Assessment of Public Comments

6 NYCRR Part 490, Projected Sea Level Rise

Comments Received from February 21, 2023, through April 29, 2024.

General Support

Comment 1: DEC should adopt the proposed projections, including the rapid ice melt projections. (Scata)

Response to Comment 1: Comment noted.

Additional Requirements and Regulations Needed

Comment 2: DEC should issue updated flood risk guidance and ensure alignment with the Federal Flood Risk Management Standard (FFRMS). (Scata)

Response to Comment 2: Comment is beyond the scope of the current rulemaking, which is to update state sea level rise projections. DEC will consider a review of the State Flood Risk Management Guidance (SFRMG) for alignment with the FFRMS and other subsequently published standards. The hypothetical example of a critical infrastructure project provided by the commenter is incorrect in assuming DEC would apply the medium sea level rise (SLR) projection in its permitting of the hypothetical project. The SFRMG states that the high SLR

projection should generally be applied to critical infrastructure. Moreover, the SFRMG recommends three feet of freeboard, which is not included in the climate-informed science approach of the FFRMS. Thus, application of the guidelines in the SFRMG would result in a greater level of flood protection than would application of the FFRMS.

Comment 3: DEC should require all plans and permit applications to demonstrate public trust lands will not be impinged over the project's design life and provide guidance on consideration of SLR in approvals of stabilization structures, including loss of public-trust values associated with restriction of landward movement of high-water lines. (Scata)

Response to Comment 3: Comment noted, although the suggested requirement is beyond the scope of the current rulemaking, which is to update state SLR projections.

Basis of Projections

Comment 4: The process of blending model outputs from different shared socioeconomic pathways is not documented. (Caiazza)

Response to Comment 4: As described in the revised regulatory impact statement, the proposed projection updates are based on projections developed as part of the New York State Climate Impacts Assessment (CIA). The blending of model outputs used in the assessment is described in

the CIA methodology report.[1] The Climate Impacts Assessment Physical Climate Modeling Project Advisory Committee and other peer reviewers reviewed the projection methodology.

Comment 5: The SLR projections consistent with SSP2-4.5 should be used because these projections are associated with the most likely conservative estimates of potential emissions and the numbers are consistent with observed SLR. (Caiazza)

Response to Comment 5: As described in the revised RIS, DEC considered adopting projections based solely on SSP2-4.5. As also described in the RIS, SSP2-4.5 is consistent with the nationally determined contributions (NDC) to greenhouse gas emission reductions, as included in the Paris Agreement. However, the IPCC first global stocktake describes a significant gap between the Paris NDCs and actual GHG emission reductions.[2] Thus, emissions and associated warming have the potential to be greater than those projected by models based on SSP2-4.5.

Comment 6: SSP5-8.5 is not plausible and model outputs based on this SSP, including the rapid ice melt scenario, should not be included in the projections. (Caiazza, Droz)

Response to Comment 6: DEC has described its rationale for including SSP5-8.5 model outputs in its projections, including the rapid ice melt scenario, in the RIS. To summarize here, the emission-reduction gap noted above, uncertainties in the causal chain to sea level heights,

[1] Bader, D., R. Horton. 2023. New York State Climate Change Projections Methodology Report. Prepared for the New York State Climate Impacts Assessment.
[2] IPCC. 2023. First Global Stocktake: High-Level Event on Mitigation. https://unfccc.int/topics/global-stocktake. Accessed July 18, 2024.

including ice cliff and ice shelf stability, and reports of accelerating Antarctic and Greenland ice loss reduce confidence that SLR will be limited to the levels projected by SSP2-4.5 models.

The CIA Methodology Report (p. 21) provides additional rationale for including projections based on SSP5-8.5:

- Continuity with previous New York State projections, which were based on representative concentration pathways with the same end-of-century radiative forcing.
- Stakeholder interest in these projections, based on CIA Needs Assessment.[3]
- Value of identifying a broad range of plausible outcomes.
- Current climate impact models' underestimation of plausible outcomes when driven by only moderate GHG forcing.

DEC maintains that inclusion of high, albeit unlikely, projections to enable consideration of the consequences of low-probability but high-consequence events to be the more prudent alternative to limiting projections to those based on SSP2-4.5.

Comment 7: Although Part 490 may not directly create a mandate on local governments, many permits must consider the SLR climate hazard, which is a clear mandate affecting all governmental agencies. (Caiazza)

Response to Comment 7: Commenter is correct that the Community Risk and Resiliency Act (CRRA) requires that applicants for all permits regulated pursuant to the Uniform Procedures

[3] Bader and Horton, 2023.

Act (UPA) demonstrate consideration of climate change, including SLR. However, local governments are not required to incorporate the State's climate change projections, including projected SLR, into local decision making. Local governments may be required to incorporate projected SLR into siting and design for projects for which a UPA permit is required. However, the manner in which projected SLR must be incorporated is described in program-specific regulations, policies, guidance and permit conditions.

Comment 8: The Part 490 proposed amendments do not consider that there already is a safety factor available to address worst-case concerns. Adjusting the freeboard would be a better alternative than to use the low-probability, high-impact storyline approach. (Caiazza)

Response to Comment 8: The SFRMG distinguishes between freeboard and adjustments to design flood elevation to account for climate change, e.g., SLR. In part, DEC's selected approach reflects that some standards have different freeboard requirements, so simply increasing the freeboard could lead to confusion. Moreover, the purpose of freeboard is to account for uncertainties, such as wave action, structural openings, and the effects of urbanization, that can result in flood levels higher than calculated for a selected flood size and floodway conditions. Freeboard is not intended to compensate for higher floods expected under future climatic conditions.

Comment 9: The proposed amendments would require that all projects along the tidal shoreline must protect against 114 inches of SLR. (Caiazza)

Response to Comment 9: Comment is not accurate. SLR of 114 inches is the proposed end-of-century projection under the rapid ice melt scenario. However, as stated in the RIS, DEC does not intend to require consideration of the rapid ice melt scenario in its permitting. The SFRMG recommends consideration of the medium SLR projection (36 inches by 2100) over the expected service life of the project for non-critical projects and recommends use of the high projection (65 inches by 2100) over the expected service life of the project only for critical projects. Lower projections would be applicable according to the expected service life of the project.

Comment 10: The RIS should include an accounting of costs associated with the different SLR projections. (Caiazza)

Response to Comment 10: No reasonable accounting of costs associated with these projections can be provided due to uncertainty regarding the number and types of projects that might be affected. Although municipalities could incorporate the proposed projections into local planning and zoning, CRRA does not require them to do so. Thus, most residential projects would not be directly affected by these projections. Rather, these projections are most applicable to projects under the Department's regulatory purview, which are more likely to be unique in their siting and design considerations and warrant consideration of costs and benefits on a case-by-case basis. Further, as discussed in the revised RIS, the differences between the scenario recommended by the commenter as the basis of projections and the approach selected by the Department are relatively small and represent a reasonable additional element of safety to account for uncertainty and the gap between GHG emission reduction commitments and implementation for the projections that are most likely to be used in regulatory contexts.

Comment 11: The RIS is flawed because it does not weigh data against benefits and consequences for the intended application, i.e., developments with near-term life expectancies. All the other steps for appropriately addressing risk are hindered by not considering the applicability of the time frame. Ultimately the precautionary principle is applied without any other considerations. (Caiazza, Droz)

Response to Comment 11: The comment is incorrect in that it implies that projections of SLR far into the future, beyond the life expectancy of the project, must be incorporated into siting and design of the project. In fact, every one of the flood risk management guidelines for tidal areas included in the SFRMG includes consideration of the "sea-level rise projection over the expected service life of the structure."

Comment 12: The risk-averse approach to flood elevations in structure siting and design will introduce concerns about costs and feasibility. (Caiazza)

Response to Comment 12: This comment appears to relate to use of SSP5-8.5 models to develop the proposed projections. DEC has described its rationale for including SSP5-8.5 model outputs in its projections in the RIS and its responses to comment 6.

Comment 13: Rainfall flooding is not considered in the SLR projections. (Caiazza)

Response to Comment 13: As described in the RIS, the proposed SLR projections are not intended to communicate flood risk by themselves. They may, however, be incorporated into other products intended to project or communicate coastal flood risk.

Alternative Approach Suggested

Comment 14: Given the acknowledged uncertainties with SLR projections and the over-predictions of global warming with current global climate models, the pledge-and-review approach should be used to determine if accelerated SLR consistent with the "high-end storyline" projections are observed. Until then, the SLR projections consistent with SSP2-4.5 should be used because these SLR projections are associated with the most likely conservative estimates of potential emissions and the numbers are consistent with observed SLR. (Caiazza, Droz)

Response to Comment 14: DEC has described its rationale for including SSP5-8.5 model outputs in its projections in the revised RIS and in response to similar comments within this document. The pledge-and-review approach has been used as a negotiating structure for reductions in GHG emissions, e.g., the Paris Agreement, in which parties specify emissions reductions for an upcoming five-year period. Such pledges are reviewed and updated every five years according to observed global warming. The commenter has described an approach in which projections of SLR would be based on observed rise at specified tide gauges, combined with some consideration of "future climate risk." The commenter rejects arguments that this approach would ignore the risk of SLR acceleration by stating that "there has been no acceleration since

the (2017) projections were made." However, the commenter elsewhere cites the CIA[4] finding that the rate of rise at the Battery has accelerated approximately 0.17 inches per year over the past 40 years, compared with the long-term rate of rise of 0.12 inches per year from 1901 to 2020. The commenter goes on to compare the proposed projections with projections based on extrapolation of observed trends in SLR since 1850 and since 1984. The Department acknowledges that recent observed SLR has been lower than the 2017 medium projection. However, the Department concludes that the probability that SLR will accelerate beyond the acceleration observed since 1984 is sufficient to include projections that assume rapid ice melt. Further, as noted elsewhere, the differences between the end-of-century SSP2-4.5 and blended scenario projections are relatively small, even for the high (90^{th}-percentile) projection (46 vs. 65 inches, respectively), approximately 4 inches for the medium (50^{th}-percentile) projection, and three inches for the low (10^{th}-percentile) projections, which are dominated by models that simply extrapolate observed rise.

Comments out of Scope

Comment 15: Work to provide nesting structures for raptors is appreciated. (Heidorf)

Response to Comment 15: Comment is beyond the scope of the current rulemaking, which is to update state SLR projections.

[4] Stevens, A., & Lamie, C., Eds. (2024). New York State Climate Impacts Assessment: Understanding and preparing for our changing climate. https://nysclimateimpacts.org

List of Commenters

Name	Organization
Roger Caiazza	None
John Droz	None
Rachel Heidorf	None
Joel Scata	Natural Resources Defense Council