Conserving tidal wetlands for the future

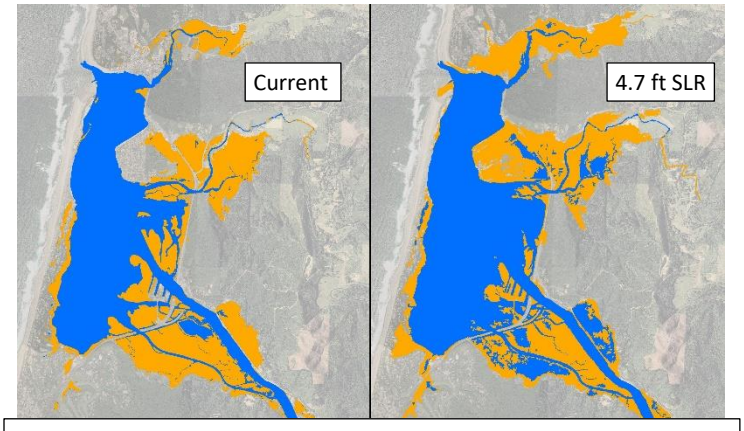
Modeling effects of sea level rise in Oregon's estuaries; suggesting priorities for habitat conservation and restoration

King Tide photos courtesy of The Wetlands Conservancy and LightHawk

Salmon and many other fish and wildlife species depend on tidal wetlands for their survival.

As sea level rises, our tidal wetlands will become inundated or submerged more frequently, as indicated by images taken during the highest tides of the year (king tides). With vegetation unable to withstand more inundation, tideflats will be submerged, low marshes may become tide flats, and high marshes and tidal swamps may become low marshes. Are there nearby uplands that could become our future tidal wetlands? Where are these "landward migration zones" (LMZs) located, and how can we help keep them available to provide the tidal wetland functions we value in the future?

Model uses sea level rise (SLR) scenarios of 9 inches, 19 inches (1.6') and 56 inches (4.6') predicted for Newport, Oregon by the National Academy of Sciences by year 2030, 2050 and 2100.



Draft. Siletz Bay Estuary:
Blue shows open water/mud flats, orange shows tidal wetlands.
Left side: current conditions. Right side: 4.7 ft sea level rise.

LMZs will be prioritized using 5 criteria:

* Future tidal wetland area
* Zoning
* Land ownership (public lands ranked higher)
* Development status (# structures)
* Connectivity to future LMZs (> 4.6' SLR)

All areas within future tide range are mapped regardless of whether they are currently diked or tidegated, since connectivity can change. Model does not account for sediment accretion rates which vary and can offset SLR. Even if accretion offsets SLR, identified LMZs will provide valuable buffers and protect important wetland-to-upland habitat gradients.

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