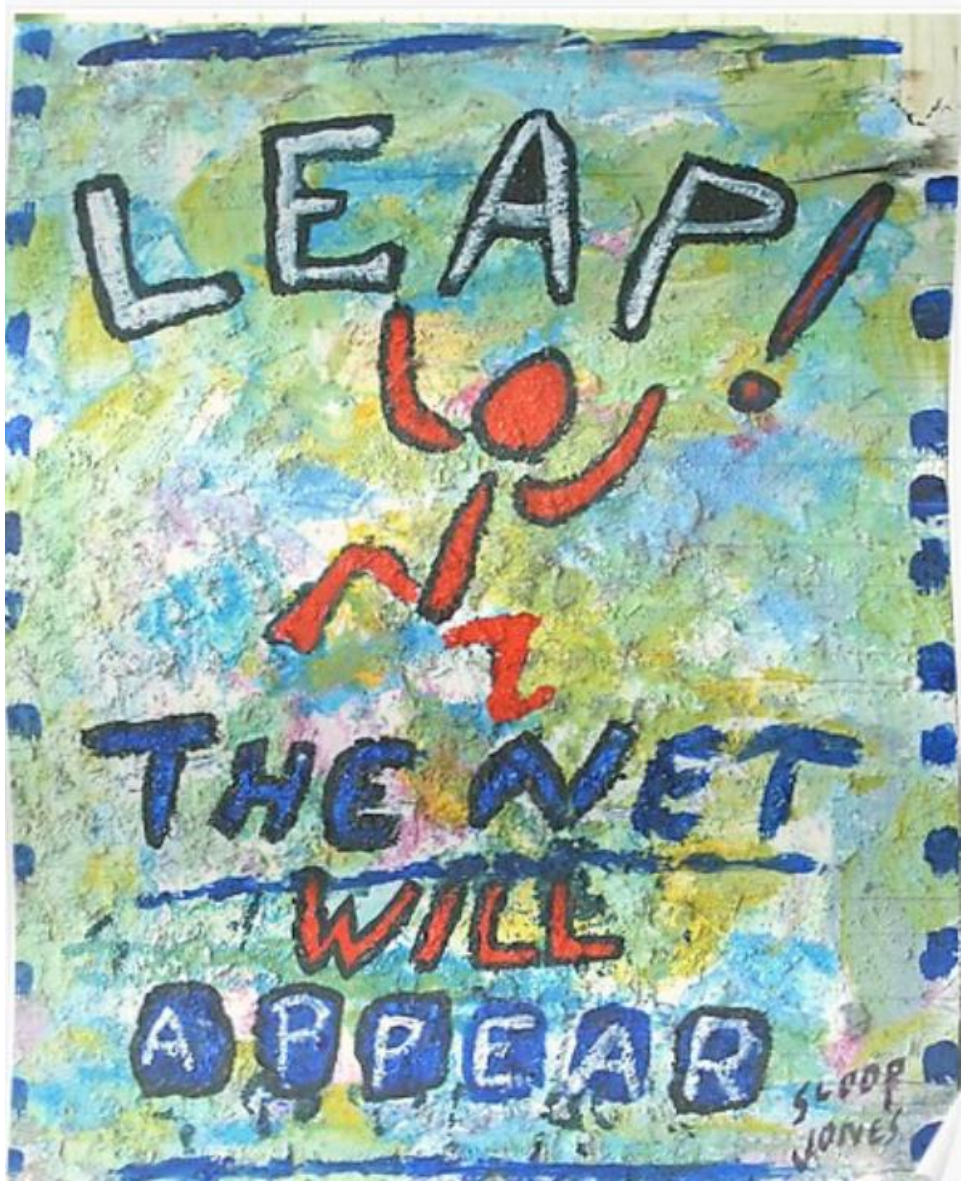
Phase 3. Includes CAP WG/BORG/HC meeting, 10 focus segments identified, initial scenario tests of monitoring designs

Table 1: Continued.				
Phase #	**Project Deliverable Period**	**Description of Project Deliverable**	**Date of Delivery**	**Invoice Amount**
4	02/01/2026 to 08/31/2026 Winter/Spring/Summer 2026	The deliverable(s) include: ○ A draft final project report including at least 10 maps with site options and scenario tables with statistics of accuracy and bias (Word/Excel); ○ A vignette of R Shiny visualization code; ○ Quarterly check-in meeting agenda, notes, and list of attendees (Word/PDF)	08/31/2026	$30,000*

Phase 4. Includes Quarterly check-in meeting with draft final report and at least 10 segment maps with site options, statistical insights supporting site designs, R-shiny code

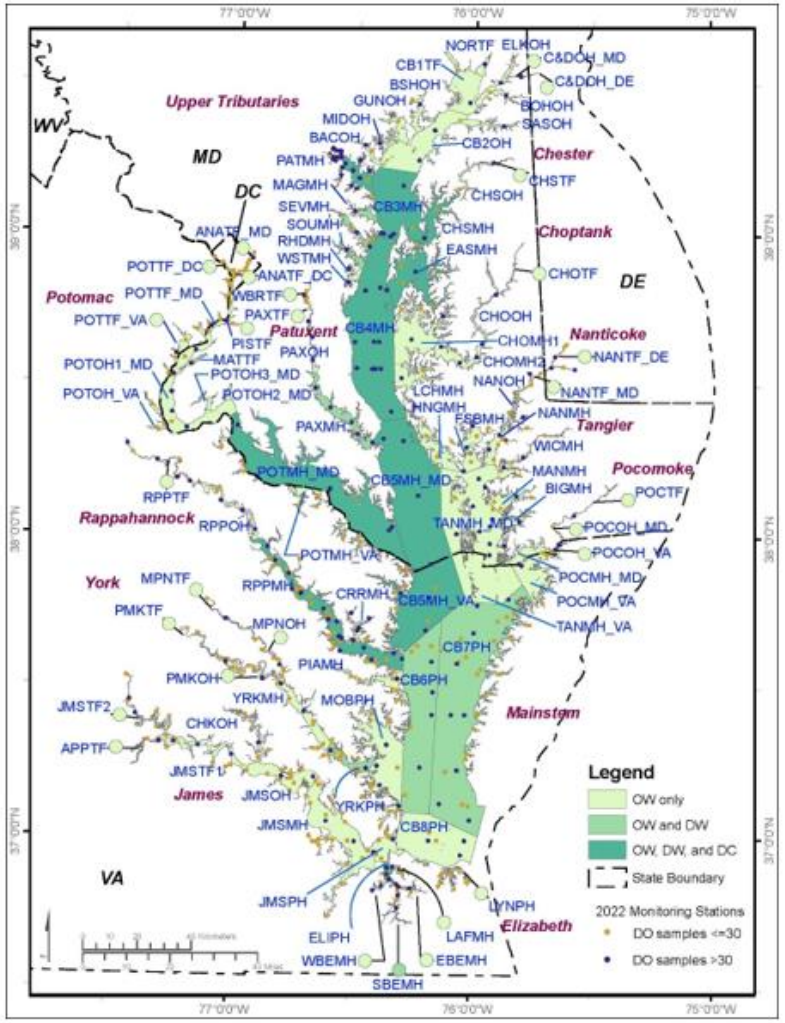
Table 1: Continued.				
Phase #	**Project Deliverable Period**	**Description of Project Deliverable**	**Date of Delivery**	**Invoice Amount**
5	09/01/2026 to 10/15/2026 Early Autumn 2026	The deliverable(s) include: o Final report amended per draft report review (Word/PDF) o Any ancillary project outputs (abstracts of papers presented at conferences) (PDF) o Factsheet summarizing project (Word)	10/15/2026	$9,999*

Phase 5. Wrap-up time for finalizing report, ancillary outputs

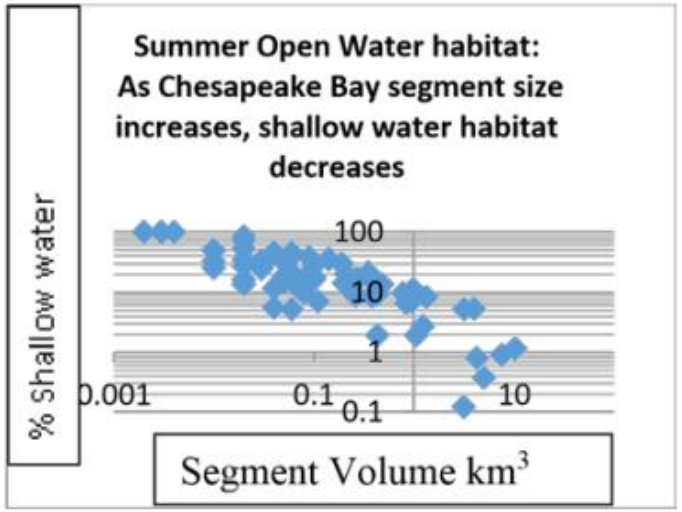


Thanks everyone!
We charge ahead together!
☺

92 segments, tributaries and mainstem of Chesapeake Bay



Zhang et al. submitted

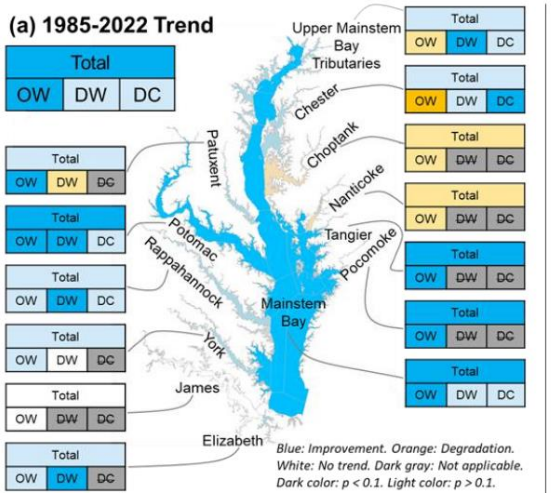


USEPA 2017

- We have a range of segment sizes from very small and mostly shallow to very large and mostly deep.

We have a lot of information to inform segment selection

Trends by Tidal System and DU

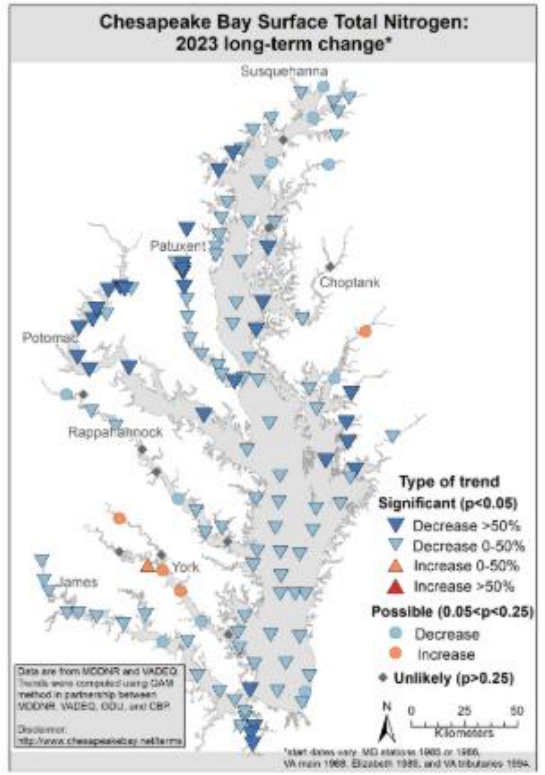


Long Term	OW	DW	DC
No. systems	13	8	5
Improvement (significant)	8 (5)	6 (4)	5 (1)
Degradation (significant)	4 (1)	1 (0)	0 (0)

Trends by Segment – visit Shiny apps

DU	Trend	Period	p<0.05	p<0.1	p<0.25	p<1.0	Segments with p<0.1
OW (n=92)	Improving	LT	8	9	12	23	CB6PH, CB7PH, JMSTF1, LCHMH, PAXMH, POCOH_MD, POCOH_VA, POTOH1_MD, SASOH,
	Improving	ST	11	13	16	24	ANATF_MD, CB2OH, CHOOH, CHOTF, LAFMH, LYNPH, NANTF_DE, NANTF_MD, POCOH_MD, POTOH1_MD, RHDMH, SOUMH, WBEMH,
	Degrading	LT	7	11	13	17	CHOMH1, CHOTF, CHSOH, CHSTF, PATMH, PAXTF, POCTF, POTMH_VA, POTTF_VA, WBRTF, WICMH,
	Degrading	ST	7	8	12	19	CB5MH_VA, CHKOH, CHSOH, EBEMH, SASOH, WBRTF, YRKMH, YRKPH,
DW (n=19)	Improving	LT	5	6	6	8	CB5MH_MD, EASMH, MAGMH, RPPMH, SBEMH, SOUMH,
	Improving	ST	4	4	6	11	CB5MH_VA, CHSMH, MAGMH, SBEMH,
	Degrading	LT	1	1	1	6	CB3MH,
	Degrading	ST	1	1	1	4	YRKPH,
DC (n=11)	Improving	LT	2	2	4	7	CB5MH_VA, CHSMH,
	Improving	ST	3	4	6	7	CB3MH, CB5MH_MD, EASMH, POTMH_MD,
	Degrading	LT	0	0	1	2	
	Degrading	ST	0	0	0	1	

https://wqs.chesapeakebay.net/wqs_attainment_deficit/
https://wqs.chesapeakebay.net/wqs_attainment_indicator/



Murphy et al. ITAT
Chesapeake Bay Program

Zhang et al. 20250326_ITAT_DO_Attainment_qz_update.pdf