Virginia Coastal Resilience Technical Advisory (TAC)
RDI Subcommittee

Subject	TAC Resource Data & Innovation (RDI) Subcommittee Meeting -Q2	Date	5/24/2024
Chair	Alexander Samms Chief Deputy Virginia Department of Environmental Quality (DEQ)	Time – START/ADJOURN	10:02am/11:51am
Location	Virtual Zoom Meeting	Scribe	Sarah Jackson, VCU CPP

Committee Members		
Title [Alternate Title] Organization (Abbreviation)	Name [Alternate Name]	Attended?
Chief Deputy [Manager of the Office of Wetlands and Stream Protection] **Virginia Department of Environmental Quality (DEQ)**	Alexander Samms (Chair) [Dave Davis] (Co-chair)	Y [Y]
Chief Resilience Officer [Principal Water Resources Engineer] **Hampton Roads Planning District Commission (HRPDC)**	Ben McFarlane [Whitney Katchmark]	Y
Director of Environment and Resiliency Planning [Coastal Zone Program Manager] **Northern Virginia Regional Commission (NVRC)**	Norm Goulet [Rebecca Murphy]	Y [Y]
Director of the Institute for Coastal Adaptation and Resilience [Director of Applied Projects, CCRFR] **Old Dominion University (ODU – ICAR)**	Jessica Whitehead – R [Carol Considine] – R	Y
Director [Environmental Institute Program Manager] **University of Virginia (UVA-EI)**	Karen McGlathery – R [Jonah Fogel]	Y
Associate Dean for Research and Advisory Services [Assistant Professor] **Virginia Institute of Marine Science (VIMS)**	Mark Luckenbach – R [Molly Mitchell] (or Lyle Varnell)	Y
Director **Virginia Sea Grant (Sea Grant)**	Troy Hartley	Y
Director, Virginia Tech Coastal Collaborator **Virginia Tech (VT – CCS)**	Wendy Stout – R	Y
Acting Director **Virginia Transportation Research Council (VTRC)**	Michael Fitch – R	Y
Executive Director [Policy Program Director] **Wetlands Watch (Wetlands Watch)**	Mary-Carson Stiff [Ian Blair]	[Y]

TAC Staff and Consultants		
Name	**Title (Organization Abbreviation)**	**Attended**
Matt Dalon	Resilience Planning Program Manager, DCR	Y
Carolyn Heaps-Pecaro	Resilience Planning Program Coordinator, DCR	Y
Will Isenberg	Environmental Specialist, DEQ – R	Y
Arthur Kay	Lead Mapping & Data Analyst, DCR	Y
Sarah Jackson	Consultant, VCU Center for Public Policy (CPP)	Y
Wheeler Wood	Consultant, VCU Center for Public Policy (CPP)	Y
Linda Warren	Consultant, Launch! Consulting	Y
Cece Atkinson	Consultant, Launch! Consulting	Y
Rebekah Cazares	Consultant, Launch! Consulting	Y
Ashley Hall	Consultant, Stantec	Y
Morgan Abbett	Consultant, Launch! Consulting	Y
Daniel Proctor	Consultant, Stantec	Y

Members of the Public		
Name	**Attended?**	**Speak During Public Comments?**
Adam Gold	Y	
M. Moore	Y	
Emily Steinhilber	Y	

Reference Links	
Item	**Link**
Meeting Agenda	https://www.dcr.virginia.gov/crmp/meeting/document/2024q2-tac-rdi-subcommittee-agenda-r1.pdf
Meeting Handouts/Presentation Slides	https://www.dcr.virginia.gov/crmp/meeting/document/2024q2-tac-rdi-subcommittee-presentation.pdf
Video Recording of the Meeting	https://youtu.be/ojdXIB1jK5I

Agenda Item	Minutes
1. Call to Order, Roll Call, Introductions	Alex Samms (DEQ), Committee Chair, welcomed members and called the meeting to order at 10:02am. Mr. Samms took roll and introduced Launch! Consultants Linda Warren, Rebecca, CeCe, and Morgan and announced their role as facilitators.
2. Adoption of Meeting Agenda, Minutes	The agenda and 2024 Q1 meeting minutes were adopted.
3. Subcommittee Overview	Matt Dalon (DCR) reviewed the objectives of the RDI Subcommittee, including seeking input on pluvial and fluvial flood hazard data, assessing risks, and working on recommendations for future planning efforts. Mr. Dalon thanked everyone for their input on the development of the Flood Hazard Exposure Model. He noted that the primary objective of today's meeting will be to develop recommendations on the following: • Develop a data development plan to fill gaps in advance of future planning processes. Consider research and data products that can meet the state's needs. • Advise on innovations suited to address flood risks and fill gaps in resilience action for future planning efforts. Consider R&D, public-private partnerships, and collaborative research. Mr. Dalon reminded the subcommittee that recommendations are not limited to data and can apply to processes, products, financial tools, and physical construction means and methods. The Plan Development Timeline and subcommittee schedule were both reviewed. Consultant support from Stantec and Launch! for the Planned Resilience Actions Analysis, Story Development, and Stakeholder Outreach and Engagement is ongoing. The final report design and production will be completed in December 2024.
4. Old Business	Mr. Dalon discussed the following "Old Business" topics and provided key highlights: a. CRMP Integrated Flood Hazard Scenarios for Planning • Reference and planning scenarios along with coastal, pluvial and fluvial data were shared. • Coastal planning horizon uses CRMP data, Pluvial uses Atlas14 data, and fluvial is limited to FEMA data. • Organizing data to fit planning horizons and risk tolerances No questions or comments were provided by subcommittee members. b. Pluvial Flood Hazard Data Update • Pluvial modeling is completed and available for download on AWS, including depth grids for all models and model runs. Planning Scenario Reference Table is also completed. • Tidal boundaries had to be run multiple times to account for sea level rise projections.

| | • DCR continues to work with Dewberry on building planning scenario depth grids from the reference table and on a User Guide for these models. The User Guide will show how models can be applied in different use cases – currently building a list of different use cases and inviting input from members and other stakeholder groups.

No questions or comments were provided by subcommittee members.

Mr. Dalon also shared that the Combined Flood Hazard is a work in progress with the following consulting support:

• Dewberry is conducting calculations.
• Stantec and Launch! will help DCR review data to reform story development for different regions and types of assets.

c. Subcommittee Recommendations

Mr. Dalon reviewed the purpose, audience, and desired presentation of recommendations nothing the following:

• Goal is to find ways to improve the resilience planning process to produce better outcomes.
• Need to know what actions should take place within the next 1-4 years.
• Target different audiences – state government, PDCs, local governments, etc.
• Aim to use general terms rather than naming or assigning specific tasks to agencies.
• Overall aiming for 3-5 recommendations per subcommittee.

He shared that the facilitation of recommendations will be collaborative and informed by prior TAC discussion, Phase I plan, Stakeholder engagement, and TAC member surveys. Final recommendations will be voted on by subcommittee members, followed by full TAC members. Additional details about the recommendation timeline were also shared:

• Subcommittees will report status updates at Q2 and Q3 full TAC meetings.
• Subcommittee previously provided input on the natural and Nature-Based Functionality (research) Land Cover data (Data), and Coastal Resilience Products and Materials (Innovation).
• Technical process improvement needs identified by CRMP Phase I should also inform subcommittee recommendations.

No questions from the subcommittee. |
| 5. New Business | Linda Warren, Launch! Consulting, introduced the recommendations discussion process and activities for the remainder of the meeting. These included:

1. Review and refine draft themes as a group
2. Individually brainstorm recommendations under each theme
3. Breakout room discussions of recommendations
4. Large group discussion of recommendations |

5. Prepare to vote on top recommendations before the next quarterly meeting

Ms. Warren reminded that the discussion is only among subcommittee members but invited members of the public to provide public comment at 11:40 am if they have comments they'd like to share. She shared the proposed themes for recommendations and reminded members to use action verbs for each recommendation. Proposed themes included:

Research: Applying research to CRMP flood resilience planning and processes.

- Questions to consider: *what new flood resilience research has been published that can be applied in future CRMP phases? How can research be applied to project-scale metrics and monitoring techniques?*
- An example recommendation was provided.

The group raised the following:

Alex Samms (DEQ) said he liked the actionable and specific approach of recommendations.

Data: Sourcing, utilizing, and programmatic management of high-quality data to improve models, risk assessment, and planning approaches.

- Questions to consider: *Where does the CRMP require more comprehensive and/or updated data?*
- An example recommendation was provided.

The group raised the following:

Troy Hartley (Sea Grant), said he suspected data will be a lighter theme because research and innovation will be informed how data will be shared and presented.

Innovation: Advise on innovations suitable to address flood risks and fill gaps in resilience action.

- Questions to Consider: *How can CRMP integrate R&D, public-private partnerships, and/or collaborative research? Where do flood resilience gaps exist that provide an opportunity for innovative solutions?*
- An example recommendation was provided.

The group raised the following:

Jessica Whitehead (ICAR) wants to consider the best way to create space in the recommendations for innovations that don't yet exist. The landscape of 3-5 years may be very different from today, so the group should ensure recommendations create space for what we don't yet know.

Ms. Warren asked subcommittee members what other themes should be included.

The group raised the following:

Jessica Whitehead (ICAR) acknowledged that not every resilience action is an infrastructure project. She wanted all concepts for each recommendation theme to include not just risk reduction quantification but people and the

decisions they are making. An example would include a locality that is doing home elevations – they will need to have a solid emergency management and evacuation system. Resilience recommendations need to capture this.

a. Recommendations

Ms. Warren shared the following recommendation tips before assigning breakout rooms:

- Begin each recommendation with an action verb
- Ensure they apply to planning process improvements and next 1-4 years
- Generalize implementation actions – avoid naming specific agencies, organizations, etc.

Members were sent into breakout rooms to discuss recommendations by theme for 30 minutes before returning to the large group.

b. Subcommittee Members Discussion

Breakout Room 1: report out by Mark Luckenbach (VIMS)

- Research: Looking at how well nature and infrastructure-based solutions address flood reduction, need for Virginia to develop its own social vulnerability index
- Data: Asking "what kind of data do we really need?" and "how do we get it?" – often no long-term plan for ongoing data acquisition and collection.
- Innovation Looking at where we know there are regulatory barriers (state, fed) to testing out innovative practices, such as drones. Must work with regulators to allow us to test practices that are worth exploring and scaling up.

The group raised the following:

Karen McGlathery (UVA-EI) asked whether other states are using drone data to assess risk and flooding. Ms. Whitehead (ICAR) cited a case in North Carolina where a private company added drone surveying properties to their product list and the courts decided this would require a professional surveying license.

Breakout Room 2, report out by Karen McGlathery (UVA-EI), Troy Hartley (Sea Grant)

- Research: Need to support research of monitoring and modeling groundwater levels and saltwater intrusion. Should also develop measures and methods to better monitor the performance of resilience projects across multiple ecosystems, including economic development. Must gain a better appreciation of what humans need to do to adapt.
- Data: Important to think about how data is being disseminated and visualized to different stakeholder groups. On the issue of data integrity, need to aggregate data in a way that preserves individual privacy, especially for vulnerable groups. Also need to know how to disseminate existing

	flooding and infrastructure risk databases; look beyond layered data visualizations. • Innovation: Conduct use-inspired research on adaptation solutions; much can be done in public-private partnerships. Innovation is needed in finance, infrastructure, and policy – for example, regulatory regimes must be more adaptive. Discussed developing policy innovation tools that allow you to experiment – examples include testing out new tax incentives and; ability to let permitting entities collaborate and innovate. Must develop explicit ways to incorporate stakeholder input into project innovation. **The group raised the following:** Jessica Whitehead (ICAR) added that many entities – Environmental Defense Fund, Pew Research Center – are already supporting state-level discussions. The subcommittee does not need to reinvent the wheel, should instead communicate with these groups to learn. Breakout Room 3 – Jessica Whitehead (ICAR) and Rebecca Murphy (NVRC) • Research: Need to support structures that are going to help Virginia make progress. Suggest forming a working group and research process on compound modeling but need funding to advance this model across the state. Needs assessment on benefits and cost and consequences of failing to take action would also be important. • Data: Support training opportunities at local level on how to use and identify gaps in new data – must understand what is useful and successful in how localities are using this data • Innovation: Expand accelerator programs and statewide strategies to support co-production to create environments that move from information sharing to knowledge creation. • Also asked: what is the role of local/regional/state agencies in supporting local and regional resilience champions? Identified the need to define what resilience success looks like and how to reinforce collaboration among diverse stakeholders.
6. Public Comment	No public comment was offered.
4. Action Items, Scheduling	Recommendations Discussion (continued) Ms. Warren asked each member to share one word, reflection, or thought that came out of today's meeting. **The group raised the following:** • Troy Hartley (Sea Grant) noticed consistent themes across breakout groups. • Karen McGlathery (UVA-EI) co-production. Figuring out effective ways to engage community members will be important to this work moving forward.

	• Jess Whitehead (ICAR) wants to encourage the group to think about the "how's" – structure, networking, and collaboration are all key to being successful in the long run. • Dave Davis (DEQ) appreciated the conversation around different types of public engagement beyond traditional public forums. • Mike Fitch (VTRC) asked if there will be an opportunity to further discuss today's recommendations and what the next steps are. Ms. Warren replied that these recommendations will be put into a survey that will be sent to subcommittee members. This will be a chance for members to prioritize existing recommendations and add additional suggestions. Results will be shared at the next meeting. • Rebecca Murphy (NVRC) Cross-pollination with other subcommittees will help us know how to mesh different priorities together. • Ian Blair (Wetlands Watch) nice to see all the connecting themes. • Ben McFarlane (HRPDC) is looking forward to conversing in-person instead of virtually. Ms. Warren thanked everyone for their contributions. Mr. Dalon summarized the following Action Items: • Draft recommendations will be sent via an online survey. (Launch!) • The next meeting will be in person, with a hybrid option, in Richmond. • Working on getting the data and location finalized. Likely end of July and early August timeframe. (DCR)
6. Adjourn	Dave Davis, co-chair, explained that the chair had to leave the meeting early. Mr. Davis thanked everyone for their participation and asked for a motion to adjourn. A motion was made and seconded and the was adjourned at 11:51 am.

Recommendations Discussion Notes:

1. RESEARCH
Applying research to CRMP flood resilience planning and processes.

- Establish a standing working group to track research progress in compound modeling and other research needs and catalyze teams to secure funding from applicable RFPs to advance compound flooding modeling in Virginia.
- Research obstacles that exist at the local scale, and what innovations are required at the state level to meet local needs innovatively and effectively.
- Support research to evaluate the benefits and costs of resilience action and of failing to take resilience actions.
- Conduct research to generate a better understanding of human adaptative behavior – tipping or trigger points for choices – incremental adaptative behavior before people move…. Organizational and community scale behavior too. These choices and human actions will influence the current projections.
- Develop measures and methods to monitor performance of resilience projects…ecological, infrastructure, social, economic, cultural, and justice.

- Support research, monitoring, and modeling of groundwater levels and saltwater intrusion.
- Support research on economic valuation of nature-based infrastructure that includes blue carbon and other ecosystem services.
- Conduct a synthesis fully analyzing how other states are addressing the issue of coastal flooding to provide context to the approach we are using thus far and in the future.
- Support research to evaluate flood reduction metrics of natural and nature-based solutions.
- Consider researching a Virginia flood-centric SVI dataset to inform project prioritization.

2. DATA
Sourcing, utilizing, and programmatic management of high-quality data to improve models, risk assessment, and planning approaches.

- Support multi-institutional efforts to collate quantitative AND qualitative data on modeling, risk assessment, and planning decisions in Virginia.
- Provide training opportunities at the local scale to utilize and apply new data and identify additional gaps in data needed for flood resiliency planning at the local scale.
- Identify ways to learn how useful and successful the data is for localities to use. Collect customer feedback, follow up, and iterate.
- Disseminate / visualize data to preserve privacy of individuals.
- Develop a mechanism to update data over 4-year time horizon.
- Integrate groundwater data with existing flooding and infrastructure risk datasets. (inter-agency and centralized)
- Identify critical data needs for resilience planning and develop a plan for regular funding for acquisition, processing, and analysis.
- Consider modeling flood loss estimates that consider agricultural and wildlife habitat value in BCA tools f or considering new projects and studies.
- Consider drone usage for collecting data.
- Develop comprehensive bridge deck elevation data.

3. INNOVATION
Advise on innovations suitable to address flood risks and fill gaps in resilience action.

- Expand the support for accelerator programs (not the right word) to support emerging resilience and adaptation innovations.
- Develop statewide strategy to support co-production of initiatives/products/future research needs with stakeholders.
- Create environments that help move from information sharing to creation of knowledge.
- Conduct use-inspired R&D on adaptation solutions including:
    - NBS that simultaneously meet water quality and water quantity standards
    - Enhance marsh plant production
    - Alternative septic
    - Wells – saltwater intrusion.
    - Beneficial dredge use
    - Property scale monitoring technologies (sensors, drones)

- Develop policy innovation tools to allow responsible, rapid policy adaptation and experimentation. On the policy front, e.g., establish experimental zones – R&D, but also Policy Zones, with Resilience principles, goals that must be met – tax incentives, regulatory discretion, permit integration and coordination (see the integration team efforts of the SF Bay restoration program, Green Tape Cutting Initiative).
- Develop mechanisms to engage and incorporate community and stakeholder input into research, data visualization, and project implementation.
- Identify regulatory barriers to testing out innovative resilience practices.

4. OTHER

- What is the role of local/regional/state agencies in supporting local/regional resilience champions?
- Define what resilience success looks like.
- Identify mechanisms for future collaboration amongst diverse stakeholders.

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

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