Mystic River Watershed Steering Committee
Main Focus: Climate change, rainfall, and flooding resiliency; Mission & Priorities approval
May 5, 2022, 1 – 3 PM
Held online via Zoom

Meeting Summary

Meeting in Brief
On May 5, 2022, the Mystic River Watershed Steering Committee met online via Zoom. The agenda of the meeting included presentations from local and regional experts on rainfall projections and flood resilience, a review, and approval of the 2022-2024 Joint Mission and Priorities, and sharing updates from around the watershed. Presentation slides can be found at https://mysticriver.org/epa-steering-committee.

A list of meeting participants is provided at the end of this document. For more information about the steering committee and current efforts to restore the Mystic River watershed, please visit www.epa.gov/mysticriver.org.

Next Meeting
The next meeting is scheduled for September 8, 2022

Welcome and Introduction
Mel Coté, US EPA, and Patrick Herron, Mystic River Watershed Association (MyRWA) thanked everyone for attending the meeting, and for their ongoing work in the watershed.

Extreme Rainfall Statistics Past, Present, and Future
Arthur DeGaetano, Director, NOAA Northeast Regional Climate Center (NRCC), Cornell University

- Rainstorms are changing, and the statistics for understanding extreme storm events being applied don't necessarily reflect what is happening today.
- An increase in extreme precipitation events in the Northeast has been measured as more significant than in other parts of the country. There are clear trends showing that the number of rainfall events of 2" or greater has increased in the past few decades in MA, and the trend is even more clear with larger datasets looking at all of the U.S.
- Big events are coming multiple times in a year. A review of data in the NOAA- NRCC shows an increase in the number of days each year with a greater than 2", 3" and 4" of rain since 1980.
- Evaluating a partial data series from Logan Airport is one example of how to evaluate these extreme events. In the Northeast, comparing datasets from 1950 to 1979 and from 1980to 2009, rainstorm events of extreme that were expected to have a return frequency of 100 years, now occur every 66 years. The 50-year storm has now become a 33-year storm and a two-year storm has changed into a 1.4-year storm.

- Between 1970-2020, the average Annual Hourly rainfall in Boston has significantly increased - analysis and graphic based on collaborative work between the Climate Center and NRCC
- Recent analysis in New Jersey of the last 20 years of rainfall, was used to inform that they will have to design infrastructure to meet a 5% increase in the size of design storms from events ranging from the 2 yr to the 100 yr.
- In the last 20 to 30 years we have seen a significant change in the trends in any number of ways to measure extremes for hourly, daily, monthly, and yearly.
- We need to use large-scale, global climate models to get down to the scales that we're looking at. To do the projections of these storms, two classes of downscaling methods are typically used,1) Localized Constructed Analogs (LOCA) which is a statistical method used by NOAA in the international climate assessment, and Coordinated Regional Climate Downscaling Experiment (CORDEX) which is a dynamical downscale that is large scale global model which is better able to represent the finer scale detail such as elevation.
- Looking at NOAA's climate explorer and examining Suffolk County using LOCA, we see about a 10% increase in total rainfall through 2100.
- An examination of extreme storm event sizes using Ensemble Medians in New Jersey and New York projects a 10-40% increase in the size of a 100-year event by 2100.
- Few models are able to inform on the hourly time scale - but based on our limited understanding we believe that the trends in hourly extreme precipitation events mirror the 1-day pattern of increases. We are seeing these understandings applied in New York City.

Q1) As most stakeholders in this call are interested in the future planning for infrastructure development, specifically, Combined Sewer systems. How should we think about constructing a typical year looking forward to the next 20 - 50 years?

Answer: Any of the downscaled climate models - LOCA or CORDEX which are done dynamically would be appropriate for that kind of analysis for the future period. However, some bias in the data sets might occur in choosing any year and some adjustments along the distribution should be made. Another way to do it is by looking at a difference or inflation factor in the climate model simulating back in the historical period.

Q2) Do you think some of the corrections and model biases are more topography-based where you just have better data on the extreme for the New Jersey coast because they've already seen that type of storm?

Answer: The adjustment factors are all based on climate model simulation and these models did not consider the real events that happened in the historical period. For instance, the climate model did not consider the data for Hurricane Sandy. The results you see on the coast of New Jersey are likely associated with how the model simulates rainfall over ocean versus land.

Q3) Most roadway drainage would be built from considering 10-year to 25-year 24-hour storm events. How do your models inform on this?

Answer: The model does incorporate the 10 years up to 25 years, 24-hour storms, and the change factor between the different returns follow up a smooth transition. In our work in Washington DC to understand storms with a 15-year return period - we were able to interpolate between our previously modeled return periods.

Island End River Regional Coastal Flood Resiliency Project
Alexander Train, Director of Housing and Community Development, City of Chelsea
Erik Swanson, City Engineer, City of Everett (not in attendance)

- The City of Chelsea, City of Everett, Greenroots, and Mystic River Watershed Association have been overseeing a comprehensive climate resilience program in the Island end district area.
- In 2017, The City of Chelsea conducted a climate vulnerability assessment of flood risk, both associated with coastal storm surges, inland precipitation, and extreme weather events. Five vulnerable sites were identified and were prioritized based on their risks to public health and surrounding environmental justice neighborhoods, critical infrastructure, the local economy, and community infrastructure. The Island End river district was identified as a top priority as well as the district along Chelsea Creek.
- This district generates over four billion dollars a year through economic activity, a little under two billion dollars of that is associated with the production sector and it supports over 11,000 jobs. These are jobs that provide living wages for local residents in Chelsea, Everett, and the greater region.
- The district encompasses public transportation infrastructure, such as the Newburyport / Rockport commuter rail line, Route 111, 112, and other key bus routes as well as the silver line service that's provided between Chelsea and downtown Boston.
- The district also has emergency shelters and community health centers like MGH Chelsea. Also present are other forms of community infrastructure including local schools as well as facilities including the FBI regional Headquarters.
- The City of Everett, Chelsea, Greenroots, and MyRWA has embarked upon the design of a comprehensive flood protection system in order to mitigate these flood risks for future generations, the project team is advancing a coastal barrier, salt marsh restoration, river walk, and various stormwater enhancement projects throughout the district designed 2070 conditions.
- Major social-economic costs are expected to incur including impacting 15,000 residents and potentially creating a scarcity in food supply throughout the region.
- In the City of Chelsea, the proposed project consists of an elevated berm, restoration of 1.5 acres of salt marsh, and construction of an elevated river work area which will combine a ‘living shoreline’ along the Island End River as well as the installation of a sluice gate system to prevent coastal surge.

- In the City of Everett, an elevated sea wall would border the waterfront area and protect the commerce in the designated area
- The project is currently in a development phase where coordination is done with stakeholders such as the residents in the area, local artists, and youths. The project looks forward to the institution of the elevated Riverwalk system with a native plant system and tree canopies that would allow connectivity between the surrounding neighborhood and the project area.
- In the City of Chelsea, the design and development have been fully completed. Whereas the City of Everett with assistance from the municipal vulnerability preparedness program project team is undertaking the preliminary design.
- Last October, the team compiled and submitted a grant for the FEMA BRIC program. And this project will be ready by next year. $50 million was requested through this grant.

Questions

1) **Concerns raised about the tide gate.**

Answer: We've heard the feedback and are working to incorporate changes into the design to ensure that the tide gate can be open as long as possible while also providing protection during major storms.

2) **What does the permitting process look like for this project?**

Answer: The permitting process will involve consultation with the experts over the next 6-8 months and engagement of the regulatory agency such as EPA, MEPA, Army Corps, DEP, CZM, and local community-based partners like MyRWA and GreenRoots, and other organizations.

The process will also require an environmental impact statement including permitting related to section 401 and 404 water quality certifications, a general construction permit from the Army Corps of Engineers as well as a Chapter 91 license from DEP waterways, and a consistency review from CZM and permitting through the local conservation commission.

2022-2024 Mission and Priorities review

The Steering Committee finalized the 2022-2024 Mission and Priorities. This document was first developed as a group in 2010 and was last updated in 2017. The document is intended to identify the key projects and actions needed to improve the environmental condition across the Mystic River watershed. The coordinating team identified the need to update as progress was made during this interim and priorities changed.

- Over the last few months, the coordinating team (including EPA, CBI, MyRWA, and others) with some feedback from the last Steering Committee updated the document to reflect updates. Initially, this document had listed numerous projects - many of which have been completed. To make it clearer, some of the completed projects were moved to a separate list.

- This Mission and Priority document incorporated environmental justice in all the priorities as there was consensus that this needs to be a unifying priority of this work. Finally, we incorporated all the feedback from the January meeting and comments collected through the Jam Board activity

Announcements, Updates, and Funding Opportunities

- The Mystic River Watershed Association is organizing the Mystic Herring Run and Paddle on Sunday, May 15.The event is both a running and paddling race that happens on the shores of the Mystic River. The race starts at the Blessing of the Bay Boathouse in Somerville and it's a great place to come out and meet that community, people who care so much about the river like yourselves.
- The Annual Herring Count is ongoing at the Mystic River Watershed Association. Additional information can be found here.
- New staff member announcement for MyRWA, Marrissa Zampino - Community Organizer. In this role, she builds relationships and partnerships with community members and organizations to help surface and implement resident-generated heat and other climate resilience solutions,
- The MIT Norman B. Leventhal Center for Advanced Urbanism (LCAU) is launching the Equitable Resilience Portal on Friday 6, May 12:00-1:30 pm for a (virtual) launch party.
- The Boston Harbor Now will be organizing its community cruises program: a free boat ride to the Boston harbor islands from May 21st.
- The Federal Partnership Meeting is scheduled for May 16, 2022.
- There are conversations happening about holding the next steering committee meeting in person.

Wrap Up and Next Steps

Upcoming Mystic Steering Committee meetings:

- September 8, 2022

Meeting Attendees

Alex Carli-Dorsey, EPA R1
Alex Rozycki, Town of Reading
Alex Train, City of Chelsea
Alicia Hunt, Medford Dir of Planning, Development & Sustainability
Andrew Hrycyna, MyRWA
Arthur DeGaetano, Northeast Regional Climate Center
Brian Kubaska, MWRA
Brigitte Ndikum, Nyada Reg 1
Caitlyn Whittle, EPA Region 1
Catherine Woodbury, Cambridge DPW
Chris Orvin, USEPA
Christopher Goodwin, MWRA
David Butler, MassDEP Northeast Region Wastewater
David White, Alewife
Ed Reiner, EPA New England Region 1
Elorpheton Deneus, MyRWA
Hall_J
Hillary Monahan, MWRA
Hung Pham, DOT
Jay Corey, City of Woburn
Jennifer Letourneau, City of Cambridge
Jessie Scott, US Forest Service
John Kilborn
John Walkey, GreenRoots
Kathy Vandiver, MIT
Kathy Watkins, Cambridge DPW
Kelly Sherman, Boston Harbor Now
Kimberley Hutter, Sen. Brownsberger
Kristin Anderson, Save the Alewife Brook
Laura Schifman, MassDEP
Lealdon Langley, MassDEP
Marissa Zampino, MyRWA
Mark Voorhees, EPA R1
Melville Cote, EPA R1
Mike Galvin, DCR
Nate Pacheco, VHB
Patrick Herron, MyRWA
Stephen Perkins
Sushant Bajracharya, MyRWA
Todd Borci, US EPA

Tony Rodolakis, Wood
Wayne Chouinard, Town of Arlington
Wenley Kilbride, MWRA