

**City of Boston Conservation Commission
Local Wetlands Ordinance
Listening Session #2**

Sea Level Rise: How Can We Protect Boston's Resources?

June 5, 2013
Boston City Hall, Hearing Room 801
Boston, Massachusetts, 02201

Presenter: Stephanie Krueel

Ms. Krueel discussed the makeup and purpose of the steering committee. She then gave a presentation covering the following topics:

- The purpose and process for creating a Local Wetlands Ordinance;
- Estimates of predicted global sea level rise from different models;
- Local sea level rise predictions for Boston (about 3 feet by around 2050) and expected impacts including:
 - Daily tidal inundation
 - Storm flooding
 - Erosion
 - Landward migration of wetland resource areas
 - Permanent loss of land
- The importance of planning ahead, even in the face of uncertainty;
- Protecting resources by delineating future Land Subject to Coastal Storm Flowage instead of relying solely on maps of past storms;
- Creating performance standards for LSCSF so projects can demonstrate how they will function in an environment with higher sea levels without damaging resources; and
- Next steps in the Ordinance process.

Ms. Krueel invited the audience to ask questions or express concerns, or offer suggestions on how to protect our resources.

John Sullivan asked who maintains measurements of local subsidence. Ms. Krueel responded that the subsidence rate in her presentation (1.5 mm/yr) was taken from a paper published by Dr. Paul Kirshen. It is unknown if this rate will change. Local subsidence is in part caused by isostatic adjustment of the land level from the last deglaciation. She is not sure who tracks these rates, and she will look into it.

A resident asked about the studies included in slide #5 (How do we know what to plan for?). Vivien Li noted that the different assumptions included in the study reflected the possibility that humans will be successful with some mitigation activities. TBHA uses the less conservative SLR number of 2.5 ft by mid-century. Mr. X stated that the chart didn't mean much to him since he didn't know the assumptions included in each study.

Toni Pollak asked how SLR might affect groundwater levels. Mr. Sullivan responded that it would probably cause them to rise. He noted that a big problem for Boston is that water utilities were designed based on the sea level in 1929, as well as historical precipitation rates. Today it rains harder and the sea is getting higher. Sewers have to discharge into higher sea water, and the higher the sea water, the longer the storm water has to wait until it can discharge, which causes inland flooding. This poses major infrastructure challenges. The easy answer is to pump the water out, but it's not realistic to pump for every storm event. There are many studies trying to figure out how to mitigate. Ms. Krueel added that this is a situation that we will monitor and respond to accordingly, but we need to start now.

Ms. Pollak asked if other wetland ordinances that have been reviewed have the authority to regulate the utilities. Ms. Krueel responded that the MACC model ordinance contains an exemption for utilities. Boston could choose to not include the exemption.

Ms. Krueel asked the audience to describe how they felt about the situation. Responses included “fear and trepidation.” Mr. Sullivan pointed out that this is an issue that younger people should really be concerned about. All of the City’s infrastructure is at risk. For example, when cold water hits the steam system, it blows up; the electrical system is covered by manholes with holes in them- they will fill up with salt water & corrode. Ms. Krueel pointed out that the acidity levels in the ocean are rising as well, which may affect the lifespan of marine infrastructure.

A resident asked to return to slide #5 to address why the projections are so different from one another. Ms. Krueel explained that they were published in different years and used different data and assumptions to formulate the projections. This is not the case of using one set of data and getting different outcomes. The study by NOAA (Dec 2012) is the most recent study published. Ms. Krueel speculated that as scientists are able to model more and more inputs, sea level rates will more likely be predicted to increase, not decrease.

Ms. Pollak added that the latest information about melting ice caps indicates that the rate of melting is much more severe than previously thought.

Karen Wynne asked what percentage of the City is (and would be) within Land Subject to Coastal Storm Flowage. Ms. Krueel will get those numbers.

Ms. Pollak brought up the possibility of the Charles River dam overtopping, and that the Muddy River would back up in such an event, and the entire area, including the hospitals and institutions, could be inundated.

Ms. Krueel explained that even the current FEMA maps underestimate the amount of land within the floodplain since the topographic elevations are so inaccurate. FEMA will be coming out with new draft maps for Boston possible this month.

Vivien Li asked Jim Stolecki of Massport to share with the group Massport’s Climate Adaptation Plan. Mr. Stolecki isn’t directly involved in this effort, but knows that a vulnerability study is currently underway. He will make sure that Ms. Krueel receives the report.

Mr. Sullivan noted that many organizations are studying SLR and are working together through the state EEA to use common data, assumptions, models & benchmarks. In the end, there’s not a scientific answer. We will have to make a reasonable judgment of how much risk we can bear based on what we know today. The systems are all interconnected, and all the agencies feel a sense of urgency.

Ms. Li asked about the time table for the Ordinance. Ms. Krueel hopes that the Commission will submit the Recommended Guiding Principles to the Mayor by the end of July, with the Mayor directing staff soon after that to draft the Ordinance (which will be done quickly). Then he will submit it to City Council. Carl Spector added that it will immediately be referred to the Environment Committee, and the full Council will act on it within 60 days. They could pass it, reject it, or reject it without prejudice, in which case it can be resubmitted right away. Staff will ensure that City Councilors will be aware of the Listening Sessions and the Ordinance prior to its submittal.

Mr. Sullivan confirmed with Ms. Krueel that the Local Wetland Ordinance does not depend on any additional scientific data regarding sea level rise, and that it will go forward with what we know now. Mr. Spector added that the LWO itself will not specify a number for sea level rise, but will give the Conservation Commission the authority to incorporate sea level rise into its deliberations and regulations.

Ms. Li asked if any existing LWOs take sea level rise into account. Ms. Krueel is not aware of any that include a regulatory map, but some do look at the impacts of climate change.

A resident asked if storm surge would be factored into the risk and vulnerability analyses related to sea level rise. Ms. Krueel explained that we are looking at the impact of sea level rise on our resource areas, particularly land subject to coastal storm flowage, which is in fact the area affected by storm surge and wave action.

Mr. Lewis noted that the Downtown has experienced storm surges of 4 feet (on top of the regular tides), which floats cars and dumpsters and inflicts the most damage.

An audience member asked if DCR is involved in any climate related working groups. They are in fact part of the state EEA's Climate Change Scenarios Work Group. They have not been working on their own sea level rise plan, but they do have in-house staff who are working on climate-related issues.

The meeting adjourned at 7:55PM

Respectfully submitted,

Stephanie Krueel

Executive Secretary