

City Classroom CAP - Series

PBL support for using your City Climate Action Plan as a Living Textbook for local relevance, student agency, and community impact.



Credit: Kevin Lisota

Islands of Seattle - Analyzing Sea Level Rise

Students interact with a science-based yet fictitious map of what Seattle would look like if global temperatures keep increasing, the ice caps melt, and sea levels around the world rise to the max.

1. [Islands of Seattle Map](#): A playful but data-driven, imaginary map by Jeffery Linn, a UW Planner, on what Seattle would look like if the ice caps completely melted and sea level rose 240 feet. Learn more [about Jeffery Linn](#). See the [“Evolution of a Map”](#) with commentary by Jeffery.



2. A few Inquiries when viewing the Islands of Seattle Map
 - a. Where do you live on this fictional map based on sea level rise in Seattle?
 - b. What does this map mean? How might it happen? Is it happening? At what rate?
 - c. What causes sea level rise? Can we slow it down through our own individual actions? Who's working on this and how can we get involved?
 - d. What do you think the map-maker intended?
 - e. The map is a “projected scenario” based on real data. Where does this data come from?
3. Use the map layers at [MyWater.World](#) to find the same scale used in the Islands of Seattle Map.

- a. Open up the “Map Layer” side menu.
 - b. Go to the basemap “Satellite View” and zoom in or out to establish the exact same scale as the Islands of Seattle Map.
 - c. What do you notice when you click on a few other map layers like those listed below? Selected maps could also be provided as print sets laminated on cardstock so that students can physically handle them, mixing and matching via small group interaction.
 - i. Satellite
 - ii. Topography
 - iii. Hillshade
 - iv. Contour Lines
 - v. 1936 Aerial Imagery
 - vi. Demographic Data (weave in equity data for different neighborhoods)
 - d. Now zoom in on your school neighborhood. Are you underwater or on one of the [Islands of Seattle](#)? If you live outside of this map’s range how do you think Sea Level rise will impact you?
 - e. Check out the “Swipe” feature where you can pull up the Map Layer Menu on both sides of your screen, select two different maps, and then swipe back and forth to see the contrasting landscape stories.
4. **Reading Text:** (short half page) [SUMMARY TEXT - Sea Level Rise in Puget Sound](#) from the full report: [State of Knowledge - Climate Change in Puget Sound](#), pages 71-84.
5. **The King County Sea Level Rise Risk Area [FACT SHEET](#).** Excellent overview with links to NASA and NOAA basic science explanations of thermal expansion, ice melt, plate tectonics, and global sea level data.
6. **South Park Community:** What is the experience of sea level rise for Seattle families who live in South Park where students go to school at Chief Sealth High School?
- a. See [SLIDES of Key Concepts](#) (graphs, map, diagram) from [19 Page Report](#): City of Seattle Office of Planning and Community Development.
 - b. How is the [Duwamish River Community Coalition](#), a nonprofit organization based in South Park, taking the lead on building community resilience? See the DRCC webpages on: [Climate Justice](#) and also: [Flooding - Community Response](#).
7. **UW Climate Impacts Group:** [Interactive Data Visualization Tool](#). Data projections with interactive variables are provided for 171 locations along Washington’s coastline.

- a. Visualization #1: [Projected sea level change by year](#)
 - b. [Abby's Tutorial Video \[3:00\] \(coming soon\)](#)
8. **World Comparison Stories:** What do predictions of sea level mean for people in other places? [Get the SLIDES](#) featuring the maps and videos below.
- a. **New York City:** [Map](#) | [Video](#) | [Reading includes graph and maps](#)
 - b. **Pacific Island Nations:** [Map](#) | [Video](#) | [Reading](#)
 - c. **Bangladesh:** [Map](#) | [Video](#) | [Reading](#)

BONUS and BACKGROUND

1. South Park Community Case Study
 - a. See Full Report: [South Park Sea Level Rise Adaptation Vision Summary:](#)
 - b. LESSON - [How Sustainable Is My Neighborhood - South Park Case Study](#)
2. Vulnerability of King County Wastewater Facilities to Flooding from Sea-Level Rise: [CASE STUDY](#). Excerpt...

“The 2008 assessment determined that none of King County’s wastewater treatment facilities will be damaged if regional sea level rise is less than 0.8 feet. However, if sea level and storm surge exceed 3.87 feet relative to the current mean high / higher water, some wastewater facilities could become vulnerable to flooding. If sea level increases by seven feet or more, over 14 King County wastewater treatment facilities could flood. Based upon the sea level rise projections used in the 2008 assessment, the probability of imminent damage to King County’s wastewater treatment facilities was determined to be low. However, more recent studies in 2011 and 2012 indicate that saltwater intrusion is already posing problems for the Wastewater Treatment Division, corroding equipment and pipe linings, and using system capacity needed during critical overflow periods.”