

**Virginia Coastal Resilience Technical Advisory (TAC)
 RDI Subcommittee
 Q1 2024 Meeting Minutes - DRAFT**

Committee Members		
Title [Alternate Title] Organization (Abbreviation)	Name [Alternate Name]	Attended? V = Virtual / R = Registered
Chief Stormwater Policy Advisor Chief Deputy [Manager of the Office of Wetlands and Stream Protection] Virginia Department of Environmental Quality (DEQ)	Evan Branosky (Outgoing Chair) Alex Samms (Incoming Chair) [Dave Davis] (Co-chair)	Y Y [Y]
Chief Resilience Officer [Principal Water Resources Engineer] Hampton Roads Planning District Commission (HRPDC)	Ben McFarlane [Whitney Katchmark]	
Director of Environment and Resiliency Planning [Coastal Zone Program Manager] Northern Virginia Regional Commission (NVRC)	Norm Goulet [Rebecca Murphy]	[V]
Director of the Institute for Coastal Adaptation and Resilience [Director of Applied Projects, CCRFR] Old Dominion University (ODU – ICAR)	Jessica Whitehead [Carol Considine]	Y
Director of the Environmental Institute University of Virginia (UVA-EI)	Karen McGlathery	V
Director [Chief Deputy Director] Virginia Department of Conservation and Recreation (DCR)	Matt Wells [Andrew Smith]	
Associate Dean for Research and Advisory Services [Assistant Professor] Virginia Institute of Marine Science (VIMS)	Mark Luckenbach [Molly Mitchell]	[Y]
Commissioner [Director of Coastal Policy, Restoration and Resilience] [Chief of Habitat Management] Virginia Marine Resources Commission (VRMC)	Jamie Green [Rachel Peabody] [Randy Owen]	
Director Virginia Sea Grant (Sea Grant)	Troy Hartley	

Executive Director, Fralin Life Sciences Institute [Coastal Resilience Extension Specialist] Virginia Tech (VT – CCS)	Robin McCarley [Wendy Stout]	[Y]
Acting Director Virginia Transportation Research Council (VTRC)	Michael Fitch	Y
Executive Director [Planning Program Director] Wetlands Watch (Wetlands Watch)	Mary-Carson Stiff [VACANT]	

Invited Guests		
Title Organization (Abbreviation)	Name	Attended? V = Virtual / R = Registered
Associate Professor Virginia Climate Center George Mason University (GMU)	Celso Ferriera	V

Members of the Public		
Name	Attended? V = Virtual / R = Registered	Speak During Public Comments?
Grace Tucker	V	
Matt Webb	R	
Emma Corbitt	V	
Brian Batten (Dewberry)	Y	

TAC STAFF		
Name	Title (Organization Abbreviation)	Attended? V = Virtual
Matt Dalon	Resilience Planning Program Manager, DCR	Y
Carolyn Heaps-Pecaro	Resilience Planning Program Coordinator, DCR	Y
Adelaide Alexander	Consultant, VCU Center for Public Policy	Y
Wheeler Wood	Consultant, VCU Center for Public Policy	Y

Reference Links	
Item	Link
Meeting Agenda	https://www.dcr.virginia.gov/crmp/meeting/document/2024q1-tac-rdi-subcommittee-agenda.pdf
Meeting Handouts/Presentation Slides	https://www.dcr.virginia.gov/crmp/meeting/document/2024q1-rdi-presentation-handouts2.pdf
Video Recording of the Meeting	[Will be provided in Final Minutes]

Agenda Item	Minutes
1. Call to Order, Roll Call, Introductions	<p>Evan Branosky shared that he will be leaving DEQ and Alex Samms will be taking over the role of chair for the subcommittee. Alex introduced himself and shared his background with the Corps of Engineers.</p>
2. Adoption of Agenda and Meeting Minutes and review of the subcommittee's objectives	<p>The Agenda and 2023 Q4 Meeting Minutes were adopted.</p> <p>Matt Dalon (DCR) shared the objectives of this subcommittee, including seeking input on pluvial and fluvial flood hazard data, assessing risks, and working on recommendations for future planning efforts.</p> <p>The TAC is currently in Phase II, currently looking at flood hazard data scenarios and starting on recommendations, which will become the dominant topics in upcoming meetings.</p> <p>Dewberry was contracted to support Phase I and is working with DCR on Phase II as well, currently working on combined flood hazard impact assessment. DCR is currently working on a contract for additional support with the database as well as new tools.</p>
3. Old Business	<ol style="list-style-type: none"> I. Virginia Flood Protection Master Plan (VFPMP) Flood Hazard Data <ol style="list-style-type: none"> A. Data gaps/ challenges across the state include <ol style="list-style-type: none"> 1. Limits of study 2. Pluvial data does not exist within FEMA's data B. Third party data options are being compared with FEMA and other data sources in Dahlgren and Farmville. <ol style="list-style-type: none"> 1. There is a data evaluation team made up of experts and stakeholders from around the state who are providing input. TAC members are invited to participate. 2. There are concerns about data liability with third party data. DCR has a meeting with NOAA scheduled to understand relevant considerations. 3. Molly Mitchell asked for more details on the third-party data. <ol style="list-style-type: none"> a) The third-party data includes multi-frequency data from 4-5 years up to 1000 years. The standard out of the box data is tied to SSPs. Out of the box will be necessary b) They have fluvial, pluvial, coastal, current conditions and future conditions through 2100. 4. Dave Davis asked if University researchers are using 3rd party data. <ol style="list-style-type: none"> a) Molly Mitchell responded that the paywall is a primary reason it's not used, as well as lack of transparency about how the data was derived. b) Jessica Whitehead added that there are evaluations of 3rd party data being done by climatological

	<p>institutes, but there have been questions about the data.</p> <ul style="list-style-type: none">c) Matt Dalon added that in Texas, where they've used 3rd party data, there has been a process to verify the data.d) Celso Ferriera and Eric Loftus from VIMS are on the data evaluation team for this project. <p>II. Integrated Flood Hazard Scenarios for Planning for CRMP Phase 2</p> <p>A. Terminology</p> <ul style="list-style-type: none">1. In previous meetings, the group used upper and lower bounds, or likely and probable flooding, which this subcommittee reflected would be confusing.2. There is a recommendation to use risk tolerance language.<ul style="list-style-type: none">a) Higher risk = low risk tolerance, which is where you would use more conservative numbers to createb) Moderate risk tolerance would be equivalent to a minimum planning standardc) "Low risk" wouldn't be used because we don't want to use that standard3. The subcommittee was asked to respond to this framework<ul style="list-style-type: none">a) Molly Mitchell shared that this wording is more easily interpreted than the "likely," "unlikely," etc.b) Matt Dalon added that this language could be supported with use cases to make these terms accessible. <p>B. Flood Hazard time horizons</p> <ul style="list-style-type: none">1. Matt Dalon asked what the subcommittee thinks about what time ranges/ values make sense to evaluate flood hazards. Currently 20-year data exists for coastal data. For pluvial data, there are two climate scenarios from the MARISA data, and there is no fluvial data.<ul style="list-style-type: none">a) Molly Mitchell responded that the far future range of 50 years works well for pluvial, but not for sea level rise. She asked what number would be used for that long range.b) Alex Samms asked about the overlap between time ranges. Matt Dalon asked if there should be a clean break between the near future and far future. The overlap reflects the uncertainty, but could be confusing.c) Jessica Whitehead commented that it is difficult to serve multiple constituencies with the same product. Different stakeholders have different applications. This should be as flexible as possible.d) Matt Dalon reminded the subcommittee that the primary audience is PDCs, localities, and state agencies. Business owners are an important
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	<p>stakeholder, but they have a wide range of use cases and ways of looking at this</p> <ul style="list-style-type: none">e) Molly Mitchell echoed that the overlap in time frames may be confusing.f) Karen McGlathery commented that it would be better not to have an overlap for timeframes, and that far future should start at 2070 <p>2. Matt Dalon reviewed existing conditions for data</p> <ul style="list-style-type: none">a) Atlas 15 is coming out after this report will be done so we won't be able to use it.b) For coastal data:<ul style="list-style-type: none">(1) ASCE has a "flood supplement" dataset that says the linear observed trend should be the bare minimum.(2) Virginia State Floodplain Management standards include using the NOAA 2022 intermediate-high projections for state-owned development in floodplains and future areas of sea level rise.(3) VIMS sea level rise report card includes linear data on sea level rise projections. There is significant variability in observed water levels. Sea level rise is not a consistent pattern; this uncertainty needs to be captured in this assessment.(4) CRMP sea level rise projections based on NOAA 2017 is another assessment that included variability.(5) NOAA has new data from 2022 as well. Which numbers should be used for lower risk tolerance vs. moderate tolerance?(6) Molly Mitchell shared that the newer 2022 data projections are newer, but aren't considered better. Data coming out about Greenland ice melting shows that it is melting faster than usual, which would speed up seal level rise rate. So going to 2022 data would mean a shift to a higher risk tolerance than the 2017 data.(7) Matt Dalon said that Virginia is using the 2022 data in flood plain management, so there is a need for consistency, but the 2017 data can also be considered. There is a concern about creating confusion or lack of trust by mixing and matching.(8) Molly Mitchell clarified that there isn't much difference between the data points,
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	<p>the difference is the rate at which those thresholds will be met.</p> <p>(9) Alex Samms commented that the master plan will be iterative; it's updated every 5 years and can be adjusted as more data comes in.</p> <p>(10) Brian Batten of Dewberry shared that projections should be put into the context of the observational acceleration. The VIMS projection can be used as a justification for the scenarios we choose. "Approximates" language can also be used.</p> <p>3. Matt Dalon suggested what data should be used for the time frames (on the "Phase 2 flood resilience planning scenarios?" slide)</p> <ul style="list-style-type: none">a) Jessica Whitehead suggested looking at this question from the perspective of a theoretical decision-maker. For example, a VDOT engineer would look at risk and time frame differently than someone working for a local government.b) Molly Mitchell suggested looking at planning horizons; this could be explained to users. For a user with lower risk tolerance, it would be helpful for them to know the worst-case scenario.c) Matt Dalon commented that these are not design standards, but rather an effort to support local and state agencies to make more informed decisions.d) Messaging should include the caveat that this is not a zero-risk scenario.e) Jessica Whitehead shared that DCR needs to help users walk through this data and locate what data they should be using. This is a messaging issue to show how this data fits in with the decisions the users are making.f) These planning curves assume that the rates change over time, but there is variability that does not go away. Guidance needs to make that clear as well.g) Wendy Stout reiterated that there needs to be a disclaimer with any data you put out.h) For the low risk tolerance for future scenario, there is a question about whether the 2080 or 2100 CRMP data should be used.<ul style="list-style-type: none">(1) Molly Mitchell said the 2080 data makes more sense because the 2100 would only happen at the end of that time frame.
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- (2) Jessica Whitehead said that transportation and critical infrastructure planning may be an area interested in the 2100 number.
- (3) Matt Dalon responded that DCR already has the 2100 data, which could help support that use case, while using the 2080 data for this plan.
- (4) Wendy Stout supported the idea that this is for a more general use case.

C. Pluvial Scenarios

1. Similarly, this data shows a lot of variability. DCR is using a fixed interval approach for pluvial analysis.
2. Matt Dalon asked the group for feedback on which RCP data to use (median, 75th, or 90th). Usually, the 4.5 and 8.5 numbers are pretty close. RCP 4.5 might be more amenable to the range of stakeholders. The suggestion is to use the median for the moderate risk tolerance projections, and 75th for low risk tolerance.
3. Molly Mitchell said there could be an argument to use the 90th percentile for the low risk tolerance, because that is quite a bit higher than the 75th in some places.
4. Jessica Whitehead shared that in the 5th national climate assessment, the number of studies that relied only on 8.5 was a challenge because globally we aren't tracking that high. It is seen as more reliable to have a range.
5. Molly Mitchell reiterated that the 4.5 and 8.5 are so similar. This data also excludes hurricanes.
6. Matt Dalon added that the depth grid products will be available for rain events. In the interest of having a number for moderate and low risk assessments, which one should be used.
7. The larger spread in Crozier, VA is from the area with the largest variance. Jessica Whitehead noted that where there are variations in terrain, there could be more variance in these numbers.
8. Matt Dalon will follow up with more data to show the spread across the study area, including which and how many stations have a substantial difference.
9. There was consensus that these questions should be shared with the data expertise team, particularly Celso Ferreira.
10. Matt Dalon shared that at the MARISA meeting they compared how different states have approached this. There is no standard, and states are doing this in a range of ways.
11. This could also be a question for TAC discussion.

D. Fluvial

1. One option could be to add 1-ft or 2-ft to the existing FEMA projections for the near and far future estimates.

	<p>2. This data may or may not be available in time from the Feds</p>
<p>4. New Business</p>	<ul style="list-style-type: none"> I. Combined Flood Hazard Analysis and Visualization <ul style="list-style-type: none"> A. Not compound flooding, but rather what types of flooding could exist in different locations B. This can be represented on a map C. Where data is not available, that needs to be depicted somehow <ul style="list-style-type: none"> 1. A lot of FEMA data is limited when you are looking at shorter-term projections (e.g., 5, 10 years) D. Of data we do have, it needs to be visualized by types (fluvial, pluvial, and coastal) E. Where there is data and multiple flood hazards, the dominant flood hazard should be visualized. F. Brian (Dewberry) shared that there is a possibility of a multiband raster that could include everything, but this is still TBD. The goal is for it to be simple and interpretable. The more likely product will be multiple raster layers. A 6-inch depth grid along with a coastal depth grid will be used for mapping. G. Data products will vary; fluvial projections are limited and only include single frequency data H. This is also a place where decision-makers will need a guide to what risks they need to look at for their area, and then how to look at those hazards I. Alex Samms shared that end users will also want to look at zoning, addresses, etc. to make this user friendly. J. Matt Dalon added that if stakeholders need additional technical support to interpret this information, DCR can meet that need. K. Wendy Stout reiterated the idea that localities will want to use this alongside other data layers. Brian shared that this won't be available for download to overlay it with locality data as it is currently being planned. That is an important use to be thought through to inform decision-making in localities. II. Future Recommendations <ul style="list-style-type: none"> A. This subcommittee's input has been going into recommendations. Currently they include: <ul style="list-style-type: none"> 1. Research: natural and nature-based functionality 2. Data: land cover data (the state is planning to expand high resolution data for Chesapeake conservancy area to go statewide) and LiDAR data (including strategizing on where and how) 3. Innovation: coastal resilience products and materials (do we need new solutions to meet our needs? Or do we need to improve products?) B. DCR also has input from Phase I on technical process improvements, including: <ul style="list-style-type: none"> 1. working with tribes, developing projects for hot spots. 2. Standardizing data is another suggestion 3. Improving data for project benefit areas

	<p>C. The timeline</p> <ol style="list-style-type: none">1. Each subcommittee is working on recommendations2. Q2: DCR will start working on drafting recommendations, to be revised in Q3, and then finalized in Q43. Contractors should be on board for Q2 meeting to help facilitate <p>III. Subcommittee Member Discussion</p> <p>A. Troy Hartley earlier shared some items for discussion but as he was not able to attend, they will be added to the next meeting's agenda</p>
6. Public Comment	None
7. Action Items and Scheduling	<ol style="list-style-type: none">1. Matt Dalon will solicit data evaluation team's input on pluvial data points for low risk tolerance (75th vs 90th)2. The subcommittee members are asked to start thinking about recommendations for research, data, and innovation to bring to the Q2 meeting3. Q2 meeting will be virtual, at the end of April or in early May. There may be a request for input/ info before then to maximize time.4. Jessica Whitehead suggested that the next meeting be extended to allow for the development of recommendations.
8. Adjourn	Matt Dalon adjourned the meeting at 2:44

Voting Records

A motion was made to adopt the meeting agenda. A second motion was made and all members voted in favor to adopt the agenda.

The purpose of these minutes is to record and preserve, to the best of our ability, the major contributors and general topics covered during this meeting. Verbatim transcription is not the intent of this document. If you have any questions, please contact flood.resilience@dcr.virginia.gov
