GRAYS HARBOR COUNTY COASTAL FUTURES PROJECT: RECAP, RESULTS, AND NEXT STEPS MEETING

SCENARIO NARRATIVES

POLICY SCENARIO NARRATIVES

Scenario 1: *Baseline (BL)*

Continuation **of present day policies. Adaptive measures are responsive rather than proactive, and provide a baseline to compare with other scenarios.**

Scenario 2: *Realign (RA)*

Policies or decisions are implemented that involve *changing* human activities to suit the changing environment (e.g. relocation of infrastructure and/or people).

Scenario 3: *Restore (RS)*

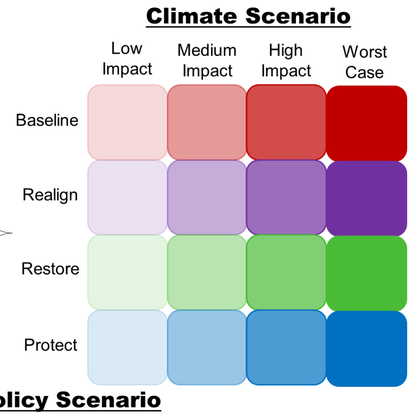
Policies or decisions are implemented that *accommodate* environmental change and prioritize habitat protection and conservation (e.g. restore dunes or nourish beaches).

Scenario 4: *Protect (PR)*

Policies or decisions are implemented that involve *resisting* environmental change in order to protect existing infrastructure and human activities (e.g. building or strengthening shoreline armour).

Individual Policies

Policy	BL	RA	RS	PR
BPS Constr.				
BPS Mainten.				
BPS Nourish.				
DRP Constr.				
DRP Mainten.				
DRP Nourish.				
Hazard zone development restrictions				
Remove Buildings From Hazard Zone				
Remove Critical Infrastructure from Hazard Zones				
Raise or Move structure to a new location in the same tax lot				
Raise Critical Infrastructure				



CLIMATE IMPACT SCENARIO NARRATIVES

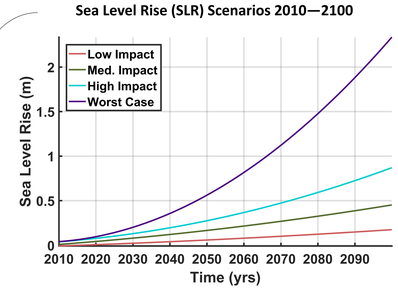


Figure 1: Regional sea level rise estimates for the Pacific Northwest developed by University of Washington's Climate Impact Group[1]. Estimates were developed probabilistically with inclusion of local vertical land motions.

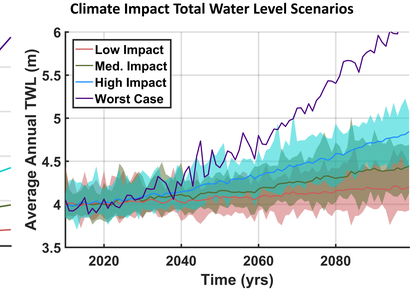


Figure 2: Example total water level climate impact scenarios where the dark line represents the SLR projection and the shading represents climate variability.

Climate Variability:

All climate impact scenarios have the ability to randomize future climate variability by allowing changes in storminess (e.g., increasing or decreasing average and extreme wave heights) and/or allowing the frequency of major El Niño events to increase or decrease.

Low Impact Scenario **Uses a low-end projection of SLR: Extremely likely to exceed (95%)**	***Medium Impact Scenario*** **Uses a mid-range projection of SLR: More likely than not to exceed (50%)**
High Impact Scenario **Uses a high-end projection of SLR: Extremely unlikely to exceed (5%)**	***Worst Case Scenario*** **Uses a "Worst Case" Scenario: Project upper limit (0.1%)**

USEFUL TERMS

Scenario Narratives - Scenarios do not predict future changes, but describe future potential conditions in a manner that supports decision-making under conditions of uncertainty. Scenarios are used to develop and test decisions under a range of plausible futures.

Backshore Protection Structure (BPS) - A structure, such as a rock revetment, built to control erosion by armoring the dune face. These structures dissipate wave energy and prevent further recession of the backshore.

Dune Restoration Project (DRP) - A constructed dune that is built to be a natural barrier to the destructive forces of waves and high water levels, and to help control erosion and damage to inland structures. DRPs are examples of natural or nature-based (green) infrastructure.

Maintenance (DRP or BPS) - Rebuilds structures that are currently insufficient to perform their intended function (e.g. overtopping). Of note, Envision currently does not model degradation of structures over time.

Nourishment - Sand placed on the beach profile to counteract the effect of shoreline erosion and maintain beach accessibility. In Envision sand is only placed in front of structures (BPS or DRP).

Erosion - A general term applied to the wearing away and movement of earth materials, in this case sand and sediment, by gravity, wind, water, and ice.

Flooding - An overflow of water onto lands that are normally above sea level. Flooding can be produced by storm surge, sea level rise, and the effects of climatological phenomena such as the El Niño Southern Oscillation (ENSO).

Sea Level Rise (SLR) - Increases in the height of mean sea surface elevation. In this application, SLR will take regional factors (e.g., vertical land motions, ocean dynamics, cryosphere, and fingerprinting effects) affecting sea level in Washington into account.

Total Water Level (TWL) - The combination of the water level (tides and non-tidal residuals) with waves. In Washington, the wave-induced component can account for as much as 60% of the elevation of the total water level (Serafin and Ruggiero 2014)[2].

REFERENCES

1) Miller, I.M., Mauger, G., Morgan, H. and Grossman, E. 2018. Projected Absolute Sea Level for Washington State - A 2018 Assessment. Published by the Washington Coastal Resilience Project.
2) Serafin, K.A. and Ruggiero, P. 2014. Simulating extreme total water levels using a time-dependent, extreme value approach. *Journal of Geophysical Research: Oceans,* Volume 119 (9), pp. 6305-6329.