Interactive comment on “The Effects of Changing Climate on Estuarine Water Levels: A United States Pacific Northwest Case Study” by Kai Parker et al.

Anonymous Referee #1

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The authors have proposed a modeling framework to quantify the extreme estuarine water levels (WL) under climate change. Their framework, taking oceanic, atmospheric and hydrologic processes into account estimates extreme water levels in two estuaries of US Pacific Northwest. The idea of integrated modeling that couples processes across scales to estimate extreme estuarine water levels is interesting, and I believe this idea deserves publishing in NHESS, however after a major revision. There are a few issues with this version that I explain below:

Major: - First one, which the authors themselves have briefly mentioned, the climate and sea level rise projections used here are relatively old-dated! Publishing research
based on 4th IPCC assessment report, while IPCC 5th has been around for years and IPCC 6th is coming out soon, needs a valid justification. To me, saying "was the only climate product, at the start of this project" is not enough. I expect a good justification that the current results are still useful for the audience.


- Page 4, L9-10: the hindcast and forecast periods are not the same length. This makes them incomparable, right?

Minor: Page 1, L 31-32: There are some studies to be cited here, i.e. Jay et al., 2016, Tidal-Fluvial and Estuarine Processes in the Lower Columbia River: II. Water Level Models, Floodplain Wetland Inundation, and System Zones, Estuaries and Coasts, Volume 39, Issue 5, pp 1299–1324; and the references therein.


Page 6, L4: Please provide more details about the quantile mapping technique used here.

Best of luck,

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-C2