

New Hampshire Coastal Marine Natural Resources and Environment Commission

NHDES Portsmouth Regional Office

Pease International Tradeport

222 International Drive, Suite 175

Portsmouth, NH 03801

9:00am to 11:00am

January 28, 2019

1. Introductions and Announcements

Members in attendance:

Erik Chapman, Chair (NH Sea Grant), Sen. David Watters, Melissa Paly (Conservation Law Foundation), Steve Couture (NH Department of Environmental Services), Sabrina Stanwood (NH Department of Natural and Cultural Resources), Brian Gennaco (Virgin Oyster Company), Jenn Dijkstra (UNH School of Marine Science and Ocean Engineering), Alix Laferriere (The Nature Conservancy, New Hampshire), Rep. Renny Cushing (Town of Hampton), Erik Anderson (NH Commercial Fisherman's Association),

Others in attendance:

Chris Williams (NH Department of Environmental Services), Vidya Balasubramanyam (New Hampshire Department of Environmental Services), Sherry Godlewski (New Hampshire Department of Environmental Services), Nathalie Morison (New Hampshire Department of Environmental Services)

Chair Chapman opened the meeting.

Announcements:

- A note was made about the need to update the Commission membership since Tom Sherman replaced Dan Innis as NH State Senator; Judith Spang replaced John Mullen as NH State Representative, Strafford. Jason Janvrin replaced Rio Tilton as the NH Representative from Seabrook.
- Rep. Renny Cushing commended the members of the NH Coastal Risk and Hazards Commission on their excellent work which continues to live. Recently, their work was appreciated by Fred Rice at the Hampton Beach Area Commission meeting.
- Some members of the Commission had the opportunity to get a birds' eye view of the King Tide last week from several small aircrafts. This was an effort coordinated by Lighthawk, CLF, and PREP where local guides were paired with media/elected officials to fly the coast at high tide. Sherry Godlewski and Melissa Paly reporting seeing lots of ice. Sen. Sherman was scheduled to go but couldn't make it. Lighthawk is happy to put future trips together and Sherry Godlewski mentioned that it's worth partnering with them for more of these flights. Erik Chapman suggested creating a film on coastal

resiliency and vulnerability from these photos. Sherry Godlewski and Steve Miller are meeting to put together a before/after series of high tide photos as a way to start communicating the stories from these images.

- Sen. Watters reminded the Commission of the coastal retreat bill- LSR 1071. He is going to make some revisions and send out a version for everyone to give feedback on. On Tuesday, January 29, 2019 at 1:40, the senate will convene to review SB 202 (on establishing a stormwater management and flood resilience fund) and there is a possibility of a vote.
- Erik Anderson mentioned that there is some conversation on the issue of baits used in fisheries which could have pathogenic implications. At the Maine advisory committee meeting, they talked about research that identifies potentially contaminated baits and how to avoid them. He was not sure about potential speakers, but wanted the Commission to keep this issue on their radars.
- Erik Chapman reminded the Commission about the NH Sea Grant Research Symposium which will take place Thursday January 31st, and which is a great venue for conversations on potential research projects. There will be presentations from previous grantees of Sea Grants annual grant rounds. This will take place from 9 AM through lunch (free). Erik Chapman and Steve Couture briefly discussed printing out Commission reports as handouts for this event.
- Chris Williams briefly reported that he met with the Office of Strategic Initiatives who will take the lead on the offshore wind task force. There is interest in reaching across state lines, getting input from the fishing industry. The data portal is available through the Northeast Regional Ocean Council & other states have gone through the off shore leasing process, which could provide valuable lessons learned.

2. Approve notes from December 17, 2018 meeting

Motion to approve from Sen. Watters, seconded by Jenn Dijkstra. All in favor. None opposed. Notes passed.

3. Climate and NH Presentations

Science and Technical Advisory Panel review - Nathalie M. Morison, CFM, Coastal Resilience Specialist, NHDES Coastal Program.

Nathalie Morison presented on the efforts of the 2019 coastal flood risk Science and Technical Advisory Panel (STAP) and a summary of the 2014 STAP report. The Coastal Risks and Hazards Commission was established in 2013 by the state legislature. The Commission's mandate was to distill a science summary on climate change for NH and to use the findings to generate recommendations for state agencies and municipalities to deal with impacts of coastal flooding. The 2014 STAP report provided guidance on how to prepare for sea level rise and drew from the Third National Climate Assessment published in 2013. The recommendation was to prepare for 0.6-2ft of SLR by 2050, 1.6-6.6 ft by 2100, with the understanding that sea level rise continues well beyond turn of century with curves going up exponentially. The STAP report provided planning guidance on how to select a relevant sea level rise

scenario. This involved determining design life, committing to manage to intermediate high scenario, and preparing to adapt to high scenario if necessary. With storm surge, STAP found that the science less settled but were able to conclude that regardless of storm frequency, storm surge will push current 100 year floodplains further inland with longer flood durations and deeper inundation. With heavy precipitation, increased frequency and intensity seemed to be a given, however the science was uncertain about how frequent. The STAP guidance suggested designing to manage a 15% increase in heavy precipitation (by volume)

The mandate according to legislation (SB 374 legislation/ RSA 483-B:22) was that the 2014 report be updated every 5 years but it was an unfunded mandate. However, the New Hampshire Coastal Program got funded through a NOAA grant to help fulfill this requirement. They are currently coordinating the development of a 2019 Coastal Flood Risk Science summary and companion guidance, publishing groundwater rise zone maps, and developing an interactive website.

The 2019 STAP report will provide updates on sea level rise, storm surge, and heavy precipitation. Jennifer Jacobs and Jayne Knott are working to provide update groundwater rise information. The report will attempt to acknowledge the confluence of freshwater and tidal water and how sea level rise at the confluence could compound flooding issues. Currently, there is not a lot of information available to date but is a good research area. The guidance will be high level, but with more step by step instructions for selecting a sea level rise scenario. The Steering Committee for this effort consists of state agencies and RPCs. State agencies include NHDES, DAS, DNCR, DOT, HSEM, NHFG, OSI. The Science Advisors include UNH researchers who have expertise in science relating to sea level rise, groundwater rise, and heavy precipitation. The technical advisors include the State Environmental Resilience Group (SERG), the NH Coastal Adaptation Workgroup (NHCAW) and the UNH Stormwater Center. The project is expected to wrap up in January 2020. The science summary is subject to external review but will not receive public comment; however the companion guidance will go out for public comment. This Commission is invited to attend the April 2019 STAP meeting (April 12, 2019 from 1—4 PM at the NHDES Pease office). Nathalie Morison offered to come back and provide an update, if needed.

Erik Anderson asked how does this influence local communities from a zoning and planning perspective. Nathalie Morison said that after the CRHC recommendations came out, some communities updated their base flood elevation requirements, while some adopted new coastal hazards and adaptation master plan chapters. So far, they haven't seen substantial revisions to zoning except for Durham who has advisory zoning in the 4 ft sea level rise risk scenario and they encourage new construction in this zone to be built to higher standards. This is non regulatory and more of an educational tool with the hope that, eventually it will become a requirement. The idea is that findings of the report can be included into planning and zoning, but it is not a requirement for municipalities.

In response to a question on where people could read about the changes adopted, Nathalie said that the companion guidance will highlight case studies/success stories. She also pointed to the CAW projects database. The hope is to encourage peer to peer learning among municipalities.

Sen. Watters said that Nancy Stiles asked about the confluence of freshwater/storm surge: will the Hampton channel be deeper or not? Nathalie Morison said that the answer is unclear but Cameron Wake has ideas about what research needs to be done. Hydrodynamic modelers, anecdotally, will say that dredging won't solve the problem. Some engineering studies are going on in Hampton that might illuminate potential solutions. Steve Couture pointed out that NERACOOS received some funding to look to try and merge Tom Lippmann's hydrodynamic model with NERACOOS' off shore model.

National Climate Assessment review - Sherry Godlewski, Resilience and Adaptation Manager, NH Department of Environmental Services

Sherry Godlewski presented a summary of the most recent 2018 National Climate Assessment. Some key points from her presentation were as follows:

- The year 2017 was the most costly year on record for extreme weather events. It cost \$306 bn. The year 2018 had 11 disaster events by the end of September including 3 nor'easters in 11 days. In 2018, the months of May, June, and July experience temperatures well above normal, with wildfires and air quality issues. Especially of concern in the summer of 2018 was the increasing number of days over 90 degrees, with nighttime temps are increasing at a faster rate.
- With regard to drought and downpours, 2018 was the wettest August on record for Concord, NH; however, the Lakes region was abnormally dry. NH, on average, was warmer and wetter and will continue being so.
- Extreme weather has been linked to CO₂ as per the emerging science of attribution. Hurricane Florence was the first forecasted event using attribution science. The actual event matched up with predictions as per the retrospective analysis.
- For climate trends, 30 year averages are considered. Last 10 years were the 10 hottest years globally. Of note is the wobbly jet stream (due to difference in temperatures between poles and mid latitudes) which causes the polar vortex, warming arctic temperatures, and makes northeast temperatures extremely cold.
- Another phenomenon of interest is the quasi resonant amplification where the jet stream does the same thing in summer causing increasing intensity of hurricane driven rainfall. Rainfall is projected to increase by 50% this century if GHG emissions are unchecked.
- Due to the Atlantic Meridional Overturning effect, the Gulf of Maine is warming 7 times faster than the rest of the oceans.
- The Global Change Research Act, 1990 mandates that the US Global Change Research Program (USGRP) delivers a report to Congress and the President every 4 years. The National Climate Assessment (NCA) fulfills the mandate. More information here: nca2018.globalchange.gov (very user friendly website). The

Climate Science special report was published in 2017 as the first volume of the fourth NCA and includes confidence statements.

- Atmospheric CO₂ concentrations have now exceeded 400 ppm. This last occurred 3 million years ago. Annual average temps have increased by 1.8 degree Fahrenheit over the last 115 years. We are currently seeing 71% increases in frequency and intensity of precipitation. Also of concern is more tidal flooding. Hampton is projected to have 56 high tides that could cause flooding in 2019. So far, oceans have absorbed 93% of excess heat caused by GHG warming. Arctic sea ice loss has accelerated. It is predicted that by 2040, we will have nearly sea ice free late summers.
- The tipping points will continue to be unanticipated and it will be difficult to manage changes; however, adaptation yields benefits in excess of their costs now and into the future. This is similar to acid rain which used to be a problem but was curtailed with a market based cap and trade program. The Regional Greenhouse Gas Initiative (RGGI), the Clean Power Plan are market based programs that encourage industries to limit their emissions. NJ and Virginia are getting back into RGGI programs.
- Sen. Watters hailed the NCA 2018 as an example of a well presented report with clear talking points. He said he found the risk and confidence estimates valuable and is hoping this Commission can incorporate similar confidence estimates into reports and recommendations. Sen. Watters mentioned a bill to set the next ten years of reductions for the cap of RGGI and that this program will continue. The Transportation Climate Initiative proposes to extend RGGI to transportation and fuels. NH is deciding whether to join this or not. A carbon fee legislation is in the House but it may not get anywhere. Once STAP 2019 is available, it might help to look at how the STAP report provides a focus and amplification of what this Commission is trying to do particularly with regard to how increasing temperatures can affect ocean acidification and nutrient loading.
- Nathalie Morison pointed out that according to recent public opinion polls, awareness and acknowledgement of climate change is at an all-time high. She said that in NH, especially in communities like Hampton and Seabrook, there are clear on the ground impacts, so people are coming together to figure out what to do. Sherry Godlewski added that NHCAW has been active this region for ten years now and that NHCAW can be a voice for the Commissions' reports and talking points. She also mentioned that the NHCAW Summit this year is on legal implications of adaptation. Rhode Island Sea Grant will come to NH in May to present on what communities can do to act.
- Erik Anderson asked about conduct outreach to communities on the STAP report? Nathalie Morison said that she conducted outreach on the CRHC report and went to boards and commissions to make presentations. For STAP 2019, they are thinking about how to get people to pay attention. Sherry Godlewski referenced a short video on DES' YouTube page (2016 edition) which 9 mins long and shareable with communities. Nathalie Morison also mentioned that the Coastal Program recently funded the climate in the classrooms program for 5th and 6th graders to learn about climate change and engage their parents in these conversations.

- Sen. Watters enquired about revised figures for the “manage for 15% increase in precipitation” recommendations. Nathalie Morison said that they are going to create projected Intensity Duration Frequency (IDF) curves which is what the engineering community uses to make their designs. She also pointed to some NH examples such as DOT using SLR in bridge design, the Exeter wastewater treatment plant upgrade which took SLR into consideration, and the Dover waterfront design area. Melissa Paly also pointed to oyster aquaculture and oyster restoration as positive efforts.
- Sherry Godlewski said that at the Lamprey River Science Symposium, most of the presentations addressed changes in their science and monitoring because of climate change, and that seacoast NH communities are advancing ahead in this realm; however, more inland communities need more capacity.
- Brian Gennaco said that as a business owner, he is the metaphorical canary because all these impacts affect aquaculture. He mentioned that he’s constantly conveying this to the public.

4. Planning for next meeting

The next meeting is scheduled for Monday, February 25th. DES Room A is not available. Following that, March 18th, 2018 was identified as a potential next meeting date.

Most Commission members were interested in diving deeper on plastics in the ocean. Sen. Watters suggested someone from the Surfrider Foundation (possibly Melissa Gates who is the NH representative) or the Ocean Foundation. Commission members highlighted potentially research studies that are getting attention such as the ability of mussels to degrade microplastics, effects of plastics on finfish endocrinology, death of larval fish and sea birds upon consumption of plastics (even before it gets into the food chain). Jennifer Seavey from Shoals Marine Lab was suggested as a potential speaker who has done some research on plastics and seabirds. It was also noted that President Trump signed a bill in October 2018 to extend the Marine Debris Program for another 5 years as part of the Save our Seas initiative.

5. Public Comment

None

Meeting Adjourned 11:00AM