Climate Resiliency Workgroup Conference Call

Monday, March 16th, 2020
1:30 PM – 3:30 PM

REMOTE MEETING ONLY

Meeting Materials:
https://www.chesapeakebay.net/what/event/climate_resiliency_workgroup_crwg_march_2020_meeting

Actions

- CRWG follow up with Melissa Deas to get information on the phenology study of trees in DC
- CRWG review list of new climate indicators that EPA is looking into for possible coordination.
- CRWG look into including EJ Screen/issues in the LGAC flood forum discussion.
- CRWG follow-up with CBP modeling team regarding salinity projections.

Minutes

1:30 PM **Welcome and Meeting Overview and Goals – Co-Chair Mark Bennett (USGS) and Erik Meyers (The Conservation Fund)**

- Increase understanding of current climate indicators and data sources for future application with the climate indicator framework
- Learn about research needs for fish connectivity and adaptation efforts related to saltwater intrusion

1:40 PM **Common Themes from Fisheries and Habitat on Climate Indicators – Julie Reichert-Nguyen (NCBO, CRWG coordinator)**

Julie presented a summary of common themes related to climate indicators from input by workgroups in the Fisheries and Habitat Goal Implementation Teams. She also briefed the workgroup regarding next steps, including assessing available data possibly during May meeting, and meeting with individual workgroups to identify specific resilience indicators of interest.

- Melissa Deas mentioned that DC just issued a grant to study phenology of trees in DC due to urban heat island effect.
  - **Action: follow up with Melissa Deas to get information on the phenology study of trees in DC**
- Jason Dubow asked whether the workgroup is considering increase salinization that SLR brings.

        - Julie responded that during the CRWG January meeting, workgroups had identified salinity issues to be of interest, but we need more information and understanding to see how to develop these into indicators – Jason's presentation will help with increasing understanding.
    - Kevin commented that it has been observed that there is a decrease in development along the coast due to the government lowering population risks in flood prone area (buying/relocating away from coast in hazard areas; zoning changes/addition of open spaces; develop higher density housing elsewhere). Maybe change in development pattern is more appropriate than stating "increase in development"

1:50 PM **Climate Indicator Methods Review – Mike Kolian (EPA)**

Mike presented methods for existing climate indicators on Chesapeake Progress website, data used, stream temperature - how it can be modified (options). Mike also briefed the WG regarding the updates for the existing indicators.

- Status of current indicators
    - Average Air Temperature – updated thru 2018; High Temperature Extremes – updated thru 2018; Precipitation – updated thru 2018; Relative Sea Level – updated thru 2018; River Flooding Magnitude and Frequency – no change; Stream Temperature – no change
- The frequency of tidal flooding in four coastal cites – 'High Tide Flooding' Newly created indicator thru 2018 - ready for review
    - **Action: CRWG review list of new climate indicators that EPA is looking into for possible coordination.**
- EPA aims to update indicators on a routine basis – timeframe depends on the indicator (monthly, annually, every two years, etc.)
- Some indicators are national, while others are regional in detail; most are based on point data at specific locations
- Stream temperature: leverage discrete measurements from USGS (not continuous data) – USGS working on national average – need to evaluate use of daily means versus discrete measurements
- Currently don't have high level info for Bay water temperature – this would be a useful indicator since tied to many inputs and regs (TMDL)
- Seasonal changes – datasets exist presenting opportunities for climate indicators: seasonal temp data, growing season, first frost/last frost

CRWG had a discussion on the next step with existing indicators:

- Mark commented that it would be helpful to have longer term dataset for phenology change even though it can be anecdotal, such as leaves change color in Shenandoah valley or tidal basin cherry blossom or length of pollen season.

- Julie mentioned that growing degree days was discussed during ag workgroup meeting.
- Julie informed workgroup of LGAC planned flood forum to bring local decision makers together to discuss strategies to address flooding from changing climate conditions (sea level rise, intense storm events)
    - Nicole asked if the forum will be focused on both sunny day flooding and precipitation flooding. Julie responded that it is still at very early stage, but LGAC is looking for CRWG to help with planning.
- Katie asked Mike about the methodology of social science as a new content theme and connection to the human health. Mike responded that it's a connection they are now trying to make with potential new indicators – e.g., extension of pollen season on allergies, increase population risk exposure.
- Erik asked if EPA has done any social science related study on EJ Screen. Mike responded that they have not but this request keeps coming back.
    - **Action: Erik added that EJ Screen should be included in the LGAC flood forum discussion.**

2:30 PM **Data Needs Regarding Fish Connectivity – Molly Mitchell (VIMS)**

Molly presented on research gaps dealing with fish connectivity and changing climate conditions.

Molly presented on economically and ecologically important fish species (Shad and River Herring, Atlantic Striped Bass, Red Drum) that use freshwater and non-freshwater portions of the bay at different life stages and explained why climate change impacts on habitat distribution and connectivity is important to study and understand to ensure resilience of these species. Main research questions include:

1. How will changes in temperature/water quality, circulation patterns, increased spring flows affect spawning and food availability – will there be a temporal mismatch with prey species leading to weak year classes,
2. Will shifts in timing and magnitude of wind events alter critical upwelling/downwelling events and how will this affect fish recruitment/fish migration,
3. How will climate change shifts interact with other stressors and restoration activities of fish habitat, and
4. Which structural habitats will decrease or change in distribution and how will it affect spawning/nursery areas?

- Molly mentioned that marshes are less likely to persist in freshwater areas and that freshwater and haline water will see the earliest impact with sea level rise.
- Julie mentioned that NOAA is trying to tackle some of the questions listed here and if Molly is connected with Bruce Vogt. Molly responded that the

species related response to climate is important and she is in touch with Bruce regarding this question.
- Kevin added that a study at Old Dominion University showed that the amount of sediment and nutrient pollution associated with heavier rains and some preliminary results suggest that a whole year's worth of pollution can be delivered in a single extreme rain event.

3:00 PM **Maryland Saltwater Intrusion Plan – Jason Dubow (MD Dept. of Planning)**

Jason presented Maryland's Plan to Adapt to Saltwater Intrusion and Salinization, finalized at the end of 2019. Information can be found here.

- Legislation directed adaptation planning for saltwater intrusion (updated plan by 2024); part of larger MD climate adaptation/resilience plan.
- Affected resources and land types to saltwater intrusion: salinization of surface waters rate and extent on groundwater aquifers, loss in ag farmland productivity, altered ecological landscape of wetlands and coastal forests, infrastructure.
- Unanswered questions: Sea level rise effect on brackish water, impacts on extensive ditch network within MD's Eastern Shore, which users and areas are at risk, do adjacent lands exist to allow for migration, economic impacts
- Research and study plan involves the development of forecasts, vulnerability assessments, monitoring and modeling, and identifying adaptation measures (partnered with adaptation workgroup)
- There is less ability to remove accumulated salt; made worse by drought.
- Deep aquifers are less vulnerable to salt intrusion.
- Tidal tributaries are used for irrigation—need to monitor over time.
- Salinization of farmland could release legacy phosphorus in soil—unknown how big of an impact this will have.
- The Nature Conservancy is looking into making use of conservation easements to allow migration of wetlands.
- Unknown how saltwater intrusion will affect wetland BMP performance.

Discussion:
- Erik recommended making a connection with the Interstate of Potomac Basin—has a drinking water co-op looking at research effort for forestry community.
- Zoe asked if they have any general lessons learned with increasing groundwater which affect the suitability of green infrastructure practice. Jason mentioned that they have some info in the infrastructure chapter but not a lot.
- Julie mentioned that Modeling WG will present to CRWG in April conference call regarding how they model salinity and the connection to the living

resources. **Action: It would be a good to discuss with Modeling Team lead regarding the recommendations from this report.**

3:25 PM **Announcements**

The National Fish and Wildlife Foundation (NFWF) is pleased to announce the National Coastal Resilience Fund Request for Proposals (RFP) for 2020. NFWF will make investments to restore and strengthen natural systems so they can protect coastal communities from the impacts of storms, floods, and other natural hazards and enable them to recover more quickly, and enhance habitats for fish and wildlife. The full RFP and additional program information can be found here.

Julie mentioned the Finance workshop happened last week and climate was one of the themes for discussing creative ideas on leveraging financing options. They came to consensus that blue carbon may not be financed in the same way as terrestrial sources in the carbon market. Erik added that getting private investment through a range of market return expectation. Breck commented that the workshop is funded through GIT funded project and with the money left from the workshop, a project related to this topic can be moved forward if deemed appropriate.

3:30 PM **Meeting Adjourn**

Next Meeting: April 20, 2020

Meeting Participants:

Allison Breitenother	Katie Brownson
Amanda Poskaitis	Kevin Du Bois
Breck Sullivan	Krista Romita Grocholski
Clint Gill	Mark Bennet
Cuiyin Wu	Megan Ossmann
Doreen Vetter	Melissa Deas
Erik Myers	Mike Kolian
Ian Yue	Molly Mitchell
Jason Dubow	Nicole Carlozo
Jennifer Miller Herzog	Nora Jackson
Julianna Greenberg	Rebecca Chillrud
Julie Reichert-Nguyen	Sally Claggett
Kate McClure	Zoe Johnson
Katheryn Barnhart	