

**Coastal/Infrastructure PAWG**  
**Initial list of key vulnerability/adaptation issues**

**1. Data - Supporting planning and tracking SLR changes on our coasts:**

- a. **Monitoring systems:** A common problem that should be mentioned by all of the groups is the lack of data and the problems with observing systems globally and in Washington. Monitoring systems for snow, streamflow, water quality in Puget Sound, etc. are suffering from budget cutbacks. There is also insufficient spatial coverage for some of these systems.
- b. **Elevation data control points:** Mapping to accurately examine potential impacts of 1 -2 foot SLR is critical. Need **visual images** showing what sea level rise may mean. We have LIDAR mapping but accuracy is dependent on elevation control points that are not fully adequate to coastal SLR planning needs. NOAA has Height Modernization program that is inadequately funded. Could be a PAWG recommendation.
- c. **Support to agencies and local governments:** Small port districts and other local governments will face a major challenge trying to make sense of the SLR scenarios on their own. Is there a role for the state to set a benchmark (e.g., sea level rise estimates with subsidence, tidal factors, etc.) for planning? For example, when WSDOT designs a bridge they incorporate information from a state-wide contour map showing anticipated tectonic movement. Should there be something similar for SLR risk?

**2. Shoreline hardening issues:** Bulkheading and armoring have direct implications for resilience of both natural and built systems. There needs to be a hierarchy...armoring will need to happen to protect vital infrastructure and communities. But we need to continue the effort to avoid new armoring wherever possible, to protect habitat and protect the ability of the beach to adapt to change in sea level (beach-forming materials.) Issues include:

- a. Concerns about sea level rise (SLR) may trigger desire for greater armoring of shoreline (whether needed or out of fear).
- b. We need to avoid non-essential armoring to protect sensitive shoreline habitat and protect source material for beaches – balanced with property rights. This is a major issue regarding residential development along shorelines.
- c. To protect vital infrastructure and communities, we will need to accommodate additional armoring and diking in some locations. We need to examine land use policies and permitting processes, which currently hold public facilities with broad benefit to a more rigorous permit review than single-family shoreline alterations (ex. State Parks dock proposal

required to get Shoreline Conditional Use Permit, while an individual dock may be exempt from Shoreline permits.)

- d. There may be opportunities for reclamation of certain armored shorelines. Ideally, watershed plans or other pre-planning will guide off-site mitigation to the most important restoration/reclamation projects.
- e. Agricultural diking is a huge factor as well in habitat. A problem the NWF ran into is that there are no consistent records across the counties on where dikes are.
- f. Response/role of railroad fills along the Sound is very important. Need to work with railroads on potential opportunities for protection/habitat restoration efforts. (Ex. Bellingham.)

**3. Community/infrastructure vulnerability.** Need to examine SLR scenarios to identify at-risk infrastructure and communities. Example of Olympia examining stormwater backup impacts from 1 foot SLR. Need to examine vulnerability from context of extreme **storm intensity**. For example, the December '06 storm event raised the tide in Olympia by 3 feet over predicted levels.

**4. Potential land use planning tools** to address coastal adaptation include:

- a. **Shoreline Master Programs:** All SMPs are being updated through state-funded comprehensive updates. SMP law intends that the act be implemented at the local level but what are the state minimums that they are looking for in regard to SLR and related topics? ECY does not have a clear statement on sea level rise to include in these minimum requirements.
- b. **SEPA:** CA just passed legislation requiring SLR information be included in their environmental review process. This has potential in WA as well.
- c. **Flood hazard maps** have been “modernized” through digitizing but do not have improved elevation information. FEMA relies on *past* experience. Can they shift to include future projections such as SLR?
- d. **Coastal zone hazard** maps are driven by landslide risks. This is a very limited view.
- e. Could consider “**rolling easements**” like Titus (Maryland Law Review) proposed. (Bellingham looked into rolling easements but could not find any current examples.)
- f. **Legislative support:** There should be some proactive emphasis on planning our coasts wisely at the state legislature. For example, the Shoreline Management Act treats bulkheads as “customary” rather than a shoreline modification that should be avoided or minimized to maximum extent. See Maryland as an example of comprehensive SLR response.