

Thomas Parham

Maryland Department of Natural Resources
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Professional Overview: Relevant to the Chesapeake Bay Program's Monitoring Workgroup

During my 36-year career with the Department of Natural Resources (DNR) and the Maryland Department of the Environment (MDE), I have worked to guide the management, protection and restoration of Maryland's tidal waters and aquatic resources.

- **Program Leadership:** Since 2007, I have directed Maryland's Tidal Water Quality Monitoring Program, overseeing a dedicated team in the quality assurance, processing, assessment, and public publishing of monitoring data on [Eyes on the Bay](#). This also involves close coordination with the DNR's non-tidal group, responsible for the collection of Maryland's water monitoring data.
- **Core Network Expertise:** Led numerous projects utilizing core monitoring networks—including tidal, non-tidal, Submerged Aquatic Vegetation (SAV), and tidal benthic—to characterize environments, identify trends and linkages between water quality and living resources, and assess progress toward restoration goals.

Chesapeake Bay Program Involvement

Actively involved in the Chesapeake Bay Program partnership throughout my career, contributing to a wide range of workgroups:

- **Monitoring & Assessment:** Tidal and Non-Tidal Monitoring, Criteria Assessment, Modeling, and Trends.
- **Habitat & Living Resources:** Living Resources, Fish Habitat, Hypoxia, and SAV.
- **Specialized Focus Areas:** Toxics, Funding, and Monitoring program evaluation.

Professional Preparation

Old Dominion University	M. Sc. Oceanography	1989
Mary Washington College	B.Sc. Biology	1986

Professional Appointments

Maryland Department of Natural Resources	Division Director	2007 – present
Maryland Department of Natural Resources	Program Chief	1996 – 2006
Maryland Department of the Environment	Environmental Specialist	1993 – 1996
Maryland Department of the Environment	Research Statistician	1989 – 1993
Applied Marine Research Laboratory, Norfolk, VA	Water Data Manager	1988 – 1989
Old Dominion University	Research Assistant	1988 - 1989
Old Dominion University	Research Assistant	1987 – 1988

Selected Publications

Parham, T. A., Uphoff, J., Keppel, A., Karrh, R. Understanding Climate Change impacts to resident Chesapeake Bay Striped Bass Habitat. American Fisheries Society (Submitted June 2026).

Tanner, C. E., Parham, T. 2010. Growing *Zostera marina* (eelgrass) from Seeds in Land-Based Culture Systems for Use in Restoration Projects. *Restoration Ecology*. Vol. 18, No. 4, 527-537.

Tanner, C. E., Hunter, S., Reel, J., Parham, T., Naylor, M., Busch, K., Golden, R. R., Lewandowski, M., Rybicki, N., Shenk, E. 2010. Evaluating a Large-Scale Eelgrass Restoration Project in the Chesapeake Bay. *Restoration Ecology*. Vol. 18, No. 4, 538-548.

Busch, K.E., Golden, R.R., Parham, T., Karrh, L.P., Lewandowski, M.J., Naylor, M.D. 2010. Large-Scale *Zostera marina* (eelgrass) Restoration in Chesapeake Bay, Maryland, USA. Part I: A Comparison of Techniques and Associated Costs, *Restoration Ecology*. Vol. 18, No. 4, 490-500.

Golden, R.R., Busch, K.E., Karrh, L.P., Parham, T., Lewandowski, M.J., Naylor, M.D. 2010. Large-Scale *Zostera marina* (eelgrass) Restoration in Chesapeake Bay, Maryland, USA. Part II: A Comparison of Restoration Methods in the Patuxent and Potomac Rivers, *Restoration Ecology*. Vol. 18, No. 4, 501-513.

Moore, K. A., D. J. Wilcox, B. Anderson, T. A. Parham, and M. D. Naylor. 2004. Historical Analysis of Submerged Aquatic Vegetation (SAV) in the Potomac River and Analysis of Bay-wide SAV Data to Establish a New Acreage Goal. Final Report to US EPA Chesapeake Bay Program (CB983627-01), Annapolis MD. http://www.vims.edu/bio/sav/Special_Reports/Final_SAV_Historical_Report_2004.pdf

Other Publications

Parham, T., Karrh, L. 1998. Maryland Bay Grass Restoration Targeting System. Produced under contract to the U. S. Federal Government through the Coastal Zone Management Grant (CZM) FFY96, National Oceanic and Atmospheric Administration.

Parham, T. 1996. Analysis of SAV and Shellfish Habitat in the Patuxent and Choptank River Tributaries. Produced under contract to the U. S. Federal Government through the Clean Water Act Chesapeake Bay Implementation (CBIG) FFY93 117(b).

Magnien, R.E., Eskin, R., Hoffman, R., Parham, T. 1991. Water-quality Characterization Report for the 1991 Re-Evaluation of the Chesapeake Bay Nutrient Reduction Strategy. Maryland Department of the Environment.

Synergistic Activities

Directs Maryland's tidal water quality monitoring program for tracking Chesapeake and Coastal Bays restoration progress and assessing habitat conditions for Bay species. 2007 – present

Assessed Climate Change impacts to resident Chesapeake Bay Striped Bass Habitat- Worked with a DNR team to develop striped bass habitat suitability thresholds and then characterized [habitat conditions](#) in Chesapeake Bay waters from 1986 through 2022. In addition, the new thresholds were evaluated against Bay restoration and climate scenarios. 2022 - present

Developed Fishing/Water Quality website - Integrated State and Federal tidal water, habitat monitoring results into online tools "[Click Before You Cast](#)" to help Maryland anglers catch more fish and better understand the Chesapeake Bay and restoration progress 2017 - present

Co-author of Maryland Fishing Report - Provides weekly updates to [Maryland Fishing Report](#) on Chesapeake Bay conditions drawn from online tool "[Click Before You Cast](#)" to help Maryland anglers catch more fish and better understand the Chesapeake Bay and restoration progress 2016 - present

Board of Directors, Maryland Water Monitoring Council

2007 - 2015

Maryland State representative for the Maryland Water Monitoring Council (MVMC), a statewide collaborative body encouraging effective collection, interpretation, and dissemination of environmental data.

Chair, Living Resource Subcommittee, Chesapeake Bay Program (EPA)

2007 – 2008

Coordinate the implementation of the Chesapeake Bay Program (Environmental Protection Agency) efforts to conserve, enhance and restore living resources of the Chesapeake Bay watershed and their habitats through cooperation and integration of efforts of all State, Federal, University and non-governmental partners. Oversee and coordinate activities of the following workgroups: Fish Passage, Fisheries Management, Living Resource Analysis, Mid-Atlantic Panel on Aquatic Invasive Species, Streams Restoration, Submerged Aquatic Vegetation and Wetlands Evaluation (Task group).

Developed Large Scale SAV seed processing facility

2003-2010

Developed new techniques and designed and modified existing 240,000 Gallon Piney Point Oyster Aquaculture Facility to receive, process and store millions of eelgrass seeds for Fall SAV restoration activities.

Co-developed rapid grow-out techniques for Eelgrass (*Zostera marina*)

2003-2008

Developed, built closed circulating system and applied new techniques to successfully produce large quantities of adult plants for Army Corps of Engineers mitigation activities for Fall SAV restoration activities.

Submerged Aquatic Vegetation (SAV) Restoration Targeting Software

1996

Designed, created and published Chesapeake SAV restoration targeting software for Maryland tidal waters. Written in python, this software incorporated Maryland water quality monitoring and SAV data to identify the best unvegetated areas with suitable habitat to implement SAV restoration activities for all bay SAV species.

Nomination for Co-Chair for Monitoring Workgroup:

Name: Cindy Johnson

Affiliation: Virginia Dept. of Environmental Quality (DEQ)

Email: Cindy.Johnson@deq.virginia.gov

With a career dedicated to the Chesapeake Bay since 1984, I would bring to the Monitoring Co-Chair a combination of field, database management, quality assurance and collaboration experiences. My journey began in graduate school collecting water quality and plankton samples, where I mastered operational complexities of Bay monitoring. After a brief hiatus, I returned in 1998 when the emergence of *Pfiesteria piscicida* required specialized monitoring due to the possibility of health effects when handling such samples. During my time at DEQ, my experiences have allowed me to build strong networks across state and federal agencies, understanding the diverse needs of our modeling, monitoring and laboratory partners. As a Co-Chair, I will apply this deep institutional knowledge to facilitate consensus and enhance data sharing protocols. My goal is to support the Clean Water Goal Team in maintaining the world-class monitoring networks that ensure confidence in decision-making for Best Management Practices and accurately track Bay restoration progress.

Relevant Leadership Experience:

- ❖ Chair, Data Integrity Workgroup (DIWG), (2021 to 2026)
- ❖ Co-chair, DIWG (2017 to 2021)
- ❖ Chair, Data Management and Analysis Workgroup (DMAW), (2006 to 2008)
- ❖ Long-term member of various workgroups and teams:
 - Non-Tidal Monitoring Workgroup
 - Integrated Trends Analysis Team
 - Hypoxia Collaborative Team
 - Integrated Monitoring Networks Workgroup
 - Status and Trends Workgroup
 - Submerged Aquatic Vegetation Workgroup
 - Criteria Assessment Protocol Workgroup

Core Competencies:

- 1. Strategic Oversight & Grant Management** As the 117e grant manager, I oversee subrecipient agreements with State and Federal partners (Old Dominion University, Virginia Institute of Marine Science and US Geological Survey (USGS)) tracking grant deliverables, budget alignment

and ensuring monitoring activities (Water Quality, Phytoplankton and Benthos) align with the Chesapeake Bay Program's Recommended monitoring protocols and workgroup decisions.

2. Data Quality Assurance & Standardization The credibility of the Chesapeake Bay Restoration efforts rests on the integrity of its data.

- **Agency-wide Quality Assurance/Quality Control (QAQC)**

Implementation: Much of my career has been focused on ensuring consistency across regional boundaries in both tidal and non-tidal monitoring using Quality Assurance Project Plans and Standard Operating Procedures, field audits and training. I also collaborated with the Agency QA/QC coordinator to expand these protocols agency-wide.

- **Inter-Agency Comparability:** Implemented a program of routine training and field audits of DEQ personnel by USGS and the Chesapeake Bay Coordinator, Durga Gosh, ensuring seamless comparability of data across state and federal partners. In recent years, we have expanded the training to include Maryland and Bay Program partners and DIWG has implemented field audits by USGS to our Bay counterparts in Maryland, Delaware and Pennsylvania.

3. Consensus Building & Stakeholder Coordination: Effective chairing requires neutral facilitation and the ability to merge diverse viewpoints.

- **Multi-Agency Liaison:** Serve as the primary liaison between DEQ and the Division of Consolidated Laboratory Services (DCLS), ensuring smooth operational workflow.
- **Grant Review & Mentorship:** Served on the Citizen Monitoring Grant Committee, reviewing SOPs and grant applications from citizen groups.
- **Special Studies Coordination:** DEQ Bay partners often request DEQ to donate time and resources to aid in special studies. Such requests require consensus building and coordination of effort as most of the monitoring activities consist of 10 -14 hour days prior to the addition of research requests.
 - Colored Dissolved Oxygen Matter (CDOM) for the Bay Program Model
 - LiCor (incident light radiation as a measure of water clarity) replicates for Smithsonian Institute

- Collection of Ribonucleic acid (RNA) samples for development of a genome method for identification of Harmful Algal Bloom species for VIMS
- Pathogen sampling for the National Oceanic and Atmospheric Administration

Vision for the Monitoring Workgroup

As Co-Chair, I aim to leverage my extensive background to:

- 1. Strengthen Data Integrity:** Work with our various partners to continue to champion rigorous QA/QC protocols and inter-agency calibration to ensure the highest standard of data reliability.
- 2. Enhance Collaboration:** Foster an inclusive environment where federal, state, laboratory and citizens can share best practices and innovate together.
- 3. Drive Strategic Alignment:** Ensure monitoring efforts are tightly coupled with the Bay Program's management needs, providing clear, actionable data to track restoration progress.

My long-standing commitment to the Chesapeake Bay Program, combined with my participation in/chairing of technical workgroups and managing large-scale monitoring operations, positions me to effectively lead the Monitoring Workgroup into its next phase of success. However, I am planning on retiring at the end of 2027 or early 2028. I understand the term extends to December of 2028. I would suggest alternating the rotation of Co-Chairs would allow for a seamless transition while maintaining the forward momentum of the workgroup.

Thank you!

MEIGHAN WISSWELL

Affiliation: Virginia Department of Environmental Quality

Email: meighan.wisswell@deq.virginia.gov

EXPERIENCE

Over 10 years of experience in Chesapeake Bay watershed monitoring, education, and community outreach

MARCH 2022- PRESENT

Water Quality Monitoring Coordinator • VA Department of Environmental Quality

- Coordinate and oversee Virginia's Chesapeake Bay Non-tidal Monitoring Program conducted by DEQ and USGS
- Conduct QA/QC on agency led non-tidal water quality monitoring through field audits and data entry checks using R
- Manage and administer DEQ Citizen Water Quality Monitoring Grant Program
- Develop data tools promoting efficiency and accuracy across water monitoring and assessment programs

AUGUST 2019 - MARCH 2022

Water Quality Monitoring Specialist • VA Department of Environmental Quality

- Conducted ambient water quality monitoring and sample collection for a variety of parameters and methods including: CBP non-tidal monitoring, water column, clean metals, PCBs, macroinvertebrate, and fish surveys

DECEMBER 2018 - JUNE 2019

Volunteer Coordinator • Department of Conservation and Recreation-VA State Parks

- Designed and implemented volunteer programs and training according to park needs and community engagement goals

SKILLS

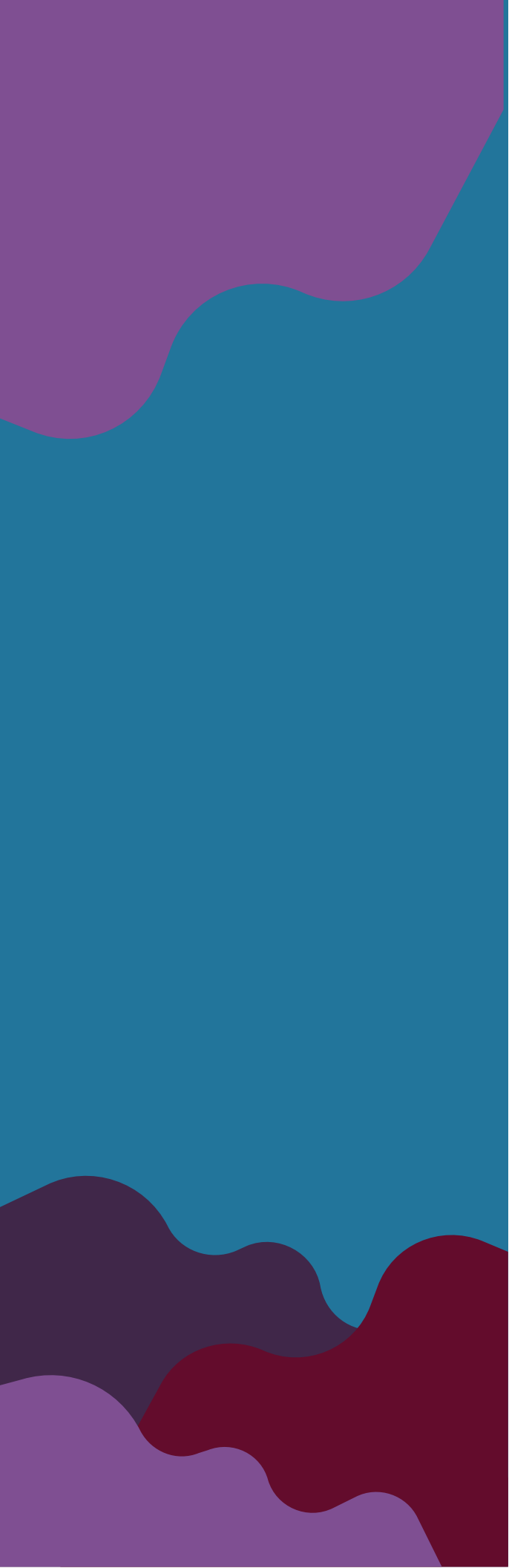
- Freshwater and estuarine ecology
- Virginia state and federal water quality regulations
- Water quality monitoring, analysis, and coordination
- Data management and technical report generation
- Grant administration

CBP WORKGROUP MEMBERSHIP

- Non-tidal Network Workgroup
- Data Integrity Workgroup

EDUCATION

Bachelor of Science, Biology- Old Dominion University-August 2014



OCTOBER 2017 - NOVEMBER 2018

Environmental Educator • James River Association

- Orchestrated education and outreach programs focusing on watershed and wetland ecology of the James River and Chesapeake Bay
- Developed reports, trainings, and metrics for \$445,000 NOAA Bay Watershed Education and Training grant compliance

JANUARY 2015 - OCTOBER 2017

Lab Specialist & Field Technician • Old Dominion Water Quality Laboratory

- Conducted field sampling and lab analysis for Virginia's Chesapeake Bay Program mainstem water quality monitoring program supported by 117(e) Chesapeake Bay Monitoring Grant

MAY 2014 - AUGUST 2014

Lab Technician • Center for Quantitative Fisheries Ecology

- Identified fish species and gender, measured length, assessed reproductive condition, and processed calcareous bony structures and scale samples from 14 mid-atlantic finfish species